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Global Architects Meet the Place –  
Bridging the Gap through Information and Communication Technology

By

Yael Valerie Perez

A dissertation submitted in partial satisfaction of the  
requirements for the degree of  
Doctor of Philosophy  
in  
Architecture  
in the  
Graduate Division  
of the  
University of California, Berkeley

Committee in charge:

Professor Yehuda E. Kalay, Co-chair

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Professor AnnaLee Saxenian

Spring 2013

Global Architects Meet the Place –  
Bridging the Gap through Information and Communication Technology

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## ABSTRACT

Global Architects Meet the Place –  
Bridging the Gap through Information and Communication Technology

by

Yael Valerie Perez

Doctor of Philosophy in Architecture

University of California, Berkeley

Professor Yehuda Kalay, Co-Chair

Professor Alice M. Agogino, Co-Chair

In this study, I examine the ability of Information and Communication Technologies (ICTs) to narrow the gap between architects, aspiring to meet the place, and local users that are part of the place. The overarching goal is to identify tools necessary for successful place-driven design, particularly in the extreme design conditions in marginalized places. International architects are often invited to design in difficult to access, marginalized places through aid-organizations or through international developers invested in these places. This scenario propagates the gap between the architect's conceptions of place and the local users' conceptions of place. The design literature provides a range of recommendations for comprehending place. Yet, as expressed by several of the architects interviewed, these commonly used design methods appear to be ineffective in marginalized places, too often leading to designs that are inappropriate. Addressing the gap with marginalized places is especially valuable given their limited resources and the impact that design projects have on human development, which I refer to as 'design freedom'.

In search for tools to comprehend place I take on Canter's 1977 definition of place as the overlap between physical attributes, activities, and conceptions. Through interviews with architects, designing in marginalized places, both within the non-profit and for-profit realms, I found that while Internet-based ICTs are currently used for capturing physical attributes of place they are underutilized in communicating the subjective conceptions of place. By compiling the recommended methods in the literature together with those used by architects I interviewed I identify five levels of depth of the experiences available for comprehending place: egocentric, passive, active, interactive, and immersive. My hypothesis is therefore that when designing in marginalized places, a set of technologies that communicates the breadth of place through deep experiences will equip designers with comprehensive information about the place, enabling more place-appropriate design.

Participatory Action Research (PAR) methodologies were used in two case-studies of design with the Pinoleville Pomo Nation (PPN), a Native American nation located near Ukiah, California. The first case study is a reflection on action through which I evaluated both face-to-face and mediated techniques for meeting the PPN. Through this reflection I identify the most-appropriate ICTs, and assembled them to communicate the PPN's place. In the second study I

assess and measure how these technologies are used in an actual design project through ParticiPlace, an international design competition that attracted 17 design teams from around the world, to work on the PPN's Living Culture Center.

Through these studies I found that technologies which communicate all three elements of place – physical-attributes, activities, and conceptions – can bridge the gap between designers and place. More specifically, architects who visited the site produced, on average, the same levels of place-appropriate designs compared to those who were too far to visit it and relied solely on ICTs to experience place. I have identified social networks as a technology that enables immersion in the conceptions of place. Nevertheless, while social networks can immerse users in conceptions, several limitations, including privacy setting still hinder its professional design use in marginalized communities. Moreover, integration of social network with technologies to allow interaction with physical attributes and with activities of place is still required to make these more effective place-driven design tools. I conclude with recommendations for ICT attributes to support place-driven design with a focus on marginalized communities.

Dedicated

to my ancestors, who provided me the foundations, allowing me to be where I am,  
to those around me, who make life exciting as it is, and  
to those succeeding who make it all worth doing.

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On the academic side, I am extremely grateful to my diverse dissertation committee. Each member inspired me intellectually and professionally. Collectively, they exposed me to a rich tapestry of critical thinking in their respective fields of specialization and beyond. My dissertation co-chair, Professor Yehuda Kalay helped me in keeping my focus on my research question, making sure that, within all the excitement, I don't forget my research goals. He kept me on track so I could actually reach those goals. His leadership of the Digital Design Research Group facilitated open discussions, and the feedback from him as well as from my peers in the group, were key in my developing an understanding of the field and were essential for grounding my research. Professor Alice Agogino, my engineering co-chair, has been the academic pillar to the collaboration with the PPN and had a crucial role in bringing lessons from other design disciplines into my perspective as an architect. The support, the care and the attention she has given me and my research project were remarkable, and she has been an invaluable mentor. Professor Nezar AlSayyad has been an inspiration in balancing emotional investment in research with professional, critical, academic eyes. His enthusiasm is captivating, and his teaching and mentoring style helped to direct this enthusiasm into research actions. Furthermore, his support through research assistantships provided me useful insight into a variety of academic achievements. Professor AnnaLee Saxenian, as my Information-School outside reader, exposed me to a variety of research projects on ICT in developing regions, teaching me to look at them critically. The well balanced literature she exposed me to, combining high-level theoretical perspectives with focused and specific case-studies and solutions, was extremely beneficial in my effort to bring together the macro and micro perspectives.

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Center for Developing Economies and the Center for Information Technology Research in the Interest of Society (CITRIS).

I am especially thankful to the people of the Pinoleville Pomo Nation, who admirably gave their trust in a system that precedently hurt them, and collaborated with us – the CARES team – on projects to explore sustainable and place-appropriate design. This research could not have been done without the tribes’ ongoing collaboration, their patience, as well as their openness and directness in sharing thoughts and feelings throughout the process. I deeply appreciate their acceptance of my ignorance in Native American ways and the fact that they opened their culture to me and to my family so warmly and generously. Many of the times I spent with the tribe were special and memorable. They will all stay inscribed within me much after this dissertation is long forgotten. In particular I would like to thank Leona Williams, the PPN’s chairwoman; Angela James, PPN’s vice chair and head of Tribal Historic Preservation Office; David Edmunds, at the time the PPN’s environmental director; Lenora Dawn Brown-Steele, self-governance coordinator, Erica Carson Jr., Nathan Rich, Deborah Smith, Cassandra Steele, and the many other PPN affiliates who participated and contributed, to the process.

Beyond the PPN’s active collaboration, the important and exciting design tasks they chose to bring to the table combined with valuable academic research goals made it easy for CARES and ParticiPlace to attract a variety of professionals and students who volunteered their time and expertise. While each of these groups has online acknowledgments, I would like to mention Arianne Agogino Gieringer here. She supported the project from the very early workshops with the PPN until the last days of editing dissertation drafts.

The trust I received from the PPN, the academia, and everyone around allowed this project to have benefits which go beyond the academic values and which directly touch people and their environment – a mission that is of great significance to me. Beyond those mentioned, there is an additional long list of supporting individuals – the CED and the CITRIS staff, students, volunteers, professionals designers, and architects, and, of course, colleagues, friends and family who all helped and supported this work in a variety of meaningful ways and I am indebted to all (See figure 1).

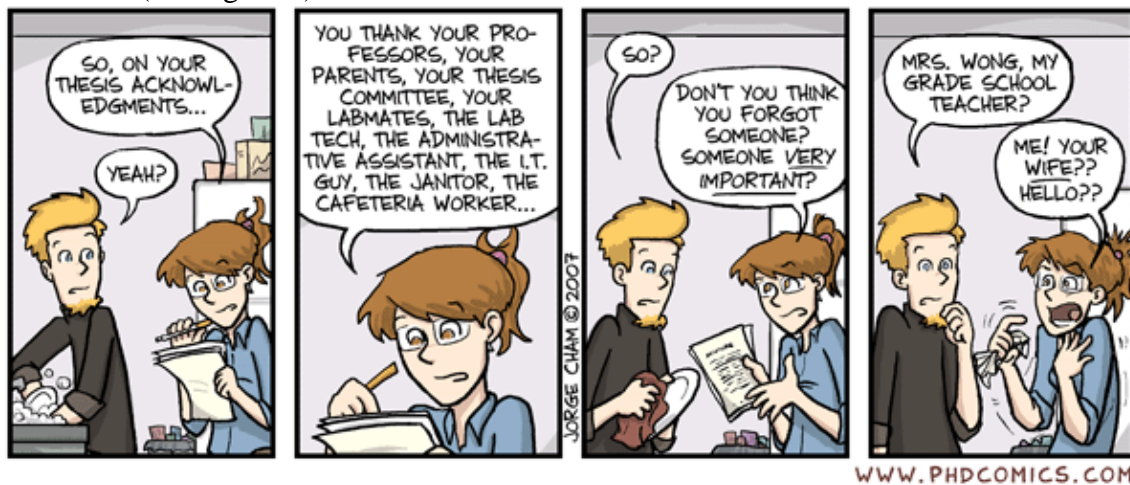


Figure 1: Acknowledgments. “Piled Higher and Deeper” by Jorge Cham  
[www.phdcomics.com](http://www.phdcomics.com). Reprinted with author’s permission.

## PREFACE

Architecture — or, as Norberg-Schulz (2000) calls it, “the art of place” — is by nature a locale-oriented profession. Nevertheless, global trends and styles, whether spreading through slow army regimes or moving at the speed of light, have always influenced architecture. Designers were always exposed to information about the works of others, through an overwhelming number of professional publications and other thought-shaping resources that may be detached from any specific place.

At the same time, being literally grounded to earth, architects always use some local information. The architect’s “kit” of place-related information, and the ways it is communicated to the architect, is the focus of this research. The overarching goal is to allow architects for as many place-related features as possible to result in place-sensitive or place-appropriate design. Place-appropriate design does not ensure the quality of the design but my assumption is that while not all place-appropriate designs are good, all good designs must be “place-appropriate”. Moreover, I am not evaluating the architecture style or *how* the information is being incorporated in the design process, whether it serves as the driving force to the design or only as a technical anchoring solution, whether the solution aims to disharmonize with the place or to merge with it. My focus is on the availability of information about the place, the quality of the information, and the adequacy of the communication technologies, especially in underserved community and particularly in cases where direct, face-to-place interaction is restricted.

### NanoCity Pulls the Trigger

Upon the first year of my arrival to UC Berkeley, I had the opportunity to participate in the Nano-Studio, a design studio class initiated by Sabeer Bhatia, an Indian American entrepreneur, together with Prof. AlSayyad; the goal was to create an urban plan for a new city in India, to be located 20 miles of Chandigarh.<sup>1</sup> During the winter break, right before the class started, we were fortunate to be taken on a week-long trip to India: visiting the site; talking to local villagers on the site as well as local (political) decision-makers; visiting historical and cultural monuments; participating in local ceremonies; and shopping in the small narrow streets of Chandi Chowk in old Delhi and in the aging concrete, modernist malls of Chandigarh. We travelled in a long AC Volvo bus that couldn’t navigate the mountainous roads of Himachal Pradesh, and therefore, in the middle of the dirt road, we were transferred to a Tata-Sumo, a much more appropriate vehicle to the local roads (though less suitable as a moving classroom). All in all, within a week, we received a rich experience of India. I had spent three years in Northern India before coming to Berkeley, and another student, of Indian origin, had lived there most of his life, but for most other student this was the first taste of India, for a few of them it was the first taste of any developing country.

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<sup>1</sup> For more information about the studio – visit: <http://www.ced.berkeley.edu/~nanocity/>; for information about Bhatia’s vision of NanoCity visit: <http://www.nanocity.in/>

When we came back to the studio in Berkeley, overlooking the campanile, it was hard to put the learning experience into practice. Google Maps was of course a first stop for many of us, and we were disappointed to see that the available map is cut down the middle of our site (Figure 2) — half of it in very low resolution, partially covered by clouds, and with a strange white rectangle at the north of the site. But with a client like Sabeer Bhatia and the professors pulling the necessary strings, this was soon fixed; we got a CD with many photos taken from a private plane that Bhatia sent to the site. While the beautiful aerial photos were of great use, they still didn't provide the information embedded in a photogrammetric aerial image that allows measurement of the width of rivers and roads, distance between trees, and other physical properties of the site. Experiencing many different sources of place-related information throughout the studio<sup>2</sup> helped me shape my research towards finding more appropriate technologies for place learning, to better fit the design process.



Figure 2: Google Map of the NanoCity site

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<sup>2</sup> For more about my subjective experience in the studio as well as other students and faculty see: AlSayyad 2007, Christodoulides 2007, Perez 2007, Suczynski 2007):  
<http://www.ced.berkeley.edu/alumni/publications/frameworks/issue6>

# 1. INTRODUCTION

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Out of surf and cloud  
I built me a white city  
Frothy, billowy,  
And lovely.<sup>1</sup>

מקצף גל ועננה  
בניתי עיר לי לבנה  
כמותם קוצפה, כמותם שוטפה  
כמותם יפה

Naomi Shemer נעמי שמר  
A White City עיר לבנה

## 1.1. PROBLEM STATEMENT

Many “global” architects are asked to design in places they are not familiar with, culturally, socially, etc., potentially resulting in buildings that are not appropriate to the place. These conditions are especially prevalent when designing in the extreme design conditions of marginal places; I therefore investigate design scenarios and case-studies situated in these places.

### 1.1.1. Please Mind the Gap

Available technologies, from flight connectivity that can transport a designer to a site within a matter of hours to Information and Communication Technologies (ICT), capable of transferring information from the site to the designer within seconds, represent approaches to learning the place. Places, even in rural areas and in developing nations, have become more accessible as people and information are readily transferred among different corners of the world. But while information about a place may be easier to obtain than ever before, it is often buried in a haystack of distractions. Moreover, if the information transferred is not appropriate for the design process, or if the tool communicating the information is not suitable for a specific region, it may give designers the illusion of understanding the place even while the information gap remains un-bridged. The problem is therefore, how to provide the architects with a complete image of the place. The goal of this dissertation is therefore to identify attributes of Information and Communication Technologies (ICT) that can narrow the gap between architects, aspiring to meet the place, and communities that are part of the place. The overarching goal is to produce place-appropriate design.

As globalization permits architects, planners and engineers to design in places that are geographically and culturally very distant from their home base, the challenge of understanding the place becomes more critical. When an Italian-based architect designs a building in San Francisco, he is likely to share a common professional and cultural knowledge-base, allowing

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<sup>1</sup> Neomi Shemer’s white city refers to Tel-Aviv with its many white Bauhaus and international style buildings. Words transliterated by George Jakobovits of Toronto, Ontario, Canada. Words translated by Danny Kolker of Los Angeles, CA, United States. <http://www.hebrewsongs.com/?song=irlevana>. Thanks to Miki Guingold for pointing out this song as an illustration for my research question, reflecting on Tel-Aviv city while sitting out on the balcony in Dal Lake, northern India, during a short vacation away from Berkeley ...

him to understand the local needs, customs, and culture. But in the case of projects in emerging regions, international architects are likely to have less knowledge of the needs, customs, and culture of the local community. The community, in turn, might be less flexible, less knowledgeable, and ultimately less tolerant of global international architectural practices. The resulting mistakes, including white elephants, can have a strong negative impact on development.

My primary focus will therefore be on information gaps created by geographical distance and lifestyle differences, rather than distinguishing between east and west, developing and developed, agricultural and industrialized, etc. Nevertheless, extreme cultural differences are often related to projects situated in emerging regions — places going through a vast and fast change, influencing a wide spectrum of local characteristics: the economy, the lifestyle, the culture, the built environment, etc. Moreover despite the vast changes in these areas, they are often underserved, lacking local professional services for design and communication. Therefore, my case studies and scenarios will be taken from underserved, emerging regions, which could be situated in developing countries or often represent marginalized communities in developed countries. Technologies capable of addressing big cultural and geographical gaps between architects, providing design services, and underserved communities, are likely applicable to conditions which encompass narrower differences.

## 1.2. RESEARCH QUESTION

How can ICT make architects more familiar with the place of their design? How to give architects a complete image of place that includes Physical Attributes, Activities and Conceptions? The research will evaluate the ability of ICT to be a meeting space between designers and the place where they design to answer the question: Can ICT enhance place-appropriate design for architects who cannot physically visit the place?

## 1.3. UNDERLYING ASSUMPTION

The research relies on Canter's (1979) definition of place as the overlap between physical attributes, activities and conceptions which will be discussed as part of the background. My assumption is that a good understanding of the place is a necessary (but not sufficient) condition for good design process. The research is not meant to point toward a particular type of architectural style (e.g. blend-in with place vs. strike out of place), but rather to enhance the designer's awareness of place-specific characteristics that can then be implemented through any style. Designers with a better understanding of place will not automatically create designs that are better than those less familiar with the place, as the design process depends on many other conditions. Nevertheless, a better understanding of place provides better chances for place-appropriate design and "bridging the gap" means that these chances are equal between those who can visit the place and those who can't. Technologies that are capable of bridging the gap in extreme conditions of geographical and cultural gaps, will apply for narrower gaps.

#### 1.4. MOTIVATIONS – WHY DO WE NEED A BRIDGE?

As part of the Living Culture Center competition, described in the last chapter of this work, I approached Johnpaul Jones<sup>2</sup>, to be part of the jury for the competition. His explained refusal was insightful, as it directly points to my research problem (Jones 2011):

*Hello Yael - Thank you for the offer , but I will not be able to assist as a judge. I have some serious problems with doing an International Design Competition for a Native American cultural facility ! **Its very hard for me to believe that an International Design firm would seriously understand Indigenous People of this country, and not make the design overly romantic** .[emphasis mine Y.V.P.] After working for twelve years on the design of the Smithsonian's National Museum of the American Indian in Washington DC , dealing with the wide diversity of Indigenous People of the country , that an International design firm could really understand the Indigenous culture of the Pomo People and produce a design that really represents them !! 35 years ago I did the initial design & programming for the existing PomoCultural Museum in Ukiah ( I was not the final architect ). I was a young Native Architect trying to bring back the rich, beautiful, Indigenous Architecture of this country. The design turned out OK but it was a battle to keep it simple , and be representative of their culture, and not of something else. Since then I've learned a lot from many Native American Elders as I've attempted to create their architecture and make it be representative of them . Its something that an International design firm could not possible learn quickly ! I would say it will be very difficult for them to not to be overly romantic about the Pomo People's rich, ancient , living culture !! I wish you well ! Thanks - jjj.*

Johnpaul Jones mentions the depth he went in understanding the place during the twelve years of designing the National Museum of the American Indian in Washington DC. The knowledge he gathered about the culture, clearly started much before the commission for this specific building, insight he got from discussions with Native elders were probably something that would be harder or impossible to acquire for designers, who do not share the culture. Jones claims that this knowledge cannot be learned quickly. I agree with him on that, but do we then have to choose only architects that share the culture with the place? What can we do in underserved communities, who lack professional design experts from their own culture? Can we do anything to improve and accelerate designer's learning process?

---

<sup>2</sup> Johnpaul Jones is a founding partner at Jones and Jones Architects and Landscape Architects, Ltd, Seattle, Washington, who designed the National Museum of the American Indian in Washington DC. Johnpaul Jones is from Native American origin with ancestors from the Cherokee-Choctaw. ("Jones & Jones." [http://www.jonesandjones.com/people/people\\_principals.html](http://www.jonesandjones.com/people/people_principals.html). Accessed October 22, 2012)

While design competitions are indeed very limited, their ability to bring a variety of design alternatives makes them a powerful solution especially for underserved communities looking to bring contemporary designs techniques, as will be seen in the interviews in Chapter two. It has the ability to inform the community and exposed them to different opportunities, it can help them discuss impact of different solutions with the aid of the architectural visuals which are part of these competitions and that they would otherwise won't be able to afford. In a way it can be regarded as a "primitive" technique of crowdsourcing, where the crowd is the competing designers. Therefore, while I agree with Jones that his deep and slow learning process cannot be done quickly, I do believe that in less complicated situations, some of it can be facilitated by ICTs and such facilitator can help bring the best from all worlds: good, local understanding of place with broad variety of solutions. It should be noted that Jones experience from the National Museum is a particularly complex design problem, as the buildings needs to represent a variety of native cultures while being situated in Washington DC and serving an even greater set of visitors and users from all over the world. The political sensitivities and the message brought by such a building (Crysler 2006) may be a good reason to use a designer coming from within the culture. But in simpler projects, when the environment and the people are part of the same place, competitions can have a positive effect. In such cases, by focusing designers' effort towards understanding place, and finding ways to represent the environment and the people, "meeting the place" can become easier, resulting in solutions that would be "representative of them", to use Jones' term.

## 1.5. IMPACT

Dana Cuff emphasizes three forces that have influenced architecture practice: digital technology, environmental concerns, and globalization. These changes will diversify the profession in a way that might weaken it (Cuff 1999). This work aims at finding a good balance between these three forces. A design process that incorporates appropriate technology to familiarize the designer with the place of his design might result in buildings that can better fulfill local needs — ecological, economic, and social. Identifying such technology could help balance global forces with local priorities.

In the development contest between the "big plans" and the "local search" (Easterly 2007), the right technology could help both sides in adapting and fine-tuning the big plans to local needs. The interaction between the designer and the place, through appropriate technology, can facilitate both a bottom-up approach *and* a top-down approach, as input will flow from both directions to the designer.

## 1.6. HYPOTHESIS

Available ICTs can be harnessed to make designers familiar with place when a wide social, cultural, and geographical gap exists. Moreover while ICT has been effectively used for capturing physical attributes of place it is underutilized in communicating conceptions - the subjective, social properties of place. Using ICT to expose designers to the three elements of place can allow them to include as many place-appropriate features as designers who visited the place (Figure 1).



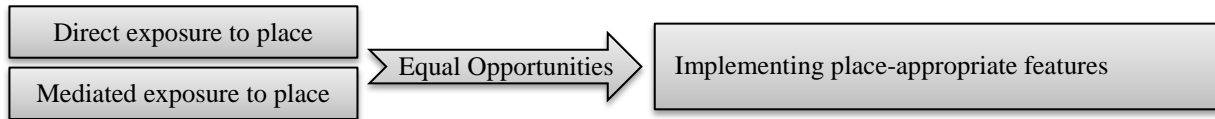


Figure 1: Hypothesis showing research variables and measures

## 1.7. RESEARCH METHODS

In this research I use ParticiPlace, a community-based, international design competition as the main platform to experiment on the effectiveness of ICT in producing place-appropriate design. Design competitions present a real life design scenario in which different designers work on the same project at the same time. The advantages of using a community-based, international design competition as a research platform include:

- Real life conditions, prizes and reputation, encourage designers to produce the best design they can.
- Competitions are a common scenario in architectural practice, in general, and in developing regions, in particular. Many international competitions are used in developing regions to elicit a variety of contemporary international design ideas.
- Including actual users/clients as part of the design and its research. Local users are particularly crucial in this research which is evaluating “meeting the conceptions of place”, the local community’s subjective understanding of place.
- Some evaluation of the designs is already embedded in the competition evaluation process.

### 1.7.1. Advantages

Research focused on real-life conditions and looking at practiced design methods in industry often use qualitative methods such as “building stories” as an investigation method (Martin, Heylighen and Cavallin 2005). The narrative technique allows capturing aspects of practice in different levels (overall project, team level and individual). Similarly, qualitative and quantitative methods will be combined to capture both the nomothetic general properties influencing the design results (through questionnaires and blind evaluations) as well as the idiographic characteristics appreciated by individual designers (through questionnaires and interviews) to complete an in depth understanding of the influence of ICT on place-sensitive design.

### 1.7.2. Constraints

The approach in this dissertation, often referred to as quasi-experiment, does not use randomized variables with a control group in regards to which designers attended the site visit and had access to the ICT for learning the place. Therefore there is a risk that confounding variables exist. The use of qualitative methods will compensate for some of these limitations and other will be taken into account in the conclusions.

## 1.8. OVERVIEW

Following this introductory chapter, the ‘background’ chapter grounds my research both in the relevant theoretical foundations as well as the practice of design and technology in developing regions, before going into the details of the experimental research.

### 1.8.1. Background

When relying on Canter’s definition of place (1977) as three overlapping elements, Physical-attributes, Activities, and Conceptions — the subjective experience of place, ‘meeting the place’ has to address all three. While the design literature suggests a variety of methods and tools to learn the Physical-attributes, and Activities are mostly defined in the building program, the debated element is how design should address Conceptions—the human and social characteristics of place. Despite extensive attention from researchers in the field of social factors in design, Conceptions are often neglected in practice. Hence, as I investigate the ability of technology to communicate the three elements of place, particular attention will be given to the social aspects, pertaining to local communities of users.

Being in place, local communities could potentially contribute not only to learning Conceptions, but also to communicate Physical-attributes and Activities of place. Nevertheless, this potential is often neglected. Moreover, recognizing the ‘conceptions of place’ and producing place-appropriate design is likely to enhance human development by providing a stronger sense of identity and empowerment to the community, as well as by simply having a well-functioning building. In this introductory chapter I discuss these elements of a place and examine how designers are learning place, users, and culture in different design disciplines. The chapter provides the theoretical foundation for ‘meeting the place’. It then embarks into understanding how practicing designers are ‘meeting the place’ when working in places that are geographically and culturally distant mostly in developing regions, versus when they work locally. In order to understand the appropriateness of ICT as a tool between designers and developing regions, I look more broadly at how technology is used in these regions and what should be the role of that technology. I conclude that technology is heavily used by designers to learn the physical attributes of place, and the activities are detailed in the building program. Nevertheless conceptions are often neglected. With the recent development in social ICT I identify the use of these technologies in developing regions and suggest that social networks allow immersion in conceptions of place and hence could be an appropriate tool for “meeting the place”.

In the following chapters I evaluate the ability of these technologies to bridge the gap between designer and place by applying a set of widely used social-networks to an exploratory case-study with the Pinoleville Pomo Nation, an underserved community of a unique culture. An exploratory design case study with the tribe allowed me to learn the place and the people, explore face-to-face in parallel to different technologies and pinpoint the ICTs with the highest potential to enhance meeting this unique place and community. To test these ICTs rigorously, I examine their influence on the design process through an international design competition. The competition included local designers who went on a site visit, as well as designers with a wide geographical gap who never visited the site nor met members of the community. During the

design process, quantitative and qualitative data were collected through questionnaires, interviews, evaluations, and monitoring of ICT-usage.

### 1.8.2. Participatory action research:

#### Comprehending the Place with the Pinoleville Pomo Nation

The research relies on two participatory action case-studies with citizens of the Pinoleville Pomo Nation, a Native American nation in Northern California, a complex condition of a marginal place located in the highly served and developed state of California.

Through the preliminary case study involving citizens of the Pinoleville Pomo Nation working with student-designers on a housing project, I examine several methods, both ICT and non-ICT-based, that may be used to communicate conceptions of place. The pilot study helped identifying characteristics required within the context of this specific community and this specific place. With this list of characteristics I was able to further focus the effort on specific technologies that would be most appropriate to test in the ParticiPlace case-study.

Some of the characteristic identified are:

- Importance of reciprocal communication - the community felt uncomfortable when being “interrogated” therefore methods used to communicate conceptions should expose both designer and community members.
- Influencing the design or design freedom, by itself, may not provide enough motivation for local community members to interact with the designers. In the case of the PPN, additional motivations to enhance interaction was supporting education, both informal (e.g. learning video and photo editing software) and formal education (exposing youth to higher education students and campus), and a variety of additional, related projects and grants that benefited from this interaction.
- A dedicated project’s Drupal site was found in low use as it required an additional login process and unfamiliar human computer interaction.
- Much cultural information is expressed by the community through social networks.

### 1.8.3. Testing ICTs - ParticiPlace Case Study

Following the exploratory case-study, an international design competition was organized as a test-bed evaluating ICTs. ParticiPlace was used as a platform to test a variety of tools, put together for the purpose of this specific design project. Designers were exposed to these tools. A site visit was organized and designers (those within physical proximity) attended the site visit and were able to interact directly with community members. Objective metrics (questionnaires, web-usage logs, and blind evaluations) and subjective metrics (Interviews, questionnaires) were used to measure the influence of the tools on the design process and the design results. These show that designers, who relied only on ICT to learn the place, achieved, on average, the same level of place-appropriate designs as those who visited the site. Therefore, I conclude that in settings with big cultural gaps between designers and users, a special set of ICTs, to represent the

place and its conceptions, can bridge cultural and geographical gaps between designers and place.

Through analyses of the data, I found that when using the distilled set of ICTs to communicate the three elements of place, the gap between designers and place indeed narrowed. Designers who couldn't visit the site nor interact directly with the people, on average, addressed as many elements of place in their design as those who did visit and had unmediated interaction with the people. More specifically, designers with bigger geographical and cultural gaps, found videos as the most influential to their understanding of place while photos, weather data, and "other online information" came next; Facebook and books were found the least influential. Surprisingly, the use of social-networks did not incite significant discussions or interactions; this is attributed to privacy concerns related to the competition setting, as suggested by the interviewees.

Through this research, ICT is identified as capable of communicating all three elements of place yet only at the dimension of 'passive representation' of place. Further research is needed to explore the full potential of social media to immerse designers in place by inducing rich interaction between designers and local communities throughout the design process. In the concluding chapter, I map the different ICTs explored, I highlight the dimensions of learning experiences and the elements of place that each technology provides. This map should help designers identify additional steps they may take to better comprehend the place. Moreover I highlight the benefits these steps may have on human development and call designers to think of "design freedom" as the goal for place-driven design.

#### 1.8.4. Discussion: The Power and Limitations of ICTs in Bridging the Gap

Through a design competition this research shows that indeed ICT can support the work of architects who cannot visit the site and help them in identifying as many properties of place as those who were able to visit the site. The emphasis in choosing the ICTs used were to cover all aspects of place – physical attributes activities and conceptions. Within the variety of ICTs used, videos and photos, created with or by local community members, have the ability to represent all three elements of place and were identified as most influential by the designers. These media were focused on representing place-conceptions of the local community in addition to the activities and physical attributes and were communicated through different social networks. In-depth interviews with the designers emphasized the importance of making the ICT available to designers early within the design process. With these understandings in mind, ICT can provide an important support for design in extreme design conditions in marginal places.

##### 1.8.4.1. Limitations

Despite the empirical proof of the effectiveness of ICT this research is not encouraging replacing non-mediated meetings with ICT-mediated interaction with place. For example, in this research I did not measure the amount of time spent by the different designers therefore, it is possible that those located away from the site invested more time in comprehending the place than those who visited the site. Hence, while ICT can support the design work and bridge

geographical and cultural gaps, it is not necessarily the most effective solution in these conditions.

#### 1.8.5. Conclusions

Place-driven design is a continuous process of comprehending place in which the place keeps changing from its original condition through its designed condition and until its occupied condition. With the understanding of the breadth of place as including physical attribute, activities and conceptions, local users can greatly support the process of comprehending place, since they are in the place and their conceptions are part of the place. Designers can comprehend place through different experiences, each may provide a different level of depth: egocentric, passive, active, interactive, and immersive. A combination of ICTs may represent the breadth and depth of a place. The most effective combination of ICTs may be different for each place, nevertheless, once the suitable technology is set to communicate the appropriate information it has the capability to bridge the gap between designers and place and produce place-appropriate design even in extreme design conditions and when designers cannot visit the site. A dedicated ICT for supporting place-driven design will need to allow a variety of experiences and support different media to fit the unique needs of the place as well as the preference of the local users and the professional designers.

## 2. BACKGROUND: WHERE TO MEET THE PLACE?

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“...we are part of this system, for good and for bad, and we are trying to do the best we can”

Yossi Sivan<sup>1</sup>

## 2.1. EARLY DESIGN PROCESS - PUTTING THE PEOPLE IN PLACE (LITERATURE REVIEW)

### 2.1.1. Understanding Place

Place theories include the discussion of what place is, what defines a good place or a bad place, how to produce different places. These topics are discussed in various disciplines, from philosophy to computer science. All these perspectives provide insight into the important reciprocal influence of place on different aspects of human life, and they support the understanding of place as a *relationship between environment and people*. Some analysts focus on the individual level of this relationship, emphasizing the subjective understanding of place (Lynch 1960, Relph 1976, Canter 1977) while others focus on a societal level of this relationship, looking at influences of economy, politics, etc. (Harvey 1989, Lefebvre 1992, Augé 1995). The attitude and the relationship described are sometimes positive: Norberg-Schultz calls architecture, as the art of place, a “friendship” between men and the environment; Lynch describes a “true place” as one which is “visibly organized and sharply identified.” Others describe the negative sides of these relationships, as in Augé’s *Nonplaces* (Augé 1995) or Relph’s *Placelessness* (Relph 1976) or even as an abusive relationship (Harvey 1989, Jacobs 1996). Harrison and Dourish (1996) try to disrobe place from its human activities by defining space as the “natural fact” and place as a “social product.” Ten years later, however, Dourish reassesses his view, saying that a space is a human abstraction of place, and hence, even when it may not have human activity, “the social runs right through any ‘foundational’ account of space” (Dourish 2006).

Therefore the starting point of this research is the understanding of place as shaped by people and the environment (Figure 1). In order to better understand what designers are doing as part of learning the place, in this chapter I investigate different place models and identify Canter’s model as most useful as the basis for design guidelines. I analyze what is place in the design context, what are the recommendations for designers as

part of the early design process of getting familiar with the place and which criteria are given in the design field as well as in the social design movement and the environmental, ecological

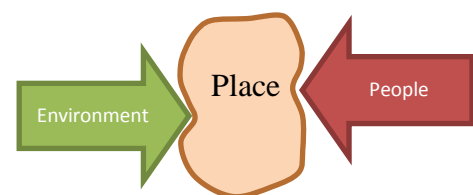


Figure 1: The forces that shape place: a transdisciplinary approach

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<sup>1</sup> Yossi Sivan is one of the partners at Moore Yaski Sivan, <http://www.m-y-s.com/> one of the top leading architecture firms in Israel. His quote is translated from Zandberg’s newspaper article <http://www.haaretz.co.il/gallery/art/1.1303330>

design movements and how these criteria can come together into holistic, place-appropriate design recommendations.

### 2.1.2. Place as the Context for Design

If place is a relationship between the environment and people, architects need to learn about both in order to understand place. This is indeed the message expressed in the design-methods literature, which often refers to it as understanding the context. Alexander (1964) defines the design problem as a fit between form and context: “In a problem of design we want to put the context and the form into effortless contact of frictionless coexistence.”

The form is where the designer has control, while the context is “the part of the world” which constrains the form. While his explanation of “context” and the designer’s influence on it is limited, his approach to the problem sheds light on preliminary design methods. The problem of design, Alexander claims, lies in between these two aspects of the process – first understanding the field of the context, and then inventing a form to fit it. Kalay echoes the need of designers to understand the context as part of the “exploration of the problem to be solved.” The context can be divided into the physical context and the sociocultural context (Kalay 2004: 209). If we focus the design problem into an architectural design problem the context becomes the place and includes, following Kalay’s line of thought, both physical characteristics and sociocultural ones.

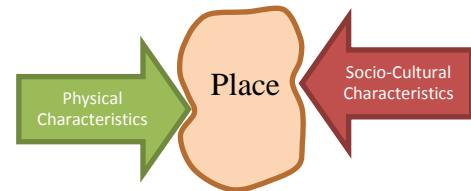


Figure 2: The forces that shape place: design approach

Canter, working on environmental psychology, defines place as the overlap between physical attributes, activities and conceptions (Figure 3, Canter 1977). His definition is particularly useful to architects as it separates the socio-cultural context into action and perception: Activities reflect the behavior in place and the Conceptions reflect the individual subjective perception of the place. A place will always have some physical attributes, some type of activities and will produce some conceptions in the mind of whoever is there. The activities are often defined as part of the building itself – a school for learning, a house for living a garden for relaxing. More details about the activities are usually part of the design brief provided to architects as part of the project, though activities can have different meaning to different people and hence the conceptions of activities in place would often be important to identify. This definition of place will be the basis for my research into design methods – how place is-and-should-be designed. Particularly I look at how place, as the context for the design, is-and-should-be comprehended by architects with the goal to produce place-appropriate design which fits the physical attributes, activities, and conceptions of place.

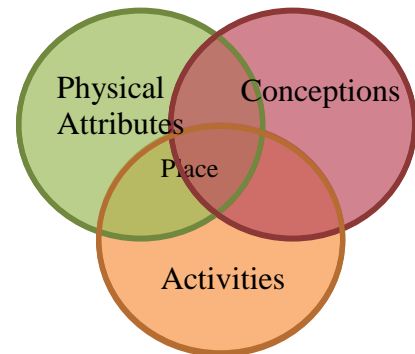


Figure 3: Canter's nature of place

The importance of context is recognized in several architectural approaches. Liane Lefaivre and Alexander Tzonis use the term “critical regionalism” to describe a bottom-up approach to design “that recognizes the value of the identity of a physical, social and cultural situation” (Lefaivre and Tzonis 2003). While architects may debate how context should be incorporated into



architecture and what design best fits different elements of place, it is clear that, before the design can recognize that context in any way, the designer must first become aware of it in some depth. In order to better understand how physical characteristics and social characteristics are being comprehended by designers, I will be looking at design paradigms that emphasize one or more of these elements of place. Particularly I will examine the Social Design movement focusing on human factors in design (behavior/activities and conceptions), and the Ecology movement focusing on the physical, natural environment and resources. As will be seen through this overview these two separate movements are slowly broadening their vision into a more holistic understanding that could be called Place-Driven Design as they now address all the three elements of place.

#### 2.1.2.1. Comprehending Socio-Cultural Context

To identify recommended methods for comprehending and incorporating the socio-cultural context in design I focus on paradigms emphasizing human and social characteristics in different design disciplines. Most of the theories, known as the “social design movement” or “social factors in architecture,” started in the late 60s and came in reaction to the excesses of modernism, which embraced architecture as the vehicle of social welfare but didn’t consult the users, who were expected to adjust to the rationale of the new designs (Kostof 1989). This lack of attention to people’s needs in the design process is often a criticized characteristic of practicing architects while at the same time it became the “trademark” of architects such as Peter Eisenman<sup>2</sup> (Douglas 2010).

#### *Socio-cultural Context in Architectural Design*

According to Gutman (1988), architects are ambivalent about involving users, especially in the early design process. Nevertheless, he shows that they have an interest in satisfying users, both for ideological and financial reasons. “Some architects,” Gutman claims, “especially those who were in school during the late 1960s and early 1970s, are ideologically committed to the principle that an important criterion of good design is how well the building fits the requirements of workers and inhabitants. They tend therefore, to welcome maximum user participation.... In turn, some firms regard explicit interest in the response of users as a marketing tool, which can result in a higher level of repeat business than the standard rate for the industry of 50-70 percent” (Nydele 1985: 51 and Blau 1984: 109-111, cited in Gutman 1988: 91).

A more comprehensive analysis of the architects’ view of people and users in various eras, both in theory and practice, is presented by Ellis and Cuff (1989) in *Architects’ People*. Their premise is that it is impossible to design a building without some conception of the human activities in and around it. The book shows various ways famous architects relate to real or imagined people, all through the design process: Vitruvius believed the effect of climate is expressed in the bodies and character of entire races, and he therefore “advises practitioners to study regional variations in architectural requirements and in human personalities” (Favro 1989: 21, citing Morgan 1960); Esherick implied that architects should go out, observe and talk to

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<sup>2</sup> “Citizen Architect, Samuel Mockbee and the Spirit of the Rural Studio” a documentary analyzing the work of Samuel Mockbee, confronts these two views through interviews with Rural Studio followers and Peter Eisenman.

people (Cuff and Ellis 1989: 59); Kahn imagined how people would use his building's space (Gutman 1989: 112); and Gutman's analysis of the failure of Richards Research Laboratories, designed by Kahn in 1957, shows that the "potential environment," as Gans (1968) termed it, did not match the "effectual environment" (how it was actually used). Finally, as an example of a bold expression of self-centric position, Cuff quotes Peter Eisenman: "Architecture is made by architects, for themselves — I do my work for me; there are no other 'people' for the architect" (Ellis and Cuff 1989: 65). These examples show who are the people that architect may think of — the self, the imagined users (architect's conception of users) or the actual users (user's conceptions).

As more practical design guidelines, Lynch and Hack (1984) give an extensive list of the elements, both physical and social, that planners should check before designing, including soil, plants, water, animal behavior, human behavior, and more. They continue to detail the tools that may be used in this process, from maps and wind tunnels to demographic analysis and observations, in their very analytical site-planning recommendations they also refer to the subjective analysis: "A place [...] must fit the way in which our minds work: how we perceive and image and feel". Lynch and Hack go into depth in explaining the importance of a broad user-analyses and the psychological goals of the design but give very little details into *how* to do this analysis besides getting demographic information and doing observations, therefore, while this strongly reinforces the importance of the three forces shaping Canter's place it still doesn't provide enough details to direct designers on how to do this analysis. More recently, Ellis (2005) reinforces the importance of "methods for site analysis and capturing the "sense of place"" for obtaining good city forms. He details the different analyses involved, such as "street patterns, public spaces, building types" but again does not provide the tools for doing these analyses — through observations? Drawings and sketching? Discussions with experts? Interviews with locals? Collecting data? O'Donnell (2006) argues, conversely, that this sort of site analysis creates generic buildings. She suggests abstract techniques using diagrams for understanding the particular environment, arguing that the resulting "decontextualization" will yield an integrated, sustainable architectural solution. While her recommendations are open to many interpretations they give some insight into the tools to be used. Suggesting diagrams and other abstract techniques, O'Donnell supports Alexander's early work. In his early search for rational methods to produce the perfect building, Alexander claims that representations and diagrams are a key to the solution (Alexander 1964). A decade later he developed the Pattern Language, in which architecture is decomposed into generative physical components he named "patterns" that should be tailored together to fit each project and should be implemented through a participatory process with users (Alexander et al. 1977). The Patterns that Alexander offers connect between activities and physical attributes (e.g. the pattern of "ceiling height variety" describes how ceiling height should be adjusted to fit different activities in the room). Nevertheless, the pattern also brings conceptions as they relate to the effect of the pattern on human conceptions or feelings — Alexander's conceptions or universal, human conceptions. Using the pattern language in a participatory process can assure the relevancy of the pattern to the actual people in place.

### *Socio-cultural Context in Planning*

Sommer reviews the history of the social design movement and emphasizes its great strength in the academic world, as opposed to the practice or statutory worlds, calling it

“research without politics” (Sommer 1983: 167). In contrast, social design in the related field of planning (better known as public or citizen participation) could not be separated from the political nature of the planning profession. Arnstein’s classic paper (1969) was the first to highlight the different rungs of participation and to note that not all of them are good for the people or for the place. In the abusive forms of participation, which Arnstein calls “nonparticipation,” power holders aim to “educate” or “cure” the participants. The top of Arnstein’s ladder of citizen participation, which she calls “Citizen Power” (Arnstein 1969), includes Citizen Control, Delegated Power, and Partnership. While Arnstein doesn’t go into details of how good participation should be implemented, her analysis of different cases highlights the importance of power, control and decision making.

Though public participation was often a goal of its own—democratizing urban design—it was also considered a tool for improving the design process and thus entered the design methods discourse. When Rittel defines a systems approach to the “wicked problem” of design, one of the principles he endorses calls for the involvement of the people who are being affected, as active participants in the planning process. He cites the example of American urban renewal projects, where people revolt against being planned *at* rather than *for*, as an indication that top-down planning is becoming less popular (Rittel 1977). More than 20 years later, Cuff (1999) confirms the growing influence of the public on planning and design in the U.S. The design process, she notes, is almost impossible to manage for someone who is not familiar with the local political scene. Here, she focuses more on the public as a political force; when looking at people as users of design, their power over architecture doesn’t seem as strong. Therefore when looking at people as individual users, unless they are the paying customer, their actual influence on design still seems very limited, when the individuals become “the public” they start to have some political power and it is harder to ignore them, though they can still be manipulated or “cured”.

Despite the general recommendations to involve the public, practical recommendations of the process for doing this are harder to find. Hester provides more insight into the process – in his twelve steps to “design small spaces close to home with the people who live there” (Hester 1982: 135) the five first steps shed light on his suggested methods for learning the place before any re-shaping the environment can occur:

1. Listening
2. Setting neighborhood goals
3. Mapping and inventory
4. Introducing the neighborhood to itself
5. Getting a gestalt – “A gestalt that expresses the totality and soul of the neighborhood situation” (Hester 1984: 149).

Hester’s look at participatory design emphasizes the importance this process has for understanding place, not only for direct designers but also for other decision makers, almost as a way to “force” them to better understand the place: “Community leaders sometimes make decisions without ever visiting a site, relying instead on stereotypical images of the place.[...] Participatory exercises, that require careful observation and discriminating looking, can transform generalizations into space-specific problems that can be addressed by design” (Hester 2005). The condition in which “participatory exercises” are created as a way to physically bring

decision makers to visit the place, face the design “problems”, discuss them with the public and “force” them to better understand the place may end up excessive, expensive and exhausting. Therefore, a more efficient way for designer to comprehend conceptions of place should be available.

### *Socio-cultural Context in Other Design Disciplines*

Other design disciplines also have a different focus on social aspects. Engineering recognizes three parties involved in the design: the client, the designer, and the user (Figure 4, Dym and Little 2008). User-centered Design is an engineering design approach that emphasizes the importance of the user and meeting the user’s needs, the field which puts this goal as a central one is called user-centric design. Figure 4 illustrates the different goals around the design with the user placed at the core of the design process

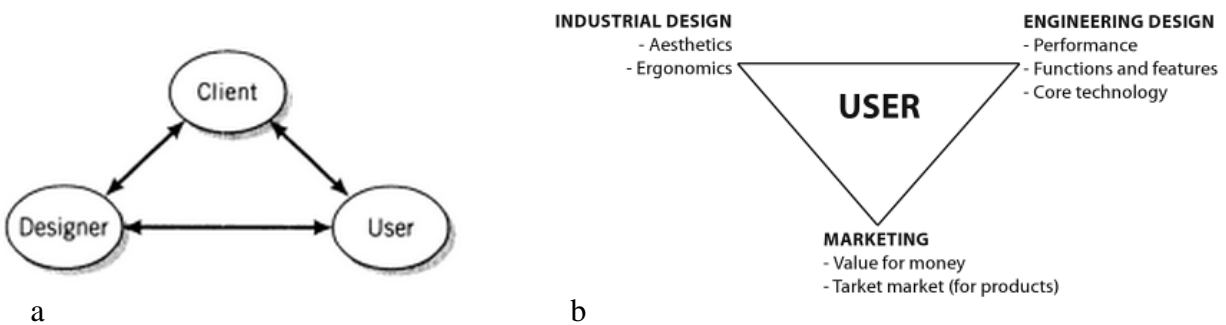


Figure 4: Engineering Design Approaches a: users as part of the design triangle; b: users as the center of the design triangle, called user-centered design

The International Organization for Standardization (ISO) published a standard for “Human-centred design for interactive systems” (ISO 9241-210:2010) which provides some insight to the principles for human centered design though with very little details on how to achieve each principle:

1. The design is based upon an explicit understanding of users, tasks and environments.
2. Users are involved throughout design and development.
3. The design is driven and refined by user-centred evaluation.
4. The process is iterative.
5. The design addresses the whole user experience.
6. The design team includes multidisciplinary skills and perspectives.

Correlating product-design to place-design highlights, through the first principle, the correlation between “understanding of users, tasks and environments” and understanding of conceptions, activities and physical attributes. Moreover, these principle emphasize the importance of involving users throughout the design, development and evaluation of the product, a process that exist within the social design movement in architecture as post-occupancy evaluation.

## *Socio-cultural Context: From Theory to Practice*

Despite these extensive literature and recommendations, the involvement of non-professionals in the design process is still not part of common architectural practice. Creating a bottom-up process within a hierarchical, top-down design approach is not an easy task. In his participatory Oregon experiment, Alexander was selected through the conservative top-down process; he then used his power, as the chosen designer, to empower a few members of the community by including them in the design table. His small representative group of users for the school of music building project is still very top-down: it includes the dean, two faculty members, a student, and two designers from his crew (Alexander 1975). Moreover, his small group, probably comprised of a relatively small range of socio-economic levels and cultural backgrounds, formed a very homogeneous group. Therefore it was probably easier to reach consensus than with a community of designers and users of different cultures. In richer environments, or when a more diversified set of users is included, a consensus-based participatory design process would be much harder, and in some cases impossible, to achieve. An inefficient way to include place conceptions in the design process might have little influence on the design result but great impact on the time and money spent on the project. Identifying ways for comprehending conceptions is therefore still in need and will be the focus of my research.

### 2.1.2.2. Comprehending the Physical Context

Additional methodologies for understanding the physical attributes of place can be identified in the Ecology Movement, later developed into Sustainability, with its focus on climate, energy, and other natural resources – all part of the physical attributes of place. The focus on physical attributes and natural resources is motivated by a moral goal as represented by the first widely accepted definitions of sustainable development given by the United Nations (UN 1987): “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”<sup>3</sup> This broad definition was difficult to use as design guidelines and evaluation, hence several organizations developed specific ways to measure sustainability in buildings. Through looking at different sustainable design guidelines I will highlight methods of focusing on the physical attributes of place. Understanding sustainable design is an ongoing process as emphasized by the recent Rio+20 summit<sup>4</sup>, calling for developing more metrics for sustainable development (UN 2012).

### *Low Energy Building Design*

Focused recommendations for better understanding of the physical context of place and taking advantage of its physical attributes such as location, climate, sun and wind, greatly stemmed from the concerns about fossil fuels. Following the oil crisis in the 70's, energy conservation was addressed in the building sciences by emphasizing the importance of climate to design (Gauzin-Müller and Favet 2002) and developing guidelines and methods for using the

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<sup>3</sup> Our Common Future, Chapter 2: Towards Sustainable Development - A/42/427 Annex, Chapter 2 - UN Documents Cooperation Circles. <http://www.un-documents.net/ocf-02.htm>. Visited July 10, 2012.

<sup>4</sup> Conference on Sustainable Development Rio de Janeiro, Brazil 20–22 June 2012  
<http://www.uncsd2012.org/content/documents/814UNCSD%20REPORT%20final%20revs.pdf>

natural, physical properties of the place – such as sun angle, wind, climate, into the design of buildings, known as Passive Solar Building Design, Low Energy Buildings. ASHRAE (the American Society of Heating, Refrigerating, and Air-Conditioning Engineers) took the lead in research and publication, establishing standards that focused on reducing energy while keeping thermal comfort in buildings. This approach emphasized local climate as an essential place characteristic to consider in design resulting with numerous and detailed standards and recommendations for architects to fit different locations and building-types/activities (e.g., Perez and Capeluto 2009). Additionally, tools to support this emphasis developed: psychrometric chart and wind-rose as a way to visualize yearly climate data in a place; Sun-angle calculators and Heliodon to analyze daylight; and countless digital tools and simulators, sprouting with advancement in computer technology, to help implement these analyses into building design. Passive and low-energy design developed into sustainable design, integrating additional physical attributes of place into the design thinking such as water, building materials, land and other natural and man-made resources in place. Consequently ASHRAE broadened its goal “to serve humanity and promote a sustainable world<sup>5</sup>”. What would be then the characteristics of a sustainable world? Sustainable place? How are they being identified and promoted?

### *Adding Conceptions of Physical Attributes: the Social aspects of Sustainability*

While the focus on the physical attributes of place started with the narrow goal to reduce the use of fossil fuels in buildings, it broadened, as mentioned, into efficient use of all natural resources. Hence, current approaches to sustainable design include a more comprehensive understanding of place resulting in a more holistic approach to design. McDonough and Braungart (2002) suggest a “triple top line” to sustainable business, framed by economy, ecology, and equity. Beyond highlighting the notion that sustainability is not necessarily a non-profit idea, this strategy broadens sustainability goals to include social equity and considering not only physical, ecological impacts but also the people and the society. Nevertheless, design methods for reaching these goals are still debated and even McDonough have been heavily criticized for poor social understanding, and for relocating families into his “master planned sustainable community” without any involvement of the local community, and with characteristics that made the village unsustainable for this particular community and place (May 2008).

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<sup>5</sup> The full mission as presented in the website: “To advance the arts and sciences of heating, ventilating, air conditioning and refrigerating to serve humanity and promote a sustainable world. “ <http://www.ashrae.org/about-ashrae/>

The combination of social, economic, and environmental factors has been described as “three mutually reinforcing pillars of sustainable development [...] incorporated into the 2002 Johannesburg Plan of Implementation (JPOI),”<sup>6</sup> to be implemented through global, national, and regional institutions (Figure 5; UN 2012). At the same time, academic research on sustainable design started as well to look beyond natural resources and physical ecology delving into additional cultural and social aspects (e.g., Lorch and Cole 2003; Guy and Moore 2005; Hauber and Ruppert-Winkel 2012). These studies look at ways in which sustainable design solutions need to be adjusted to local culture, and sustainability thus develops different meanings and solutions for different conceptions of place as expressed through culture. This strategy is entering the design practice as social aspects are incorporated into various sustainable measures.

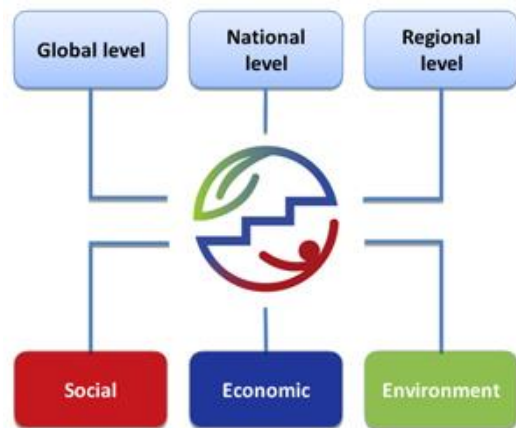


Figure 5: Sustainable Development as per the 2002 Johannesburg Plan of Implementation (UNCED 2012)

Bringing all aspects of place into sustainable design practice can be seen through a variety of guidelines which incorporates, beyond physical attributes, also socio-cultural ones. For example, according to the American Institute of Architects’ (AIA) guidelines for the Top Ten Green Projects competition, “sustainable design recognizes the unique cultural and natural character of a given region.”<sup>7</sup> The “BioRegional”<sup>8</sup> organization, in their program “One Planet Living Communities,” defines ten guiding principles that frame the sustainability challenge and may serve as a mechanism for developing context-sensitive design solutions. For example, principle eight urges: “Valuable aspects of local culture and heritage must be maintained, enhanced or revived.” The Fully Integrated Thinking (FIT), developed by HOK, a global design, architecture, engineering and planning firm<sup>9</sup>, and the Biomimicry guild<sup>10</sup>, gives a list of 15 lenses that should shape design: ecostructure, water, atmosphere, materials, energy, food, community, culture, health, education, governance, transport shelter, commerce, value. Like many of the other guidelines mentioned, FIT<sup>11</sup>, provides a list of principles from the physical attributes, activities and conceptions of place, but do not provide methods or tools for implementing these principles.

<sup>6</sup> As presented at the Conference on Sustainable Development Rio de Janeiro, Brazil 20–22 June 2012. Institutional framework for sustainable development <http://www.uncsd2012.org/isfd.html>

<sup>7</sup> The American Institute of Architects: Top Ten Green Projects. [http://www.aiatopten.org/hpb/grid2007.cfm?project\\_id=0&section=3](http://www.aiatopten.org/hpb/grid2007.cfm?project_id=0&section=3) (Accessed October 5, 2012).

<sup>8</sup> BioRegional: One Planet Living approach includes 10 principles framework. <http://www.bioregional.com/oneplanetliving/what-is-one-planet-living/> (Accessed October 5, 2012)

<sup>9</sup> <http://www.hok.com/about/>

<sup>10</sup> <http://biomimicry.net/about/>

<sup>11</sup> Based on a FIT workshop at HOK office, Chicago in which I participated on May 2011, as well as their website: <http://www.fullyintegratedthinking.com/> (accessed June 19, 2012)

### *Physical attributes without Comprehending Place*

LEED<sup>®</sup> (Leadership in Energy and Environmental Design) was created by the U.S. Green Building Council with similar sustainable design goals but contrasting guidelines.<sup>12</sup> Because LEED<sup>®</sup>'s main task is certification, it uses a pre-defined points-system in which every category, defined as a sustainable practice, gets a certain number of points. This definition applies universally and therefore does not take into account local characteristics of place, so that, for example, using photovoltaics to produce energy gives the same number of points when implemented in Arizona as in Maine. Moreover, LEED<sup>®</sup> doesn't credit passive design solutions, such as using optimal window sizes, materials, shading devices and so forth (appropriate to the local climate) as opposed to active systems, such as solar water heaters and photovoltaics (Shaviv 2008). Therefore, designs using ASHRAE standards and those aiming for LEED<sup>®</sup> certification will focus on different aspects of place. In the process of unifying and quantifying a concept of green building, LEED<sup>®</sup> narrowed down the understanding of place to activities only: It does not really require an understanding of the physical attributes of place (such as water, energy, land) but focuses only on the activities at the place – reducing water usage, reducing energy, conserving land, etc. Similarly while providing points for education – a social goal, there is no support for the conception of place – only to the activity (education). While on average, LEED<sup>®</sup> certified buildings perform better than their equivalents, in practice some LEED<sup>®</sup> buildings are performing better while others are performing worse. LEED<sup>®</sup>'s narrow thinking of place may be the reason for producing buildings that do not satisfy their user's environmental needs (Abbaszadeh et al. 2006) or that perform less than average on measured environmental performance (Newsham et al. 2009; Turner and Frankel. 2008; Bray and McCurry 2006), hence not always resulting in sustainable or place-appropriate buildings.

#### 2.1.2.3. Place Driven Design

As sustainable design begins to embrace social factors<sup>13</sup> it becomes more holistic, responding to a complete, rather than partial, understanding of place. I will therefore use the term “place-driven design,” to define a process that responds not only to the physical, ecological context but also to the social context of place. Figure 6 presents a summary of the recommendations I found in the design literature and how they may support the understanding of place as per Canter's definition. The literature provides some limited insight into techniques for learning the place; it is particularly limited in providing techniques to the understanding of conceptions of place. While there is some agreement on the tools for learning the physical characteristics of place (maps, sketches, photos, environmental data), the variety of methods mentioned for learning the people and their conceptions can be confusing: What are exactly the conceptions of place and how should we gather the information about it? Are the people passive objects in the process or active agents? Or is this an interactive process between designers and people in place? While a variety of methodologies and tools are being developed for representing

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<sup>12</sup> “LEED<sup>®</sup> encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted standards, tools and performance criteria.” (Leed 2006)

<sup>13</sup> Whether the social factors movement is dead or alive or revived was the main theme of the Death and Life of Social Factors conference, Berkeley, California, May 2011. <http://arch.ced.berkeley.edu/events/conf/deathandlife>



the physical properties and activities of place — from the LEED® point system measuring sustainable activities to specialized simulation software evaluating energy, light and other resources there are no effective tools for representing social aspects and conceptions of place as part of a more holistic sustainable approach. Therefore, though my research looks at learning the “whole place” I will pay particular attentions to Conceptions as these seem to lack clear recommendations and tools.

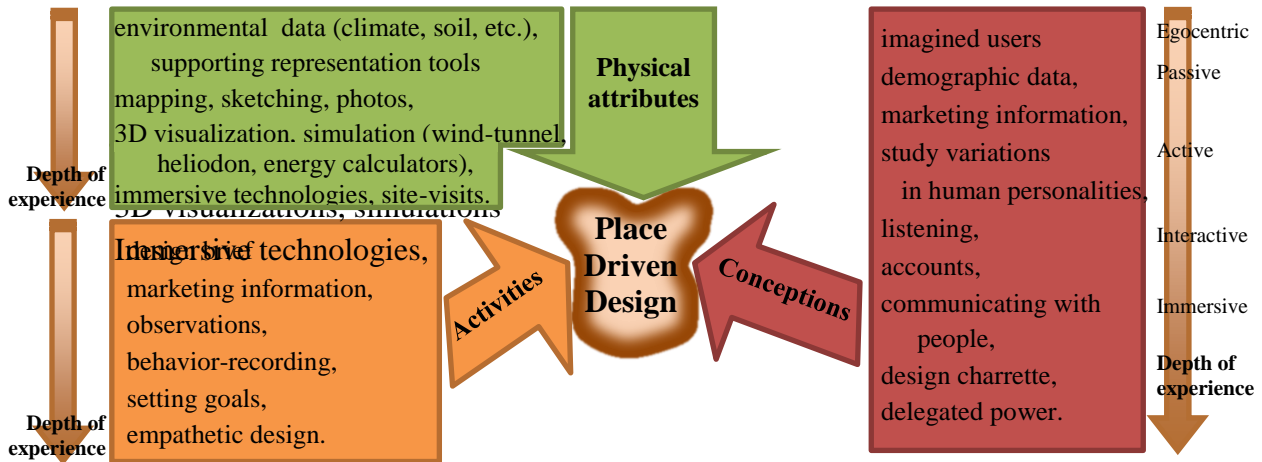


Figure 6: Learning the place and the people - recommendations from the design literature

Burns and Khan (2005) claim that “design does not simply impose on a place. Site and designer engage in a dialogic interaction.” From the place and design literature, and the important role of conceptions as a manifestation of the socio-cultural element of place, it becomes apparent that effective communication and interaction tools between designer and people in the place are required. The recent developments in social media may make these technologies an effective tool not only for communication, but also for organization and representation of place conceptions, as will be shown later.

### 2.1.3. Design in Extreme Conditions: Marginalized Places

The above literature provides insight into the recommendations for comprehending place and producing place appropriate designs. While some of the methods and existing tools identified may be enough for designing in simple design condition, these methods may not be available or effective in extreme design conditions. To make sure that the technologies tested in this research are applicable in all places, I will be looking at the extreme conditions of design. The following five main characteristics represent extreme conditions which make it particularly difficult for designers to become familiar with the place, defined here as marginalized places:

1. Underserved community: design projects in underserved communities represent extreme challenge for designers in getting familiar with the place. Lacking services such as education and infrastructure, marginalized places may lack local professionals to support environmental development and its design as well as different supporting infrastructure such as roads, financial institutions, etc.

2. Low resources: low financial resources and natural resources (e.g. clean water, building materials) are often limiting the choice of design-and-construction professionals as well as the choice of design solutions.
3. Emerging region: this condition represents a place going through fast and vast changes. The term “emerging markets” takes out the emphasis on industrialization as the only way to become developed. Nevertheless “the market” is not the only thing changing in these emerging conditions as often, with changes in the economy, a variety of other changes occur in the physical-environment, the activities and the conceptions of place. Emerging regions can be located developing countries or within economically developed countries.
4. Cultural gap: culture has a great influence on the conception of place, and the same place may be perceived differently by people of different cultures. Designers, as reflected in the literature, will often use their own conceptions of place as part of getting familiar with the place. When there are large differences between the culture of the place and the culture of the designer, her understanding of place may end up irrelevant to the actual place and local people.
5. Difficult access: A big distance between the place and the designer limits the amount of visits, adding challenges to the design process. Yet other conditions such as poor transportation services, safety and security may also restrict the designer’s access to place.

Looking at challenges in marginalized places beyond environmental design introduces some of the debates and highlights some solutions appropriate in these places. As with the social design movement described above, economic development efforts similarly reveal criticism towards the disconnection between the “designers” and the people on site. Easterly (2007) identifies the aid institutions and decision-makers as “planners.” He claims that planners apply a simplistic, external answer, derived from the West, to complex internal problems in developing regions that he calls “the Rest.” Easterly believes that development needs “searchers,” people *on site* who seek ways to make a specific task work. He emphasizes the personal responsibility of such searchers, who could be rewarded for achieving a high payoff for the poor. This analysis echoes the criticism of architecture as disconnected from the specific place, but furthermore it brings recommendations – designers should be on the ground and should be rewarded for the development they bring. While Easterly focuses on “on-site” searches to enhance development others have evaluated the role of ICT in the process of development with the idea that technology may replace some of the lacking services and infrastructure in these regions. As Information and Communication Technology developed, and particularly the Internet, it brought high hopes for eradicating socio-economic gaps by bringing cheaply and quickly information and services such as education, finance, etc. to marginalized places. Similarly, the premise of my hypothesis places hopes on the ability of ICT to help bring high quality design to these marginalized communities. The look at different case-studies in the field of Information and Communication Technology for Development (ICT4D) helped focus the role of ICT in the design process as supporting, rather than replacing, human interaction, as will be described below.

Brewer et al. (2005) suggests that ICTs do not offer a panacea to economic development; at best, they can enable new solutions when applied with a broad understanding of the local circumstances and while taking a multidisciplinary approach. Similar recommendations for using cross-disciplinarily teams and greater adjustments to local needs when deploying ICTs in

developing regions are given by Thompson (2008) and Heeks (2008). Kentaro Toyama (2010) suggests that “Technology is a magnifier of human/institutional intent and capacity”, yet, he adds, intent is hard to gauge and may be both positive and negative. Some scholars indeed emphasize the negative impact of technology on development: Ullrich in Sachs (1992) illustrates the connection of technology to growth by describing the large infrastructure that technologies require and the variety of industries it supports, technical and psycho-social<sup>14</sup>. The dominance of western society in technological development, Ullrich claims, makes technology a form of “friendly imperialism” – another way in which developing countries depend on western societies. This is particularly relevant to my research looking at ICT to support dependency on professional designers located in developed regions rather than locals. Hence, I will rely on the ICT as a magnifier of human interaction and will look at the findings through a broad understanding of development as freedom (Sen 1999). While ICT as a bridge, in the extreme conditions of design in marginalized places, may temporarily enhance dependency on outside professionals, the wide definition of place and the broad goal for “meeting the place” ensure that the design brings more opportunities and freedom than it may take from place.

#### 2.1.4. ICT for Comprehending Marginalized Place

As Cuff puts it, “the connections between places and individual behavior and perception are well established, both in the academy and in the minds of designers. The weaker link is between places and groups, societies, or culture” (Cuff 1989: 101). Cuff’s interviews with architects brought her to realize that they do think about people at the individual level, both in terms of behavior and conceptions, yet, in some projects whose influence may go beyond the individual users this is harder to achieve. This weak link, of learning conceptions of place, can be strengthened by finding more ways to represent the people as part of designer’s effort to “meet the place” since for designers to “meet the place” they must also “meet the people”. Together with gathering information about the site, the design process should also focus on the people by identifying the local conceptions of place. This kind of thinking is indeed common in its simplified version: when an architect is working on a house for his client, he starts by interviewing the client, who is also the user (or rather the client is evaluating the architect while explaining his need). Nevertheless, as Cuff shows, when projects get more complicated — when the clients are not the same as the users, or when the designers need to deal with a large group of individuals forming a society with one or more cultures — the available tools and methods are not suitable. This is particularly true in marginalized places where the local culture is very different from cultures the designer is familiar with, hence her own conceptions of place are different than the local conceptions, and more so if her ability to visit the place is restricted by geographical distance.

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<sup>14</sup> Ullrich gives the example of the car that requires physical infrastructure from roads to ambulance service and even lawyers, as well as the psycho-social infrastructure which requires from people to confront all the installations, facilities, and institutions from driving lessons, training children to cross the street till an expert and diligent industrial worker who also need more schooling and disciplining. (In Sachs, 1992:285)

In the debate about how to learn a place, it is still unclear whether information technology can help bridge the gap between the architect and the place. Computer simulation technologies have been broadly used to visualize design conditions, but there is still the need for a tool to help the designer herself understand better the context in-and-for-which she designs. Three dimensional virtual worlds and emerging interaction technologies are already recognized as state of the art technologies in the design realm (Boa, Cash and Hicks 2012) and are useful for immersion in a representation of the physical attributes of place, some activities and may even represent some of the place's conceptions. Kalay claims that implementing participatory methods in the information-gathering stage of the design process requires extended time and resources and is therefore limited. Even if the process is initiated, the large amount of information gathered may become "too difficult to manage to be of practical use" (Kalay 2004). He cites the example of using email to collect information from the public for the expansion of the San Francisco Exploratorium building and mentions the limitations of this technology in providing an effective representation. Nevertheless, social network sites (Boyd and Ellison 2010), with their ubiquitous nature, may be more effective design tools especially in the case of underserved communities. While keeping in mind that any representation changes the information and leaves some of it out (Kalay 2004), as ICTs and particularly social networks and crowd-sourcing are taking over a variety of activities, representing the place and the people might become significantly more manageable. Social networks have the ability to group people; therefor making a group of individual users into a more powerful community while crowd-sourcing provides an opportunity for a distributed problem-solving (Brabham 2008). The fact that this technology is already used extensively in marginalized places (Perez and Ben-David 2011) makes them particularly appropriate for bridging the gap between international designers and places in these regions.

Beyond their potential to communicate conceptions of place through Sen's (1999) freedom perspective social networks are a propellant for social freedom (Perez and Ben-David 2011). The variety of ICTs found in use by Perez and Ben-David allows communicating place-information of different types: video and photo streaming sites can represent physical properties, activities and conceptions depending on how the media is created. Interactive maps, such as Google Maps, can communicate physical properties but also conception through features such as "my places" allowing adding content into existing geographical information. Social networks such as Facebook can allow immersion into the local society and culture through different types of posts and shared media. Immersive virtual worlds, despite their immersive qualities, are more difficult to operate and require installations which are often unavailable for people in marginalized places using shared computers.

As this review highlights, people and their subjective understanding of place is one of the elements of place and a particularly important one in the context of development. Hence understanding place requires understanding people. As the title of my dissertation suggests, I am looking at creating a "meeting" between the place and the designers. I deliberately used the word "meet" rather than "learn" since meeting requires coming together — an active process on both sides, with strong social connotations. This decision is consistent with education theory of situated learning: "People process, represent, and remember in relation to each other and while located in a social world" (Lave 1991). To put this in the design context, a designer is more likely to internalize the fact that it takes six hours to get from the site to the nearest city if he hears about it as part of an experience shared by a local resident rather than if it comes up on

Google directions search. This increases the challenge of ICT as providing not only objective information, but also subjective information and indeed sharing of experiences is now taking a major part of our online presence, including that in developing regions. Nevertheless, a technology to bridge the gulf between service-providers and underserved communities will have to take into account limitations on both sides — limitations that are not only technical but include social, economic, and political perspectives as well.<sup>15</sup> While the uses of technology for development (ICT4D) and technology for design (Digital Design) develop separately, the use of information and communication technologies in environmental design, and especially when designing in marginalized places, has not been carefully examined. The next section will highlight what designers are currently doing to bridge the gap and which methods or tools they find useful.

## 2.2. DESIGNERS AND PLACE: HOW THE GAP IS BRIDGED IN PRACTICE?

The design literature provides a variety of recommendations regarding how designers should learn the place – are any of these recommendations used, or useful, in practice? This chapter explores the problem of learning the place from the practicing designer’s point of view, particularly those working on international projects. The purpose of this section is to define the properties of technology to meet the place, as reflected by architectural practice, both through architect’s actual methods to learn about place when they do have a geographical gap and when they don’t have one as well as through their evaluation of the current tools they use.

The extreme design condition represented through big geographical and cultural gaps between designers situated in developed regions and places situated in underserved communities can be divided into two very different design situations:

1. Commercial design in emerging regions. These are located in places that already start to emerge and go through vast and fast changes. While they may contain a variety of professional service-providers locally, they will often look outwards for designers in order to bring solutions that are attractive for outside investors and international companies. In the process they aim to bring qualities that may not exist with the local professionals frequently at the expense of the familiarity of the designer with the place.
2. Non-profit design in underserved communities. These are often rural communities that lack local professionals and are being served by international, non-profit design organizations who may either bring both the funds for the project and will provide the design, or will provide the design for free and the community will fund the construction.

Since both these conditions are common scenarios of extreme gaps, I will look separately at the two and at similarities and differences in how the gap is addressed with the goal to identify characteristics of effective methods and promising solutions, that could be later tested.

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<sup>15</sup> See, e.g.: Keniston, Kenneth, “Introduction: The Four Digital Divides” in Keniston and Kumar, eds. *Experience in India: Bridging the Digital Divide*, Sage Publications, 2004; Warschauer, Mark, "Reconceptualizing the Digital Divide." *First Monday*. 7.7, 2002

### 2.2.1. Methodology

In this part I rely on nine semi-structured interviews with architects, as well as documents and visual material they provided me or that was available on their website. Six of the architects work for firms or as freelance architects providing design and construction services for commercial projects. The others work for three different non-profit organizations, aiming to act as the bridge between communities and designers. Table 1 provides details on the interviewees and the type and locations of the projects I discussed with these architects.

Pseudonym	Architect Location	Project locations	Project types
1: Idan Aviv	Israel	Africa (Angola, Nigeria)	Big housing projects, hotels
2: Gabriel Jacob	Israel	India and eastern Europe	Malls, housing
3: James Francis	California	India, China, Korea	Shopping malls, office buildings
4: Patrick Chick	Boston	Turkey	Education institute
5: Colin Wader	New York	China, Dubai	Multi-use mega- projects
6: Paul Strad	California	California	Medical center

NGO	Location	Project locations	Project types
7. Erol Kellogg InternationalNGO	Various worldwide locations	Africa	Small to medium, local projects for poor communities. Schools buildings, community centers
8. Jeff Cane US-Student	Different U.S. location	Central America	Small to medium, local projects for poor communities.
9. Bob Guy UrbanNGO	U.S. city	a U.S. city	Large planning project influencing many stakeholders.

Table 1: Interviewees and project characteristics

## 2.2.2. Commercial architecture

### 2.2.2.1. Through the Israeli Lens

As I developed my research interests and began sharing them with my colleagues, I was surprised to discover the large number of Israeli architecture firms involved in international design projects in India, Africa, and Eastern Europe. Many of these firms are not particularly big nor especially prestigious.

A series of articles<sup>16</sup> published in February-March 2008 by Esther Zandberg, an Israeli journalist who specializes in architecture and planning issues in Israel, writing for Haaretz's art section, shed light on some possible explanations. I am including here some of her journalistic point of view, loosely translated from Hebrew, as it contextualizes the discussion of learning the place in commercial projects in developing regions. Furthermore, the conditions she describes are similar to those I investigated through my interviews both with Israeli and non-Israeli architects.

To understand the volume of the export of Israeli architectural services, Zandberg (2008a) quotes sources in the construction industry claiming that three leading Israeli architecture firms hold 70% of the work in Eastern Europe. In addition, tens of other Israeli architecture firms working abroad are taking part in what Zandberg calls "the massive architectural real-estate gluttony and the spread of an instant architecture over many states and over hundreds of thousands acres of construction land" (Zandberg 2008a).

To answer the question, why Israeli architects are so dominant in these markets compared to other nations, Zandberg quotes an anonymous architect: "Because we are more bold and have more Chutzpa. If we are told to design five stories we immediately ask why not thirty and we can also get the permit for it."

Zandberg also interviewed Yossi Sivan, a partner in Moore-Yasky-Sivan,<sup>17</sup> Israel's leading firm with 111 employees,<sup>18</sup> who specialized in tower-buildings and works extensively in Eastern Europe. Sivan describes the advantage of Israeli architects in the construction industry in East Europe: "For me, this is first [due to] the shared language and mentality that we have in our backgrounds. I don't speak Russian but my parents spoke Russian at home and when I came to Russia and Ukraine I felt quite at home" (Zandberg 2008a). The second explanation Sivan provides is the lack of experience of local architects in construction of contemporary buildings. But when Zandberg expresses her surprise that this is still the case after so many years have passed since the fall of the communist world, he adds: "Israeli entrepreneurs still prefer us" — again, because of a shared professional mentality.

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<sup>16</sup> Three of the five articles in the series, that I relied on, can be found here (Hebrew): <http://www.haaretz.co.il/gallery/art/1.1303330>, <http://www.haaretz.co.il/gallery/art/1.1304751>, <http://www.haaretz.co.il/gallery/art/1.1309711>

<sup>17</sup> <http://www.m-y-s.com/>

<sup>18</sup> According to D&B ranking 2011: <http://duns100.dundb.co.il/ts.cgi?tsscript=/2012h/Architecture1>

Thus, the Israeli entrepreneur abroad seems to be the fundamental driving force for bringing Israeli design firms to emerging regions. This is echoed also in Zandberg's interview with Uri Blumenthal, head of a small Israeli firm<sup>19</sup> with expertise in hotel buildings who worked with a big Israeli entrepreneur on projects in London, Eastern Europe, and other locations. He admits that it is not his spectacular talent that brought him to design three hotels in London, but his connection and professional experience working with Eli Papouchado, an Israeli developer and the chair of Park Plaza Hotel Group.<sup>20</sup> "We all made it here due to the developer. We don't deserve to export Israeli architecture abroad," says Blumenthal referring to himself and his Israeli colleagues working abroad (Zandberg 2008c).

### *Relationship with Local Place through Local Professionals*

Zandberg identifies a pattern of collaboration between Israeli and local architecture firms: The Israeli firms will create the conceptual design, and the local firm will take care of the construction drawings, permits, and bureaucracy. Motti Kassif, a partner at BLK,<sup>21</sup> one of the five biggest architecture firms in Israel, with 56 employees and a high volume of construction abroad, calls this design process "copywriting of architectural sketches." BLK partnered with Richard Meier as the local architect for a fancy condominium building in Tel-Aviv,<sup>22</sup> and therefore has design experiences both as the local and as the international architect. Kassif explains how he feels about the partnership between the international and the local architecture firms: "For Meier I am the local architect doing the dirty job; I have no problem with that because abroad I am 'their Meier' and they are doing my dirty job" (Zandberg 2008b). Blumenthal describes his architectural role in London as being the linkage between the Israeli entrepreneur and the local requirements: "as a professional, I help the developer combine the systemic British attitude and the Israeli thinking which is more efficient. We [Israeli architects] utilize the space better. With the same basic area I can extract more and improve the product based on the owner's requirements" (Zandberg 2008c).

### *Relationship with Place through the Client*

Sivan explains that, in places that require blending into the local fabric, they will fit the design to the local context; yet, where this is not a requirement, conflicts are created between the existing and the new buildings: "we are part of this system, for good and for bad, and we are trying to do the best we can," he states (Zandberg 2008a).

Housing projects are different and less globalized than shopping malls and hotels, and they also look better, claims Zandberg. BLK builds a lot of housing for the medium-upper class. This type of design requires more collaboration with the local architect as well as exposure to the local lifestyle. Kassif explains the different habits of the local people, which don't allow importing the typical Israeli high-rise housing building. In the emerging markets of Eastern Europe, people are satisfied with apartments that open to one direction only, and they have no

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<sup>19</sup> According to their website they employ 10 architects, technicians and administrative staff  
<http://www.blumenthal.co.il/>

<sup>20</sup> <http://www.pphe.com/>

<sup>21</sup> <http://www.blk-arc.co.il>

<sup>22</sup> Rothschild Tower: <http://www.richardmeier.com/www/#/projects/architecture/location/asia/israel/1/322/0/>



problem living on the ground floor facing the street; therefore the typical Israeli H-shape building, which allows 3 directions of airflow for each unit, is irrelevant. The buildings in Eastern Europe look more like boxes and the apartments are smaller — usually with one bedroom: if they have a child, it will sleep in the living room, explains Kassif. Their demands are more modest than Israeli home owners, and they don't have much money. But this will change with time, he predicts. Moshe Zur, of Moshe Zur Architects & Town Planners — another one of the top five Israeli firms — finds comfort in not doing worse than the local architects: “In many countries, like Russia, local architects going wild with architecture are doing much more damage than the foreign ones. And I am not referring only to the Israeli foreign architects. I don't feel like a colonialist there. Many local firms design just like me” (Zandberg 2008b).

### *Commercial Architecture – Through the Israeli Lens: Summary*

Within Zandberg's set of articles several reasons are mentioned for bringing in international architects to a commercial project in an emerging region:

- International developer – The investor/developer will often look for professional designers he is familiar with and that speak his own language (spoken language and design language)
- Design efficiency – Both efficiency in the design process due to experience with international projects and efficiency in the design results – better use of space, which brings cost down.
- Designer changing the rules – The architect called it “Chutzpa” and related it to the Israeli character, but it may be a broader condition in which international designers, with their experience in the free market economy, are more confident than local designers who are often new in these emerging conditions. Hence, they will ask more questions, frequently question the system, and will often achieve more, especially in emerging regions where regulations on the construction industry are still unstable and flexibility may be greater.

While a local architect seems to be always present in the design process their influence may vary. Three levels of interaction with place seem to be dominant through the conditions presented by Zandberg in her articles:

1. Local character required as part of local codes – these conditions will force international architects to learn the local place.
2. Direct local clients – when the customers are locals, such as in housing project more effort will be made by designers to fit the place and the people.
3. International clients. When the clients are international firms, such as in the case of shopping malls and office buildings, architects will focus less on the local conditions of the place.

Zandberg criticizes the phenomenon at all three levels, and sees the architects involved as “contributors to cultural colonialism, fast spreading capitalism, widening gaps and import of design concepts that the West is by now grieving” (Zandberg 2008a). Equipped with a better understanding of the context and reasons to bring international architects and with her sever

critique off the phenomena in mind, I will be doing my own investigation into actual methods used by architects to do “the best they can” in these global conditions.

#### 2.2.2.2.Meeting the Place: Interviews with Architects working on Commercial Projects

The first five architects I interviewed are working on designs for big buildings – offices, condos, hotels, etc. Most users of these buildings are wealthy locals, or foreigners working in developing countries. The clients were usually big multinational corporations. The goal of the client was to create a building with a contemporary, high-tech look.

Incorporating local style and characteristics was not part of the requirements of the projects described by my interviewees. Nevertheless, some of the architects I interviewed wanted to incorporate local aspects as part of their own professional ethic, and the conversation rolled toward their struggle to do so. Others focused on meeting the client’s requirements. But a building still sits on the ground, and in all cases a map of the site was the minimal starting point. A few photos of the site were also common, though not necessarily in all cases; and two architects mentioned situations in which the only link to the place they were provided was the map.

#### *Is a Picture Better Than a Thousand Words? Google Maps, Affordances, and Other Visuals*

When asked how they start looking for additional information about their project, Google Maps was often mentioned to be the first place. Google Maps provides maps and satellite images of the world: aerial photos, taken from airplanes provide high resolution photos, mostly of urban areas, while other photos are taken through satellite and provide lower resolution. Aerial photos were used in design before Google posted them publicly in 2005: aerial or satellite photos would be purchased for use in specific architecture or planning projects. Nevertheless, for many projects in developing regions, aerial photos were not provided. James Francis mentions that in one of the competitions for a big office building in India, only site-maps were provided. These maps failed to include a river that passed across the back of the site. He discovered the river only after winning the competition, when he was invited for a site visit. Therefore, Francis explains, the building doesn’t relate to river as he would otherwise have done.

Idan Aviv was working for an Israeli architecture firm on projects in Angola. As described in Zandberg’s articles, an Israeli development and construction company commissioned the design work to the Israeli firm where Aviv worked. Projects were mostly housing— single unit housing, condos, and hotels built for multinational corporations who needed to house their European or American employees. Aviv testifies that the local information he was provided was usually limited to a topographical map. He would then check Google Maps as well as other sources, online or in books, to learn about the local climate, history, etc.

Gabriel Jacob had a similar experience when working on a shopping mall in India for a small Israeli architectural firm: “When I started working on the project, there were only very initial sketches. The information I had was from Google maps; after 2-3 months I flew there and visited the site and took photos.” Being able to have a first-hand visit of the site was not the common situation for the architects working on these international projects. In the case of the Angola project, except for his boss, Aviv was the only designer who visited the place, though

other architects in the firm were working on a variety of projects in that area. According to Aviv, he was invited to join his boss a full year after he was working on projects in Angola, as a token of appreciation for his hard work and not directly as a design need.

But when a visit was not feasible, Aviv looked for a messenger to take photos on his behalf. He recalls a particularly challenging project in Nigeria, when he worked on an expansion of a village that would house workers for a big new agricultural development project:

*I realized that I have no idea how people live there, all I knew about Africa was those little straw houses. So I really insisted on getting some street photos, to understand the local culture of the street, how the houses relate to the street, what kind of opening they use, etc.*

Eventually Aviv managed to get such photos through the Israeli developer's employees who would regularly visit to attend meetings, etc. "What I received was a photo showing streets of shacks [built of waste materials], with no infrastructure, and in the middle of the photo one high-rise was standing. So what should I rely on? Clearly, in a few years, it will not look like that... I have nothing to rely on, so why do I need these photos?" Aviv's professional frustration is heard in his voice. Then he corrects himself and says that the photo was useful to understand what is going on; it reinforced his gut feeling not to choose aluminum and glass for these buildings, as he had been directed by the client. He ended up designing a heavy-mass building.

Aerial and site photos are clearly the architect's main window into the place. Colin Wader who worked in a big international firm in New York, mentioned that he would get photos for a project in China through a local Chinese employee hired by his firm. Beyond these photos, architects would simply Google the name of the place and search for what they would feel is appropriate information. Wikipedia, Wader testifies, was often used for quick learning of local history — but all these available sources, he recalls, didn't prevent the multinational firm from designing urinals facing Mecca in a big office building in Dubai. The drawings had to go through last minute changes, at high cost.

As an abstract example for the use of photos as inspirational material, Patrick Chick, who works in the Boston office of a multinational firm, shared with me photo-boards created for different projects. The photos are there to inspire and stimulate discussions. Some photos are taken from the site or the surrounding, while others would relate to intended activities in the building.

Obviously, photos are an important tool for designers of any project; the sources of photos, however, are diverse, and while photos showing local culture are preferred, architects end up using what they have — sometimes whatever came up on Google-Images, as Wader explains. What makes Google a fundamental tool for the design process in these cases is not the quality of the information but rather the instant availability of free, crowd-sourced images that help produce a quick visual representation of place. These qualities may also be the reason for what Zandberg calls "instant architecture," and, while some architects are trying to gain access to additional sources, some are content to use only what has been provided.

### *Communication and technology*

Another important need mentioned as part of the early design process relates to communication. All interviewees mentioned having some contact persons in the local country. Aviv's firm worked for an Israeli developer who had offices both in Israel and Africa. Israeli employees were frequent travelers between the countries, and Aviv used them as a bridge to the site, not only for taking photos but also for asking about the sites, the materials available, the people's lifestyle, etc.

It is ironic that developers would seek a common language with the architect, rather than the local language, for facilitating communication between the architect and place. Even in places where they are forced to have a local architect, they would still invest in bringing in another firm of their own culture. In the shopping mall designed by Jacob, the Israeli developer had a local Indian partner and each developer brought their own design firm. They even conducted a competition for the design among the firms, which the Israelis won. Jacob provides his own insight into this relationship: "The role of the Indian firm was to support us with the complex Indian regulations. Within the year I worked on the project, it [the site] was downsized three times due to changes in regulations requiring larger roads, etc."

The main communication tool was email, but phone was also available and used. Though there wasn't any technology barrier, communication was difficult, according to Jacob. The Israeli architecture firm would send emails with attached drawings to get the local firm's feedback and they would get a response only after a couple of weeks — after the design was already much developed. No one at the local firm wanted to take responsibility for providing answers. In places where regulations change so often, this is not surprising, but when the other side is under pressure to stick to timetables and budgets, this creates conflicts.

Aviv recalls a situation in which email was actually useful to get local information. The Israeli entrepreneur who builds the apartment buildings in Angola, Aviv notes, sells most of the units even before the design is finalized. This created a problem when they couldn't make necessary changes in parking spots, as the units were already sold. On the other hand, knowing the user so early in the design process is a great thing as it may allow the adjustment of the units to the actual client, Aviv said. "And did it happen in practice?" I ask. "No, not really," he admits, but then he corrects himself: "Actually, yes. Once, in the design of an office floor, I did adjustments to fit the clients who bought the offices — I made some rooms bigger or smaller as they required." This communication, he says, was done through email, not directly with the client but through the developer's employees, who forwarded these email requests.

The need for two architecture firms, a foreign and a local, is not unique to cases involving foreign developers. Francis claims it is common for private and public entities in developing countries to run international competitions, in order to get design ideas that fit a western look — and then handle the construction through local firms. As a winner in such design competitions, Francis testifies that he would rarely get clarification questions from the local firm producing the construction documents (though, he recalls one question asking for details about a particular roof material); he would often end up getting a photos of the final building showing many adjustments been done locally which mutilated, he felt, many aspects of his original design.

In contrast to these international examples, the interview with Paul Strad was useful in understanding how learning the place is done when there are no significant geographical or cultural gaps. Strad was working for a San Francisco based international firm on a nearby medical center, where he had direct contact with the future occupants (who worked in a neighboring building). Following his own design instincts rather than directions from his superiors, he aimed at understanding the users. In addition to official meetings and interviews with users and clients, he recalls unofficial discussions that revealed individual characteristics relevant to his design. Over a beer with a medical manager, he learned that the man was a martial art master and would love to be able to share this passion with other employees. Strad therefore designed one of the spaces in the building to fit the needs of a morning martial art session, and learned that the employees in fact assemble there regularly to practice. Strad mentioned that the limited time allocated to interaction with clients and users is often not enough to understand the users, so he tries to stretch conversations outside the limited meeting times and into the social realm. This highlights a common failure mode between designers and local people in the developing world — the lack of spontaneous conversations and social interactions.

### 2.2.2.3. Findings in Commercialized Design

Table 2 summarizes the methods used for learning of place as distilled from the interviews divided into Canter's three elements of place

<b>Findings</b>	<b>Methods used when site is accessible</b>	<b>Technology used when site is not accessible</b>
Physical Attributes	Site visits; photos/sketches; camping on site; maps; 2D aerial photos; Google Maps	Aerial photos, Google Maps, self-taken photos, photos taken by proxy, Google images, books
Activities	Building program; meetings with client; official and informal discussions	Building program, photo boards
Conceptions	Interviews, workshops, informal conversation and socializing with clients/users	Email, phone calls with the local firm

Table 2: Methods of learning the place (based on interviews)

These insights onto methodologies that are in actual use by designers in the globalized building industry are inconsistent with the recommendations given to architects in the literature and in their formal education. This inconsistency is especially blunt for design across cultural and geographical gaps. Theoretic knowledge produced in the social factors movement has had surprisingly little impact, certainly in the extreme cases where local information is particularly missing. Instead of having architects use ethnographic methods or bring a dedicated professional to focus on bridging wide cultural and geographical gaps, the interviews show frustrated architects basing huge design projects on very little place-related information.

### 2.2.3. Non-profit design

The next set of interviews, focused on non-profit organizations, presents a more optimistic picture. The commercial projects mainly targeted upper or middle class users. Poor communities, typically, cannot afford architects at all, and most certainly would not hire foreign designers; they would therefore use a local contractor. With the goal to improve the built environment in developing regions, several nonprofit organizations were established in an attempt to address these limitations. The following section analyze interviews with employees of such organizations; Two of the organizations harness international design competitions as a way to both incentivize western designers and offer the target communities a variety of design choices. The third interview, with an employee of nonprofit that operates in a major U.S. metropolitan area, explores how learning the place is done when no geographical or cultural gaps exist.

#### 2.2.3.1. “US-student” Nonprofit Organization

US-student is a pseudonym to represent a larger aid organization that includes design as one of its focus areas. It harnesses students to provide sponsorship and labor for development work. In exchange, the students get an opportunity to practice their studies in real world situations, while being exposed to development work in their field of interest as well as getting an exotic social and cultural experience — a form of *voluntourism*. The methods used by US-student are particularly useful to my research, as they experimented with two distinct methods, allowing for a valuable comparison. In the first method, the student-architects would design on site and then return, on a second trip, for the construction phase. In the second method, the student-architects were designing in their home countries, several months before making a single site visit for construction. The first approach was used in Panama: a small group of students flew to Panama for an eight-day design session in which they lived close to site and interacted with the local community. In a later project in Honduras, “US-Student” decided to change their method: the design process was done through a competition, before students travelled to Honduras. The reasons for this change, according to Jeff Cane, founder of the design section of “US-student”, were threefold:

1. Jeff’s limited capacity as the only staff member made managing many simultaneous projects challenging, especially at multiple locations and primarily during the academic vacations.
2. The design process requires professional skills; therefore, “design trips” narrowed the number of students involved. An off-site design process, followed by a “construction trip,” enabled the inclusion of students from diversified disciplines. The wider participation helped fund these projects and also brought the benefits of cross-disciplinary collaboration.
3. A key attraction of the program is the exposure of students to both the design and the construction stages, unlike traditional academic experience. Nevertheless, the costs associated with two trips, one for the design phase and the other for construction, are prohibitive. Given the logistic challenges of completing the two phases in a single stretch, US-student chose to move the design process off-site, to the designers’ country, and only travel for construction.

This change in methodology provided insights about both approaches.

*The on-site design approach*

During the trip to Panama, the designers worked with cooperative farms, living on the farm with the community; they hiked through the land, looked at their way of living and building, and conducted surveys and interviews to learn people’s desires from the project, what kind of materials they preferred, etc. Over a four-day design charette, the students would meet with the community during the day, work on the design in the evening, and then present it to the community the next morning. When the designers live with the community, as in the Panama model, they are immersed in place and are likely to learn many of the place’s ingredients, whether unconsciously captured or intentionally explored.

Once the students left, Jeff would develop the design into construction documents and would prepare for the construction phase. Four months later, a second group of students would come for construction, only some of whom had participated in the design.

*The off-site design competition*

In the Honduras model, the design for a middle school building was part of a competition between universities. A competition package was provided that included building specifications, a list of available construction materials, a site map, and photos of the site, the village, and the surrounding area. Construction drawings of a traditional Honduras building were attached, as an example of construction techniques. Table 3 categorizes the materials provided and the range of questions from the students (emailed to Jeff). Again, I used Canter’s Place definitions (1977, 158) to group the data.

	<b>Program</b>	<b>Students’ questions</b>
Physical Attributes	map, photos, traditional Honduras building techniques.	What’s the deal with the existing structure? Materials – what’s available? What building methods are available? Prevailing winds? What do the topo lines mean? Should this tie into the existing school? Square footages in competition brochure – set in stone or open to interpretation? Construction resources? What surrounds the Site? Are the trees on the site-plan accurate? Are fabrics/mesh/screens available for openings in the structure? Is a site elevation available?

Activities	building requirements community information photos	
Conceptions	building requirements, teacher surveys	
Other (submission- related info)		How advanced does the design have to be? How many designs may each club submit? Budget – do we need one?

Table 3: Place information for off-site design competition

The teacher’s survey — as part of the competition package — included some information about local conceptions. The teacher also addressed some questions about teaching and learning habits in the schools and about hopes for the new building. However, as Table 3 shows, most of the questions asked by the students related to the physical properties of the place; a few discuss the activities, but none of the students’ questions addressed the conceptions of the local community.

*Findings*

Moving from a close interaction between designers and place to a distant and mediated interaction required more adjustments; it was necessary to explicitly share the design with the community and learn their priorities. In the Panama version, such refinement feedback from the community happened naturally, as part of the ongoing interaction with the students. Nevertheless, since the move from conceptual design to construction requires detailed work in any case, Jeff (the program founder) judged that these drawbacks were outweighed by the advantages of broader involvement in design.

Jeff’s describes his role as the architect of record, working with the community on creating the structure. During the conceptual design, Jeff provides the link between the designers and the community; he is also the one doing the “dirty work” of moving from the student’s conceptual design to the construction drawings; and finally, he supervises the construction as teams of students, community members, and construction workers come in and out of the project. Having Jeff, as architect, situated within the country (and de-facto doing the design) goes a long way toward eliminating the gap between designer and place. Similar conditions exist in other design non-profit organizations I interviewed. The organizations are acting as the bridge balancing top-down and bottom-up methods by sending a professional, international designer to work with the community at the place and bridge between other international designers and the local people.



### 2.2.3.2. Citizen's Conceptions through an Urban NGO

#### *Organization background*

“UrbanNGO” is the pseudonym for a member-supported nonprofit organization in a big U.S. metropolis. The goal of the organization, as declared on its website, is to promote good planning, through education, advocacy, and research. According to their mission statement, UrbanNGO plays a crucial role in bringing citizens together to jointly find solutions to urban problems.

I contacted UrbanNGO as I wanted to explore what is “good planning,” as exercised close to home, with no cultural or geographical constraints, and especially how they position themselves between the public, professional planners, and decision-makers. I interviewed Bruce, a program manager, who explained that the organization represents both the public (being member-supported) and specialists who work for and with the organization. Their recently established space, in one of the cultural centers of the city, is used “both for visual materials and for conversations, lectures, forums and stuff like that.”

#### *Project background*

Bruce is running one of the unique projects carried out by the organization. As part of this eighteen-month project the team will write a set of recommendations for a master plan for one of the city's complex waterfront neighborhoods, combining a park, a highway, housing, etc. These recommendations will need to be approved through the regular public sector process, but once a local consensus is obtained, the plan has stronger momentum to get through that process with little friction.

The project is funded by a combination of grants from federal, state and local levels. All these agencies have some jurisdictional power over the target neighborhood; Bruce therefore sees his job as bringing together not only community members with different concerns, but also “a community of affected agencies” (as he calls them). His first task was therefore to list the stakeholders and talk to as many as he could, one-on-one, asking such questions as: What are your concerns? What has your involvement been? What would you like to see happen? This, he notes, “was just kind of for my own benefit to understand who's interested, who's been involved.” UrbanNGO does not usually deal with master plans, but the agency that wrote the original grant needed “an outside party to come in and convince all the different stakeholders to get beyond any one issue and look at the big picture.” UrbanNGO was chosen due to their ability to sustain the public advocacy work on the plan after the design process is completed and the plan moves to official approval and implementation — a task that a private planning firm, without UrbanNGO's position within the community, would not be able to do.

UrbanNGO therefore hired five professional consultants, including a big urban design firm and an engineering firm, to support the professional aspects. Together, they conducted three public workshops: a preparative one, a main working session, and a concluding session. The first was about the “baseline research, defining the problem” and making sure the team didn't miss any stakeholders or concerns. This workshop resulted in four scenarios; each scenario prioritized a single main issue, such as nature protection or infrastructure upgrade, as a way of emphasizing

the differences between alternative approaches. After the design firm, engineers, and economic consultants evaluated each scenario and drafted the various outcomes, these implications were presented in the second workshop. The goal of this workshop was “to take people through the thinking process.” During the workshop participants were divided into groups, each taking one of the single-issue scenarios and discussing what works and what doesn’t, and what they found appealing or not. The groups focused their discussion around the different tradeoffs, making detailed notes and drawings. The goal, as Bruce describes it, is to get “a sense of which of the elements really capture people’s imaginations”:

*What are things that people are really bothered by. And ...kind of articulating what’s the narrative that kind of sticks with people in a positive way. And then that becomes the basis of developing a preferred alternative, and it’s tricky because people may be attracted to things that are mutually exclusive. They often are: I want to flush my toilet and now have clean water but I don’t want any infrastructure. Well sorry pal, it doesn’t work that way! So that’s the kind of process because we have to take it back internally to the team and then sit with, well, here are the conflicting news we’re hearing. But lo and behold, we have these surprises of things that people love. Let’s build our co-solution around that and go for this.*

The professional team then drafts the preferred alternative. In the last public meeting, Bruce and the team would present it and get final feedback, before finalizing their recommendations.

### *Findings*

Besides the interview with Bruce, I attended and observed the project’s second workshop. I also followed the project’s public media, through their website, mailing list, Facebook page, Twitter and Flickr, and analyzed the material shared, including the written comments received by UrbanNGO through the public meetings, emails, and an online survey. My goal was to identify the different tools, how they were used, and what was their influence.

#### Non-electronic tools: Communicative Action

During the workshop, most of the activities were done with non-electronic tools such as maps, paper, markers, and post-it notes, as well as discussions among the participants. Food and drinks were served as part of the workshop — providing an important social element.



Figure 7: Non-digital tools used in UrbanNGO public participation workshop

These activities follow Habermas' (1984) communicative action process and are common public participation practices. Through communicative action, UrbanNGO allowed the participants to rationalize the design process by using argumentation and discussions supported by visuals. Since this is done while the design is still in process, it is potentially more influential than having the public react retroactively through the available standard formal procedures.

A comment written after the third workshop by one of the attendees describes how hearing the explanations directly from Bruce changed his mind about moving a road in the project, as compared to "just seeing the written plan." This supports one of UrbanNGO's goals in the project: to bring to public awareness the complexities and tradeoffs involved in every design decision.

*By having a more robust and more complicated dialogue through its public programs [UrbanNGO] is trying to ... raise the level of that [dialogue] and get into a more nuanced kind of place with respect to some of the big debates and that I think UrbanNGO is pretty successful at building bridges among different factions and so forth by, through the quality of the discourse.*

This is particularly important, given that many of the democratic public planning systems are only open to objections after the fact and therefore force public participants to take an extreme one-sided position if they would like to influence planning processes. By being exposed to the different views surrounding a problem, there is a better chance that the public will accept proposed solutions. That is a major goal of UrbanNGO's approach:

*A measure of whether we're doing our job is that when we come to our answer we've explained the tradeoff adequately. That even if someone doesn't agree with the approach that we take, they understand why we took it.*

#### ICT tools

During the second public meeting, ICT was used only as a display aid. A formal slide-show presentation started the meeting to provide information about the project in general, what was done in the previous meeting, what was done with the information gathered at that meeting, and what will be done in the current workshop (Figure 8, left). Laptops were also available, allowing participants to browse individually through the details of each scenario; these were used by 10% of the attendees (Figure 8, right).



Figure 8: Projected slideshow as part of a formal introduction (left); laptop screens allowing participants to browse individually through details (right)

After the first workshop, Bruce and his team posted on their website photos capturing all the comments written through post-it notes. Posting comments online is more than an efficient way of documenting and sharing; it also acknowledges people’s influence. As Bruce explains it:

*It was very important for us in terms of being seen as good actor, and ... people who are skeptics can go on to our website and look up and find their comments and know who that is, [and that their comments are] being at least carried forward. I mean we can’t please everyone but we can acknowledge everything that is said. That’s the goal.*

In addition to the website, a variety of social networks were used. The organization has a Facebook page with nearly 3000 “likes,” and the project also has its own Facebook page, with 254 total “likes” in a two-year period.<sup>23</sup> The organizers posted about 40 items, including 5 events, 76 “likes” on these posts, and 13 comments to them. The project’s Facebook page is also open to posts from the public, and 9 posts were contributed by others. None of the posts or discussions are direct feedback on the design projects; most of the posts relate to events and activities around the project’s neighborhood. One post directly publicized the development of the projects, though no direct feedback was provided through this channel (except one complaint of not receiving a phone or email reply to a question).

Supporting and scrutinizing design through different media:

UrbanNGO collected both qualitative and quantitative information, both during the workshops and outside the workshop through online media (email and online questionnaire) as well as traditional postal service (one reported use). As mentioned, the website and Facebook

<sup>23</sup> The numbers provided are from the creation of the page on September 30, 2010 till September 30 2012.

page were not directly use for design feedback and comments. Counting the different responses, similar proportions of positive and negative responses were found in the paper survey, among workshop participants, and in the online survey (which was available to those who attended the workshops and those who didn't). While the media didn't influence the type of feedback received, the type of question did result in different reactions: the closed questions elicited very high support of the plan, while the open-ended questions resulted in more criticism of the plan.

### *Urban NGO – Summary and Conclusions*

The following is a summary of methods used by UrbanNGO to learn conceptions and how it was enhanced through ICTs:

- *Listening*: UrbanNGO invested in learning the place through many kinds of face-to-face and online tools, in a very thorough process of learning Canter's conceptions of place (Canter 1977). The online survey tools allowed broadening the public feedback beyond those attending the workshops.
- *Voicing*: The website and social networks, (mailing list, Facebook page, Flickr, and Twitter) support the pluralism aspect of democracy, allowing all voices to be heard — and potentially to be heard better with these online tools than without them. Therefore, using Toyama's term, the online tools “augment the intentions” (Toyama 2010) of UrbanNGO. In the case of this project, these intentions included education, public advocacy, and voicing the public.
- *Communicative Action*: Direct public interaction with the design problem through discussions is an important part in the public advocacy:

*The truth is, we're gonna end up somewhere in the middle in the element of each [scenario]. But we want to take people through the thinking process. And that's a really important thing in this kind of process work is that you have to explain. You ... have to ask the public to ... come along through your thought process. Because otherwise they're never gonna believe you.*

While listening and voicing were highly augmented through online tools, this “coming along” process was only done through face-to-face communicative action. Posting online the information from the workshops helped in bringing along some citizens who hadn't participated, but that did not create communicative action. The online feedback tools elicited more skepticism and criticism than the workshop surveys did.

UrbanNGO had eighteen months and \$500,000 to develop the plan. It is unclear how the investment was allocated among interaction with the public at large, interaction among the different professional agencies, and interaction within the small planning team. In the case of this project, opening the process to input from a wide variety of stakeholders may be worthwhile, as the planning decisions will have a huge impact on many people and many aspects of life — and especially since the public process requires public hearings that can bring such a complex project to a halt. Therefore, enlisting some of the people to support the project may be an important part of realizing it. Through the 3 public workshops and additional communication tools, UrbanNGO

worked well on understanding conceptions and use a variety of digital media to represent it back to the public. Nevertheless, it would be hard to evaluate how well UrbanNGO “met” the place since the design process was done in a small, professional team, and in a non-transparent way. Incorporating the place information into the design is an important part of “meeting the place”.

#### 2.2.4. Bridging the GAP: Commercial and Non-Profit Design Practices

The look at the non-profit realm provided a look into a different set of priorities – the focus of design moves from satisfying the customer to satisfying the user. While these are not necessarily contradicting goals, even when users and customers are separate entities, putting at top priority one or the other, results in using different methods. In the Non-profit world, successful projects are measured by their use, photos of happy native kids sitting and smiling in a classroom may bring the fund for the next project. Therefore, getting familiar with the place and particularly understanding conceptions is an important part of the process, and done through questionnaires, interviews, communicative action and design charrettes. While designers of commercial architecture in marginalized places may have similar aspirations for learning the place, the low priority that the customer, who is often non-local himself, gives to the local elements of place, make this aspiration unrealized. Designers working on commercial projects in marginalized regions, motivated by their own professional ethics, often try to bridge the gap by using free available online resources and by activating other professionals who do go back and forth between places, to collect information from the place, mostly by taking photos. Sending the architect of record to visit the place is usually not within the budget priorities.

The amount of interaction, and iterations - number of times information is moving from place-to-designer-to-place and so on, seem to give the designers a better feeling of understanding the place. While the designers in the commercial realm had very little information from the place and no means of communication to iterate the information to fit the design needs, in the nonprofit realm the information was traveling much easier: Some NGOs focused on representing place through a simple set of information packages provided to the designers, others gave agency to the people in place by allowing direct interaction or mediated interaction between designers and place hence opening a channel for more iteration of the information going between place and designer. Immersion in place, through visits and design charrettes allowed countless amounts of information to go back and forth between place and designer consciously and unconscious

Finally, an important feature of meeting the place in these examples is how the information was implemented. Including the people in the design process as decision makers, empowers the users and requires the designer to incorporate these conceptions into the design.

### 2.3. DEPTH OF MEETING THE PLACE – CONCLUSIONS

The different ways architects are meeting the place in practice can be divided into six levels of depth. If the goal of meeting the place is restricted to “learning the place” than, like any learning, it is a bottomless pit process, or rather, it is as large as the universe. You can never fully learn the place, as there is always something else to learn. But with the goal of “meeting the place” – becoming familiar with the three elements of place and meeting their needs through design which is appropriate to the place, the task is slightly more focused. Based on the examples

I explored, we can construct a scale of meeting the place (Figure 9). This scale can help designers identify methods they used and which additional steps they can take to reach the next level of meeting the place, asking what can be done more rather than simply “doing the best we can with what we have,” may result in place-appropriate design.

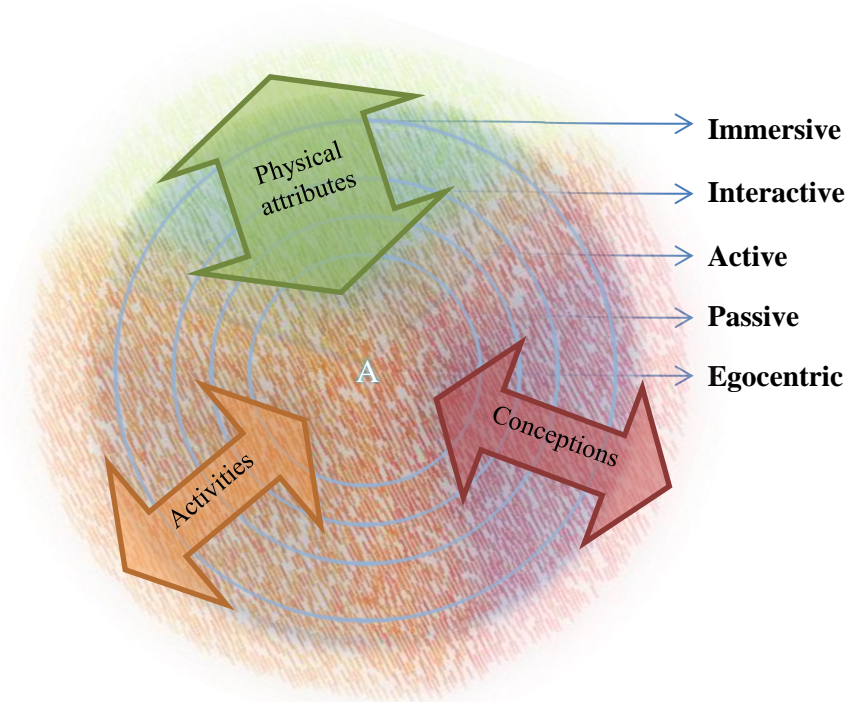


Figure 9: Strata of experiences for comprehending place

- *Egocentric*. The central point of comprehending place is the self—the ego. Even with no other information about the place, the architect or designer has his own conceptions of place that builds an egocentric comprehension.
- *Passive information* is specific to the place yet not necessary created for the specific design project. The designer is not actively involved in collecting the information at the place, but often gathers it from different sources.
- *Active representation*<sup>24</sup> requires the designer to be active in the comprehension process by putting the information which is specific to the design project together into a representation of the place. It can be a map or a photo or text representing one or more of the elements of place.
- *Interaction*. There are many ways to interact with place; the goal is not to be passive. For comprehending conceptions one can ask questions about the place, or to comprehend the physical attributes one can interact with a digital map, zooming in and out or moving around. Most of the interactions are with a representation of place. Interaction with the actual place will usually allow deeper engagement and hence will be an immersion.

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<sup>24</sup> As per Kalay’s definition: “to present an idea or a person in a different form” (Kalay 2004)

- *Immersion* is defined as being deeply engaged or involved, Surrounded by an environment that is fully occupying the mind – “the totality of conscious and unconscious mental processes and activities”. There is no end to how immersive one can be, or rather, the limits are set by person’s lifetime. A site visit is an immersion, but one can also be immersed in a representation and then comprehension depends on the quality of representation. Immersion allows much more information to go back and forward between the place and the designer, the designer has limited control over the information that is transferred and some of the experience is unconscious.

*Place-driven design* is not a direct result that follows the above steps. It requires another level (or levels) into the design implementation process: incorporating the place information into the design process and the design result. This is not necessarily allowing people to design, but allowing the place to influence the design. Hence place is never fully met if the design does not meet the needs of the place. To fully meet the place, a designer needs to have information on all the elements of place – physical attributes, activities and conceptions. To deeply meet the place, designer needs to aim for immersion. In each of these circles, the clearer and more accurate the information is, the deeper the comprehension it allows. Canter’s elements of place are part of the comprehension process, as each loop may contribute to comprehending one or more of these elements—the physical attributes, the activities, or the conceptions of place. Technology can support the learning at any of these levels. For testing the effectiveness of different ICTs I created digital representations of the physical attributes, activities, and conceptions and communicated these representations through different technologies that allow different levels of interaction and immersion and then evaluated the design results according to how much the place information was integrated into the design.



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*“It’s very hard for me to believe that an International Design firm would seriously understand Indigenous People of this country, and not make the design overly romantic.”*

*Johnpaul Jones<sup>1</sup>*

### 3.1. BACKGROUND

The core of my research relies on design case-studies with the Pinoleville Pomo Nation (PPN), a Native American nation located near Ukiah, California. It has two parts: Through a preliminary case study with the PPN, I went through a slow process of meeting the place which included both face-to-face and ICT-based methods. This study helped identifying characteristics required within the context of this specific community and this specific place. With this list of characteristics I was able to further focus the effort on specific technologies that would be most appropriate to test in the ParticiPlace<sup>2</sup> case-study that follows – an international design competition for a Living Culture Center for the nation.

As mentioned in literature review, “Technology is a magnifier of human/institutional intent and capacity” (Toyama 2010) hence, bringing technology when the human intents are not there may not create the expected results. Therefore, for my case studies, I needed a place that fulfills the five conditions that make it an extreme design situation, as well as a place in which the human and institutional intentions already aim for place-appropriate design.

In 1996 the US department of Housing and Urban Development (HUD) passed the Native American Housing Assistance and Self-Determination Act (NAHASDA), which allows Native American Nations to use federal funds to self-compose their housing solutions as opposed to imposing pre-designed HUD houses<sup>3</sup>. This change in the top-down paradigm, particularly for small tribes in Northern California, is empowering tribal citizens to directly influence their own housing solutions, providing an opportunity to identify bottom-up methods that can facilitate place-appropriate design process. This change was the starting point of a co-design project with the Pinoleville Pomo Nation (PPN). The PPN’s search for a way to use their federal funds to create housing that will support their unique needs and respect nature and place as per the

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<sup>1</sup> Johnpaul Jones. e-mail message to author, December 22, 2011.

<sup>2</sup> Thanks to Pietro Calogero for coming up with the name ParticiPlace for this initiative.

<sup>3</sup> The Native American Housing Assistance and Self Determination Act of 1996 (NAHASDA) reorganized the system of housing assistance provided to Native Americans through the Department of Housing and Urban Development by eliminating several separate programs of assistance and replacing them with a block grant program. The two programs authorized for Indian tribes under NAHASDA are the Indian Housing Block Grant (IHBG), which is a formula-based grant program, and Title VI Loan Guarantee, which provides financing guarantees to Indian tribes for private market loans to develop affordable housing. Regulations are published at 24 CFR Part 1000 (HUD 2012).

cultural values. This led them to CARES<sup>4</sup>, a group of UC Berkeley professors and students, aiming to develop methods to help communities choose among the variety of sustainable solutions appropriate for them and make more informed design decisions.

The PPN brought to CARES their current design needs for developing a variety of sustainable, place-appropriate, and culturally-sensitive housing and supporting engineering systems. These projects were developed over several semesters using different design methods brought from product design and architecture. The objectives of these projects touch the bottom-up and the top-down levels as well as academic research goal into design methods. The first, direct goal was to build better tribal housing for the PPN while defining the tribes' design intentions at different levels which could strengthen other design projects. To support the top-down change, another goal was to advocate for tribal needs for culturally-appropriate and place-appropriate housing in front of federal agencies (Edmunds et al. 2013). At the same time, the academic goal of the project was to identify methodologies and tools that could conciliate the top-down and bottom-up approaches and bridge between the place and the people in place, on one side, and the designers and other professionals, on the other side.

The PPN, as other Native American nations in the US, is an example of a marginalized community within a developed country. As such it presents a challenge in creating place-appropriate design solutions as it includes all the extreme characteristics described in the background chapter:

1. Underserved community: The PPN is lacking professional services, particularly design professionals, within their own or neighboring nations.
2. Low resources: With high levels of un-employment on the individual level and no major sources of income at the nation's level, the PPN currently depends mostly on federal funds for their projects with very limited budget that can be allocated for the design stage. Beyond the limited financial resources, the political history of the PPN and displacement of native populations in California reduced their access to natural resources such as water, fertile land, woods, fishing, hunting, and more.
3. Emerging region – going through fast and vast change. Native nations in the US already transformed greatly since European came to America and lost much of their unique lifestyle. Today, the transitions that PPN and other local nations go through include preserving and reviving traditional activities and incorporating these into their contemporary American life.
4. Cultural gap: The very unique culture of Native nation is unfamiliar to many people even within close proximity.
5. Difficult to access: While this condition depends on the location of the designers which can vary, the PPN's rural location, two hours' drive each way from San Francisco, and the security issues that exists in the area which requires local community members to

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<sup>4</sup> I co-founded CARES (Community Assessment for Renewable Energy and Sustainability) in 2008 with Ryan Shelby and Professor Alice Agogino. For more information about CARES: <http://cares.berkeley.edu/>

coordinate and accompany any visit, limits opportunities for face-to-place visits even for designers located in the area.

## 3.2. GETTING FAMILIAR WITH THE PINOLEVILLE POMO NATION – REFLECTION ON ACTION<sup>5</sup>

### 3.2.1. Objectives

The main objective of this case-study is to gain a firsthand experience in bridging the gap between designer and place, specifically with the place of the Pinoleville Pomo Nation which includes the physical attributes of their land, their activities and their conceptions. As it has been discussed in the background chapter, physical attributes and activities are often the focus of designers when meeting the place yet conceptions of place are often neglected. Hence, through this case-study I focus on communicating conceptions as part of place, I explore different methods identified in the theoretical chapter and I extract a set of ICTs for meeting the place to be tested in the second case-study through a controlled experiment.

Some of the questions guiding me through this case-study are:

- How are conceptions of place communicated in face-to-face interaction?
- Which characteristics of the face-to-face interaction methods facilitate learning conceptions?
- Can ICT enhance face-to-place interaction and what are its limitations?

### 3.2.2. Research method

In this community-based, case-study research project, I gathered knowledge from interactions between designers (architects and engineers) and PPN citizens for the purpose of three projects spanning over three years:

- co-design of a concept house and supporting engineering systems;
- co-design of a low-income, clustered-housing neighborhood for PPN tribal members;
- co-design of two prototype houses on the PPN reservation and supporting engineering systems.

Being part of the design team and reflecting on our own work puts me, the researcher, beyond a participant observer (DeWalt and DeWalt 2002) into the additional realm of participant self-observer, situating this ethnography as reflexive, which occurs when “researchers engage in

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<sup>5</sup> This chapter relies on co-design work done between CARES (Community Assessment of Renewable Energy and Sustainability) and the Pinoleville Pomo Nation. Parts of this chapter were accepted as: Perez, Yael Valerie, Ryan Shelby, Angela James, and Alice Agogino. “Social Factors in the Age of Social Media – A Multidisciplinary Approach.” In *The Death and Life of Social Factors*, ed. Lusi MorHayim and Georgia Lindsay. Cambridge Scholars Publishing.

explicit, self-aware analysis of their own role” (Finlay 2002).<sup>6</sup> Doucet identifies three sets of relationships from which researchers construct knowledge in a reflexive situation: “oneself (and the ghosts that haunt us); with research participants; and with one’s readers, audiences, and epistemological communities” (Doucet 2008). I will therefore take a transparent view into our own position and pre-assumption in this research. I will clarify the goals of the different participants that may have influenced the way this case-study developed. Finally I will address the reader by focusing only on the information that is relevant to the research question: which information, which communication methods, and which technologies seem most appropriate for this place, later to be tested empirically. While doing so I aim to negotiate what Finlay calls, “the swamp of interminable constructions, self analysis, and self disclosure.”

Within the variants of reflexivity that Finlay identifies, my work falls under the category of mutual collaboration as I bring together the PPN participants as co-researchers<sup>7</sup> and the academic representatives<sup>8</sup> as participants in the research. Another research method that guided me through the process is that of Participatory Action Research (PAR), which formalizes the connection between academic research and professional practice to create applied research. PAR uniqueness within applied research is achieved by involving some of the organizations or community under study as active participants with the professional researchers (Whyte, Greenwood, and Lazes 1991). This method, coming mostly from Organizational Behavior discipline, is particularly useful for the study of the design process and especially in my case: Being deeply engaged in the connection between research and practice not only by the applicability of this research question to design practice but also through the vague boundaries between design practice and design research through process of reflection *in action* and reflection *on action* as per Schön’s reflective practitioner (Schön 1983).

### 3.2.3. Design methods

Most of the design projects with the PPN focused on low-resources, culturally-appropriate housing and supporting systems. On the designers’ side were members of the CARES leadership team, as well as students from the College of Engineering and the College of Environmental Design. The PPN community was composed of the PPN chair, vice-chair, other elected council members, and at times other citizens. The design process aimed at understanding the place, current and to-be-designed place, and meeting the needs of the PPN through place-appropriate housing solutions. While doing so I explored a variety of interaction, apprehension and design methods (discussions, workshops, meetings, design charrettes) and experimented with in-person and online tools to support these methods.

The design process was started by our discussion of broad concepts such as sustainability and technology and defining their unique meaning in place. The process then became more specific and involved visiting current houses, understanding current problems of the existing

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<sup>6</sup> More about reflexivity in Wilkinson 1988; Finlay 2002a,b; Guillemin and Gillam 2004; Watson 2008; Doucet 2008

<sup>7</sup> Namely David Edmunds, at the time PPN’s Environmental director, and Angela James, vice chair of the PPN and the Tribal Historic Preservation Office (THPO) director.

<sup>8</sup> Including Ryan Shelby, at the time a PhD. student in Mechanical Engineering, Prof. Alice Agogino, and myself.

homes, and establishing priorities for the tribal housing and sustainability goals. Eventually the process included a design charrette in which tribal citizens designed their housing solution guided by CARES members.

### 3.2.4. Findings

To tunnel the design process into the research goal I will reflect on three types of interaction used, their characteristics and benefits on learning, understanding and meeting the place.

#### 3.2.4.1. Conceptions of Place as Reflected Through Broad Concepts

The first workshop with the PPN included a round-robin session in which we gathered responses to the meanings of broad concepts such as “technology” and “sustainability” with PPN citizens. In the interaction between CARES members and PPN citizens, different terms, such as “ecological,” “environmentally sensitive,” “sustainable,” and others, were used interchangeably to describe the tribe’s housing needs. During the workshop, four major aspects that frame sustainability for the tribe were identified: cultural sovereignty, tribal sovereignty, economic self-sufficiency, and environmental harmony (Shelby, Perez, and Agogino 2012).

An important element of this stage of the process was the “situating”<sup>9</sup> of all participants, including engineers and architects. Each participant expressed his or her own history related to the project and desires for the work. This allowed for points of shared experience to be identified, as well as points of difference. Doing so improved social relations across race, class, and educational barriers and, we believed, expanded the range of ideas put forward within the group.



Figure 1: Round Robin Session

#### 3.2.4.2. Conceptions of Place as Reflected Through Current Experiences

To better translate the broad concepts of housing needs into design guidelines, PPN members participating in the workshop were divided according to age groups (elders, adults, and youth) to describe or illustrate their needs based on their experience from their current housing. Then, in the mixed group of elders, adults, and youth, the community identified five top

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<sup>9</sup> See Donna Haraway (1988), “situated knowledges: the science question in feminism and the privilege of partial perspective,” for an explanation of the importance of this step in research.

priorities: traditional building techniques; energy generation and conservation; exercise and recreation; privacy; and heating, cooling, and lighting.

In addition, CARES members visited current tribal HUD houses, talked to their owners while touring the house, and discussed the things they liked and disliked in the current housing solutions. HUD housing units provided to the PPN are mostly based on the suburban, American, nuclear family. The houses we visited on the Indian reservation included a kitchen that was too small to serve the richer social activity involved in food preparation in Native American culture. Most living rooms, while not completely detached, were not open enough to allow visual and oral communication between family or social life in the main living space and in the kitchen. Rooms were too small, and there were not enough to fit the cultural practice in which extended family members often stay for a long period of time.



Figure 2: Visiting current housing

The strategy CARES took in the design process included developing an understanding of the needs for the ideal house of the Pinoleville Pomo Nation. Thinking about the ideal house helped the community to leave out restricting constraints. The PPN participants created a list of characteristics and then, by placing Post-it notes, voted on the top ones (Figure 3). In the following interaction we focused on synthesizing problems rather than looking for solutions that are set into a form. For example, some of the needs raised for the dream house included “fence,” “block wall,” and “bulletproof.” When we discussed further these needs we were able to categorize them under “privacy and security,” and this opened up a variety of solutions and forms to be considered (see Figure 4).

Once solutions were raised or chosen, we discussed them while providing quick sketches (made by CARES members or often by community members), though for more complex solutions we created printed posters presenting examples of specific solutions and obtained feedback through Post-it notes and open discussions. These activities allowed us to get the people’s reaction to different aspects of each solution. For example, in the discussion around community housing, we brought a variety of images of co-housing projects and asked members to use Post-it notes to share their thoughts about each alternative. We then learned, for example, that many members of the community rejected solutions that include a shared wall.

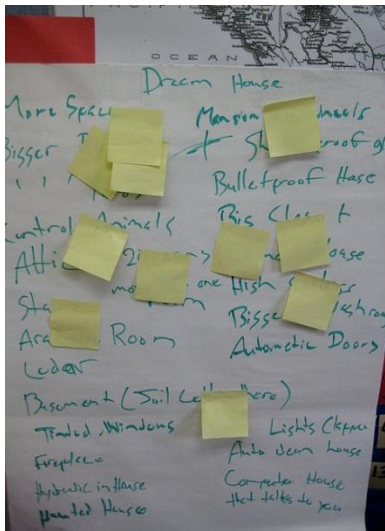


Figure 3: PPN Dream House



Figure 4: PPN citizen presenting solutions for privacy

### 3.2.4.3. Conceptions of Place as Reflected Through a Design Charrette

Once we gathered enough information about needs and some understanding of preferred forms, we then moved into producing conceptual designs. For the prototype house I prepared “cardboard floor-plan pieces,” and community members used them to produce their own design and come up with their own solution, using placement of forms to prioritize needs and alternatives. During the design process, each of the participating members, who included architects, engineers, and the local community, had to go through a process of detachment.

It is well known that architects are strongly attached to their designs, and their attachment is based on feelings of ownership towards their artistic creation. However, engineers also get attached to the optimized shapes they produce and are reluctant to move from the optimum, a phenomenon called “design fixation” (Linsey et al., 2010). Moreover, users may also develop strong feelings for certain forms, becoming particularly attached to some and avoiding others. These attachments were the premise of our multidisciplinary charrette, and unconsciously, these debates shaped the design process and are what the co-design in multi-disciplinary teams is all about. Figure 5 shows the process of developing a floor plan of the prototype house with community members, with shapes and furniture I pre-produced and then how this floor plan was made into three design alternatives by CARES architecture team<sup>10</sup>. I decided to use a design charrette process to address a perceived mismatch between the community members and the professional designers with the cultural requirement for round shapes.

<sup>10</sup> CARES architecture team included three graduated architecture students: Bach Tuyet Nguyen, David Rhoads, Robert Laub which I managed during the summer of 2009.



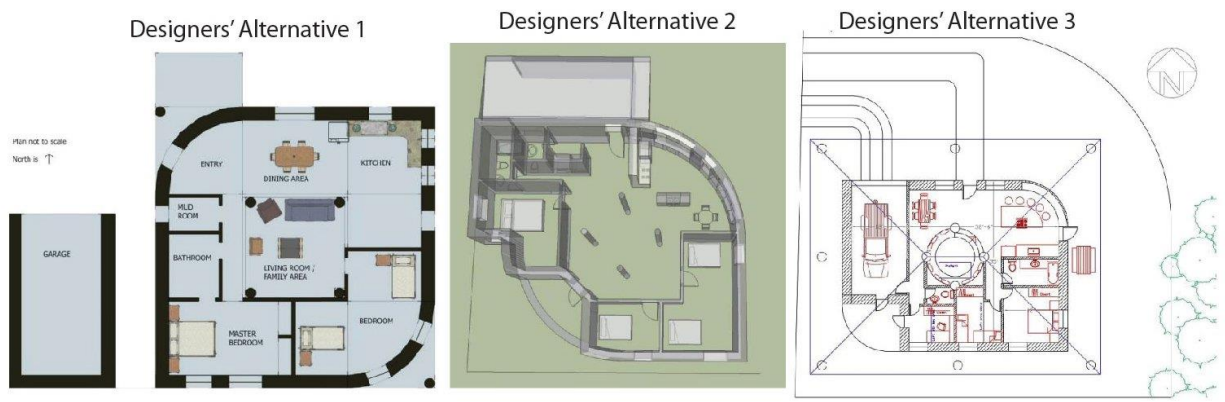


Figure 5: Creating a floor plan through a design charrette

## *Round shapes*

Avoiding square corners was mentioned by PPN members as an important feature, since according to tribal belief bad spirits live in corners. This guideline created debates among the different disciplines.

Architects explained the difficulty in designing round spaces, both in terms of wall materials and openings as well as finding solutions to interior design and furniture. In addition, from an engineering point of view, it is difficult to keep the quality of the insulation in a rounded wall. Through previous design processes, the PPN expressed their lack of satisfaction from solutions created by students in which the round shapes were part of flooring, pergola, balconies, etc. Following some discussions with PPN members, I organized a workshop in which PPN members directly interacted with round and square shapes, which acted as a quick, collaborative design process called “design charrette” in architecture.

As PPN members were provided different cardboard shapes to create a floor-plan of their own housing, they testified that while their culture supports rounded corners, it is hard for them to leave the “known space” of square corners and experiment with rounded shapes. While the architects assumed that direct interaction of tribal members with rounded shapes would convince them that these are too difficult to handle, the PPN members developed a house plan that includes two round corners. Through a refinement process by the CARES architecture team we reach an “eyeball shape” plan in which one round wall creates the house’s entry and the other round wall is across it, in the kitchen. In addition, a central, round, gathering/living space emphasized by a clearstory, creates the heart of the house. This co-designed plan had round walls that did not greatly complicate the insulation or furnishing, yet still embedded the cultural belief of the PPN. Figure 5-Figure 7 present the process and the design results.



Figure 6: PPN citizen Debra Smith discusses design ideas with Leona Williams, PPN's chair.

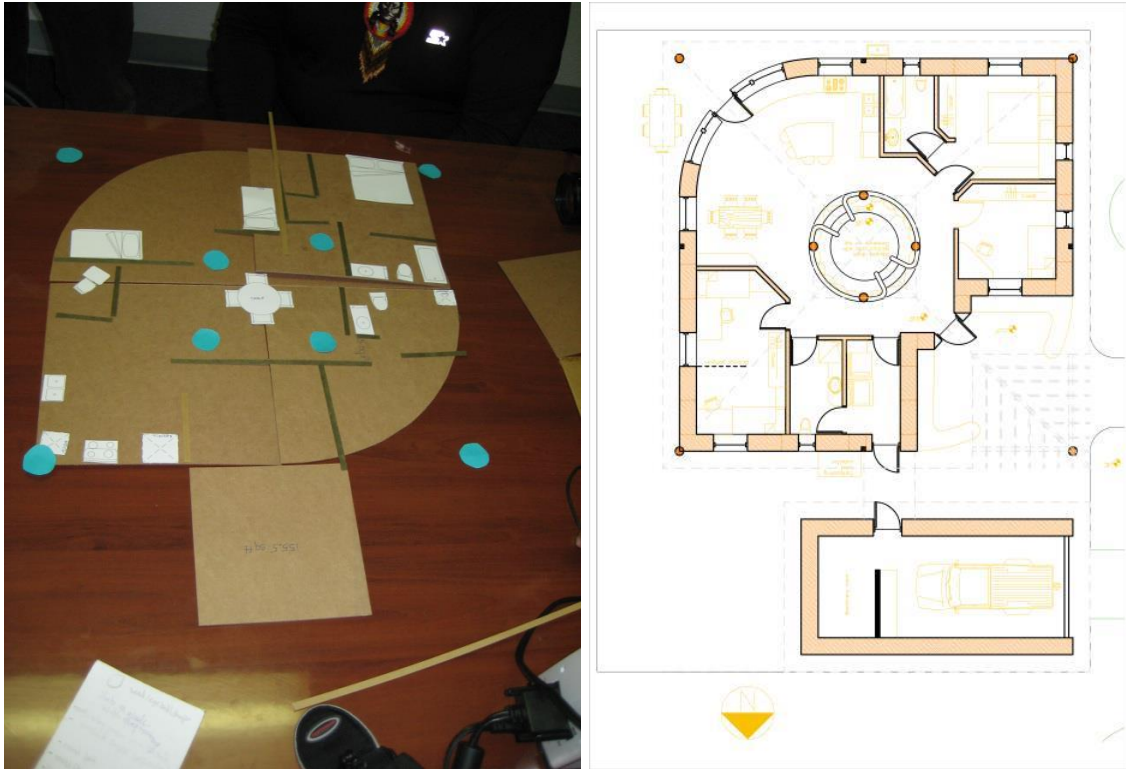


Figure 7: The final design produced by PPN citizens during the design charrette (left) and the refined design as developed over several weeks afterwards (right).

#### 3.2.4.4. Conceptions Beyond Place

Beyond the different perspectives in design, the members of the co-design team also differ in their goals. Architects and engineers are often evaluated by their design results—the building product; nevertheless, the design process has a great importance as well, though it is too often ignored. In his book *Great Planning Disasters* (1982), Peter Hall chose the featured disasters (e.g., the Bay Area Rapid Transit (BART) system and Sydney’s opera house) based on failures in the design process, such as poor financial planning or inadequate population studies, and not necessarily the architectural or engineered qualities. Indeed, in his analysis Hall identifies, among other concepts, the importance of the community’s role in the design. He suggests either finding a way to get “more reliable, less biased information directly from the real public” or improving the “amount and quality of participation.” I find that identifying project goals that lie beyond the building results is a key to improving the amount and quality of participation.

In the search for conceptions within local community members, there is often imbalance in the design motivations of the different stakeholders. While the designers are getting paid for their time, it is often assumed that having influence on the building is enough of a motivation for community members to collaborate on representing the conceptions of place. But community members have other commitments that often make it hard for them to invest the time needed for design, even in projects which have a great importance and influence on their lives. Motivating the community to spend their weekends on workshops, discussing different concepts, going over

design ideas and sharing experiences, has been one of our main tasks in the process of meeting conceptions. In this task we were dependent on an “ambassador,” a community representative, devoted to the project and the community, who is being compensated for some of the time he invests in enabling this interaction. Our ambassador was the PPN’s environmental director, who was not a tribal member but had worked for the PPN for five years. The ambassador answered most of our questions and referred us to other people, when necessary for finding more information. Moreover, through his understanding of both the community and the designers’ worlds, he was able to shape our interactions in ways that make them valuable not only to the design project but also for other community development goals. Such goals include familiarizing youth with academic institutions to increase encourage going to higher education and expanding the co-design team’s collaboration to grant writing that would fund projects benefitting both community and research. Our interaction therefore developed into a number of multi-purpose collaborative projects. These additional motivations were an important factor in increasing collaboration with the community. They highlight the importance of Sen’s broad understanding of development as freedom as opposed to focusing on one narrow goal – the design project. This condition is an important part of reflexive action research as it is a necessary foundation for effective community based research and successful process of learning conceptions of place.

#### 3.2.4.5. Conceptions through ICTs

In the design collaboration with the PPN, I aimed to sustain direct, face-to-face interaction as much as possible. This interaction was divided between locations at UC Berkeley and the PPN’s reservation. Nevertheless, the 120 miles between the designers’ location and the reservation made each of the visits ambitious. Due to the four-hour roundtrip drive required for each community interaction, CARES combined different activities into each visit. This was challenging, both for the community and for the designers, as it required long hours of concentration and allowed less time to think and explore between sessions.

To compensate for the physical distance, we tried different types of mediated communication that enabled design collaboration. These included telephone conference calls, brief emails with questions, longer emails with attachments of case studies or design alternatives, and later, a dedicated website with a content management system (CMS) that allows uploads, blogging, commenting, and discussions (Drupal was used as the CMS). I uploaded many of the visuals through a Gallery2 module (Figure 8), which allows direct commenting as well as embedding the images into dedicated blogs. Gallery2 allowed us to set different privacy setting to different images and to create a space that is not accessible to the public. This was an important feature for some community members who asked not to put images publicly available; the downside is that it required logging-in and made the interaction process slightly more complicated. To simplify this process, I created one PPN user account to be shared with all PPN members. As our professional interaction with the PPN increased, we found ourselves adding each other to our Facebook pages and while we did not use this medium for direct professional interaction, as a designer I realized that it was teaching me quite a lot about Native American culture, both traditional and contemporary. Table 1 shows examples of each interaction we had.

We used conference calls whenever we felt we needed timely information or feedback from community members in a way that would provide us immediate responses and allow us to develop the interaction into directions chosen by the community representatives. We participated in valuable conversations in which we learned about energy use in houses and benefitted from feedback on designs previously sent. It should be kept in mind that these conference calls could not include many members and were therefore restricted to the representatives. In this mixed forum, some representatives were more active than others.

The screenshot displays a grid of album cards on a website. Each card features a thumbnail image, a title, a description, and metadata such as date, size, and views. The albums include:

- Album: Final Presentation**: Date: 07/27/09, Size: 7 items, Views: 112.
- Album: Final alternatives**: Check out our 2 final alternatives. Date: 07/09/09, Size: 3 items, Views: 82.
- Album: Second round of sketches**: Here is another round of sketches for the floor plan. Date: 06/30/09, Size: 17 items, Views: 172.
- Album: First Sketches for the house**: Here are a few alternatives for the house design. Date: 06/18/09, Size: 11 items, Views: 164.
- Album: First sketches for the site**: Here are a few alternatives for arranging 2 houses on the site. Date: 06/18/09, Size: 5 items, Views: 78.
- Album: Straw Bale Building: Shorebird Nature Center**: Date: 06/17/09, Size: 5 items (24 items total), Views: 110. Keywords: Straw bale building; Shorebird Nature Center.
- Album: Ukiah Fieldtrip & workshop**: Date: 06/13/09, Size: 4 items (39 items total), Views: 129.
- PPN Yurt Style Design**: This the Yurt-style housing design that was created by my members fo CARES. Date: 07/13/09, Owner: rshelby, Views: 89.

At the bottom of the page, there is a navigation bar with 'Page: 1', an 'Edit' link, and a 'display mode: admin | guest' indicator. A footer contains icons for WC, HTML 1.0, GALLERY 2, and HELP GALLERY.

Figure 8: Visual interaction through a Drupal-based system

Email was used to share drawings or to send out lists of questions to individuals or a group. It was our main form of communication with the environmental director and was very useful for sharing drawings with different members of the community whose email addresses we had, but it was a less effective tool for getting feedback from other members of the community.

Similar to email, Drupal was good for disseminating information, and it allowed a wider variety of members to have access to the information we posted. We received one feedback comment on alternative designs we posted, but once posted, most discussions moved from the online space to targeted phone calls.

Interaction Type	Goals and Characteristics
Conference call	Getting answers to specific questions. Discussion of design alternatives.
Email	Getting answers from specific persons. Sending out drawings, photos, and other material.
Drupal	Keeping the community informed on design progress by the design team in Berkeley. Getting some feedback on design alternatives. Sharing visuals from visits to relevant sites Summary and updates about the face-to-face interactions we had.
Facebook (friend connections only, no dedicated project page)	Creating a mutual, personal introduction process between designers and community members. Enabling some understanding of contemporary culture and lifestyle.

Table 1: Types of interactions used in the co-design process

Every type of interaction, whether face-to-face or online, has different advantages and disadvantages, and some people may feel more comfortable with or prefer one over the other. Therefore, to create effective collaboration that includes more people and interactions, online solutions should not replace possible direct interactions, but should only be used to supplement them. Types of virtual interactions and their possibilities are growing daily, but it should be kept in mind that there are also many types of people in any community, each with their own social network preferences. Like any kind of interaction, virtual ones may work for some but may not work for others, and therefore, choosing a variety of interactions in a project is important. The richness of real-world and face-to-face interactions may not be available in virtual interactions, but the latter may have some advantages over the face-to-face world, especially when geographical and cultural distances are involved.

### 3.2.5. Conceptions in Action: Summary and Conclusions

These projects developed organically through the community needs and the academic needs within the partnership. As I retrospectively analyze the process we did I find that Co-design includes both interactions with form and interactions with the community to meet the required design needs. As presented in Table 2, I can summarize the different interactions in three steps based on the role of form in the process: 1. avoiding form; 2. reacting to form; 3. interacting with form.

Community interaction	Design interaction	Main face-to-face tools used	Main characteristics identified
		Supplemental ICT used	
Creating a mutual introduction process; discussion of broad concepts such as culture, technology, sustainability	Avoiding form	Round-robin sessions	-Reciprocal information exchange -Racial/cultural diversity
		Facebook	
Discussion of current experiences and other case studies	Reacting to form	-Posters and Post-it notes -Visits with the community into current housing buildings	Getting examples from the community Sharing examples with community
		email, blog posts, video blogs	
Producing design ideas	Interacting with form	-Flip chart drawings in small groups -Design charette	-Simple design tools that do not require professional or technical knowledge -Producing a unique pattern block appropriate for the project that can easily be put together into a design

Table 2: Defining tools for community and design interactions

### 3.2.5.1. Avoiding design of Physical Attributes of Place too Early

To avoid a biased design process and to allow all members of the design team, whether professional engineers/designers or not, to contribute to the process with their expertise, it is important to avoid design of the physical properties, the form of the future building in the early stages of the process. There are a variety of activities that could be useful in the early exploration of the design problem. Table 2 lists the face-to-face and virtual tools we used as an example. An important feature I found in this stage is to use tools that allow reciprocal relationships between professional and non-professional designers. This feature allows community members to learn about the designers as much as the designers learn about the community in the meeting. While this may not have direct influence on the design, community members mentioned that these reciprocal sessions helped them feel more comfortable with the designers. In addition, since our work with a Native American nations involved negotiating racial differences, having designers from a variety of races, even if none were Native Americans, also helped to achieve comfort (Shelby and James 2009).

### 3.2.5.2. Reacting to Physical Attributes of Place

Step two of the process includes discussions about existing, built case studies. These may be the current built environment and conditions (whether housing or other buildings) or could be

other built examples. This part, like the previous one, is reciprocal in the sense that both the community and the designers would bring up examples to the table discussing their advantages and drawbacks. This step creates a shared knowledge-base between designers and community, allowing members to quickly react to an existing form and direct the design ideas produced in the next step towards their preferred form and solutions. Visiting real buildings allows direct experience of form in actual place while looking at images allows a mediated experience of form somewhat disconnected of a particular place. Real visits allow immersion in place and its physical properties, yet, images of buildings are a preferred representation over maps and plans of place as they are easier to perceive, especially by non-professionals due to their three dimensional representation and their perspective distortion (Perez and Benenson 2003, Chen and Paul 2001, Hart and Moore 1973).

### 3.2.5.3. Interacting with Physical Attributes (PhA)

In step three, when the co-design aims at interacting with form and coming up with a scheme, simple tools are needed. By this time some understanding of preferred form exists, and professional designers can produce a simple mock-up toolkit with the appropriate “formal language”, which will allow non-professionals to play with the patterns and come up with design ideas. Similar to Christopher Alexander’s pattern language system (Alexander 1977), the designer should produce the appropriate “pattern blocks” based on the interaction and knowledge accumulated earlier in the process, which will allow the community to produce solutions with their own project language. Existing digital design tools, even simple ones such as Sketch Up, do not present a direct and simple solution for this process.

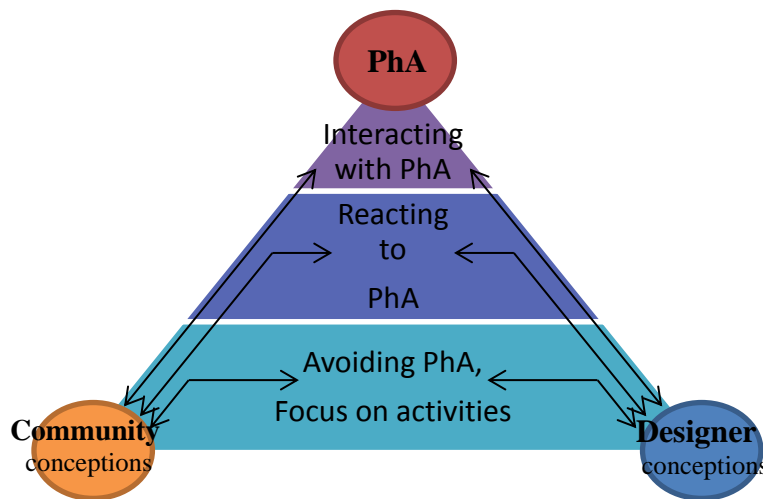


Figure 9: Interaction between professional and nonprofessional designers through form

### 3.2.5.4. Face-to-face and mediated interaction

Especially since the immediate goal of “meeting the place” is to redefine the physical properties of place – create a form, it is important to note the parts of the process in which form should be avoided. Figure 9 summarizes the design process from a point of view that comprises both professional and non-professional players. In the interaction with the PPN I used existing technology to complement our face-to-face interactions. The alternate tools used, whether email,



conference phone calls, content management systems, and so forth, were selected each time we could not realize a face-to-face interaction to address the specific tasks in mind. While designers use online technology such as Google Maps to learn about the physical attributes of a place, by harnessing other existing technologies, such as blogs, video blogs, and social-networks, into the design project they may better learn about the people, their activities and conceptions. Figure 10 shows how different existing online technologies can fit into Canter's definition of place. I set up the Drupal site with the hope that it would provide one hub for the community to follow the design process. Nevertheless, I realized that very few community members logged-in to the site. Moreover, based on the experience I had with individual, supplemental technologies, I believe that a variety of technologies are needed to fit the variety of people in a project but if these technologies are put together into one holistic interaction hub, the tool could have benefits that are beyond the sum of its components, and its usability both for the designers and for the community will increase. These conditions were the basis for the creation of ParticiPlace, an online setting to be tested through an international design competition with the PPN.

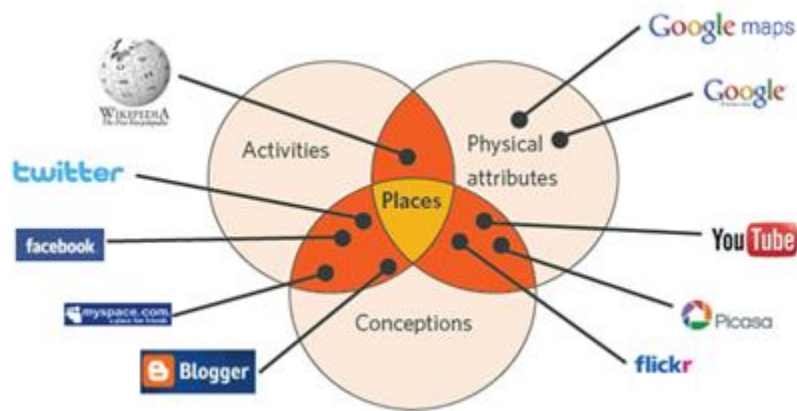


Figure 10: Existing technologies that could teach designers about place based on Canter's definition

### 3.2.5.5. Conception-Driven Design

Allowing a variety of design interactions between different groups of community members and professional designers empowers, not only those who participated, but the community as a whole. Interviews done with community members<sup>11</sup> show that members of the community who were trained in green construction methods through the construction process, expressed ownership of the design by calling it “our design” and were disappointed to give up on design features such as the round central space, which was “squared” to facilitate construction. As Peter Marcuse notes, in referring to the design of the World Trade Center: “But in the end, how the outcome of the rebuilding process will be seen, used, appreciated, or rejected ultimately depends largely on how people feel about the process by which it gets realized” (Marcuse 2009, 265). The feelings of ownership over the designed object expressed by PPN citizens are the result of a variety of face-to-face and mediated interactions during the design process. In the case of the PPN, feelings of ownership spread beyond those directly participating in the charrette.

<sup>11</sup> Interview done by Cassandra Steele as part of her project documenting the prototype houses and their importance for the community.

This kind of ownership may be easier to achieve in small communities, nevertheless, to get a good representation of conceptions of place, a variety of interactions with local users should be combined throughout the design process. Further investigation is needed to evaluate separately the influence of the face-to-face and mediated interactions on the process, their value for the professional designers, and the feeling of ownership they produce within the community.

### 3.3. TESTING ICTS - PARTICIPLACE CASE STUDY.

The Reflection on design practice with the PPN, described in the previous section, provided insight into the specific place information important in the case of the PPN, as well as methods and tools that can be used to communicate conceptions in the design of this place. In order to evaluate the actual effectiveness of these technologies, a more controlled experiment is needed.

#### 3.3.1. Design Competition as a Test-bed.

This case-study is a community based research experiment, evaluating ICT as a supporting platform for international design process. Equipped with a set of characteristics about the design process In this research I focus on testing whether social media can facilitate the design process, both for designers able to visit the site as well as those who cannot visit it. For the purpose of this research I used an international design competition with the Pinoleville Pomo Nation (PPN). ParticiPlace2012<sup>12</sup>, a conceptual design competition for a Living Culture Center for the tribe, was open to practicing designers and students from all over the world. It replicates the real-life process as presented through the designer’s story in chapter one. The brief for the competition, attached as appendix 1 of this chapter, was composed in a collaborative process with tribal citizens and representatives over a series of workshops and meetings.

Learning the place by the designers included three main steps organized as part of the competition:

1. Publishing the brief
2. Site visit opportunities and site photos provided
3. Social media shared

Table one provides a more detailed timeline, showing how the research activities were incorporated into the competition activities.

<b>Activity</b>	<b>Details</b>
Brief provided	Through website and Google groups
4 site visits	
Team registration and pre-questionnaire	Online Form
Site-visit photos published	Flickr album email sent
Research questionnaire 1	Filled May 29-June 2nd
Social Media published	
Submissions due	
Research Questionnaire 2	Submitted July 7-19
Interview with designers	

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<sup>12</sup> For more information check: [2012.participlace.org](http://2012.participlace.org)

### 3.3.2. Pre-competition Design

As I presented in part 1 of this chapter, the co-design process starts before any interaction with form (Perez et al. 2013). In the case of the competition I created the competition brief with the community over three meetings:

1. Workshop with the broad community, identifying the main spaces and activities required in the buildings. In the workshops, kids, youth, adults and elder participated to provide their view about uses they would like to see in the building. After the workshop I organized all the activities and spaces into a bubble diagram.
2. A meeting with representative of the community to make adjustments to the bubble diagram. After the meeting the diagram was updated and it was incorporated into a detailed program.
3. In the last meeting we finalized the program as a whole.

In addition, I organized two internet workshops, in which PPN members came to UC Berkeley, learned and experienced different ICT tools to choose the ones that could be used as part of the competition process. 10-15 PPN members from Ukiah, Lakeport, and Santa Rosa attended the workshops which focused on the following ICTs:

- Email: most participants had an email account, except a few young participants. A general overview of advantages and disadvantages of common email services was provided.
- Photo and video editing, using free software (Gimp for photo editing and Window Movie Maker)
- Social media: how create blogs (Dedicated Drupal and Blogger), uploading and embedding video and photos (through Youtube, Flickr) tips on Facebook, etc. All participants above 13 years old had already a Facebook account and a Facebook groups was created for the partnership.

### 3.3.3. The Competition Process

The competition announcement was sent to architecture schools around the globe, to international architecture and architectural-competition journals and websites as well as to a variety of architecture firms in California and elsewhere. In addition, the call for proposal was spread through personal contacts.

38 groups registered to the competition, of which 17 submitted a design. Figure 11 shows the location of the groups who registered but eventually didn't submit (Blue), those who submitted but didn't win (red), and the location of the winning teams is marked in yellow. The evaluating jury members comprised of three design practitioners<sup>13</sup> and two PPN

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<sup>13</sup> Taryn Mead, Biomimicry Guild; Colin Rohlfling, HOK; Donald J. Stastny, StastnyBrun Architects, Inc.

representatives<sup>14</sup>. I provided the jury member evaluation form tailored for this competition. The jury filled the form for each submission, and all the forms from the 5 jury members were aggregated to calculate the winners.

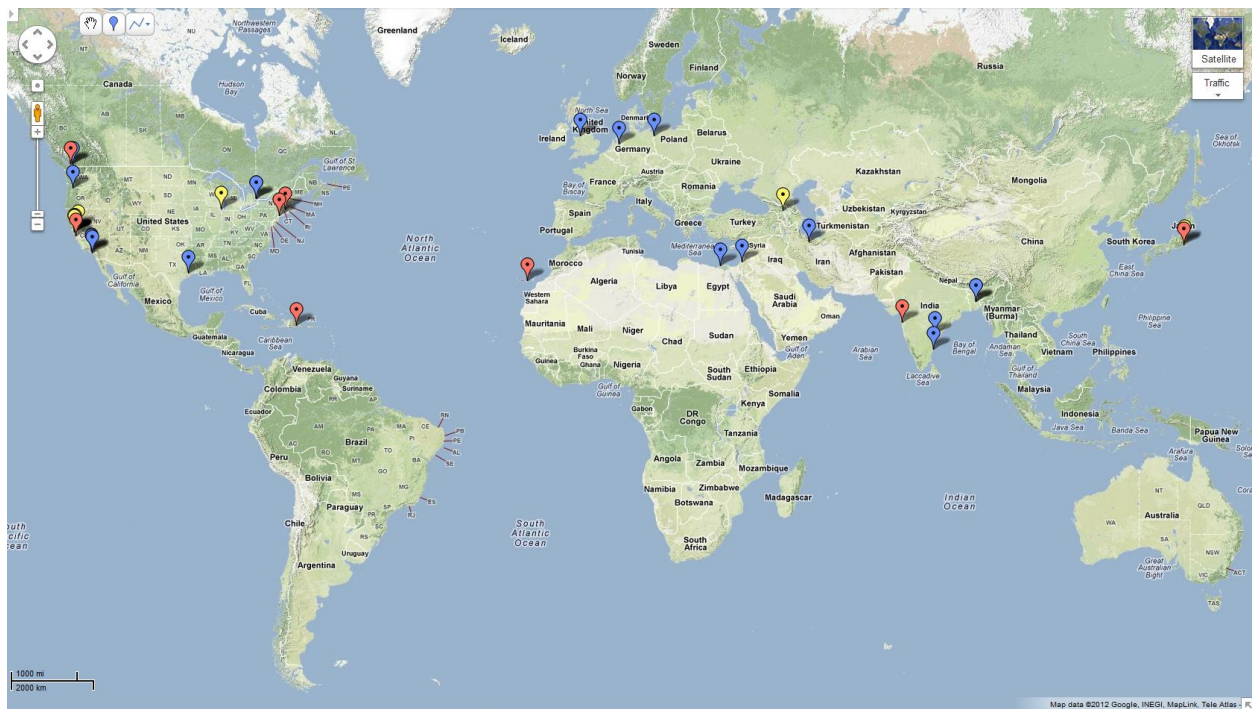


Figure 11: Location of ParticiPlace participants

Communication with ParticiPlace registered members was done through Google groups and participants were encouraged to send out questions through this communication channel.

### 3.3.4. Data collected

	Data collected	n
Total registered teams		38
Total submissions		17
Total participants		56
Registration Form	Is there any further information you would like us to provide	33 questions from 18 participants 21 skipped
Questionnaire 1	Self-evaluation of familiarity with different aspects of place and what this familiarity is based on BEFORE social media	11

<sup>14</sup> Angela James, Vice Chair and Tribal Historic Preservation director and Erica Carson Jr, Tribal Historic Preservation assistant director.

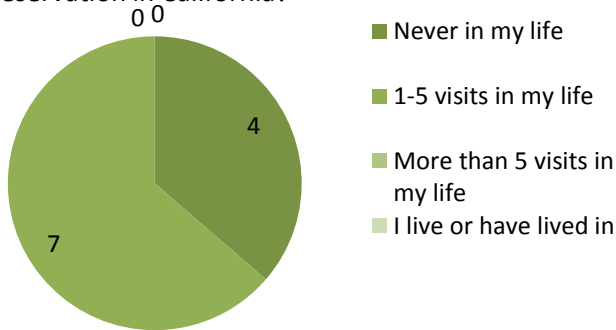
Questionnaire 2	Self-evaluation of familiarity with different aspects of place and what this familiarity is based on AFTER social media	13
Questionnaire 1 and 2	Comparison of self- evaluation before and after social media	8
Sketch	Early sketches of the design to be compared to final submission	3
Questions submitted	through Google group	13
Interview with participants	discussing the social media as tools	5
Interviews with Jury		2
Hits Flickr	Which photos were the most viewed during the competition?	192 photos, 216 views total
Hits YouTube	Which movies were the most viewed during the competition?	5 movies, 185 views total
Posts Facebook	Mostly public posts	
Jury Evaluations	Each evaluation form has 17 questions relating to different aspects of the project, including how appropriate is the project to the physical properties, to the activities and to the people of the place	85 5 jury * 17 submissions
place-appropriate evaluation	As part of this section I created categories for placeable design and evaluated each entry based on these criteria	17

### 3.3.5. Results

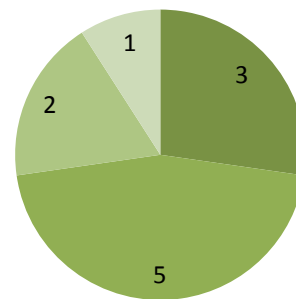
#### 3.3.5.1. Who are the Participants and What Do They Know About the Place?

Of the 11 participants who answered the survey 73% (8) were U.S. based while 3 provided an address outside the U.S. This is somewhat different from the properties of the 17 groups who ended up submitting a design which included 71% in America, 59% in the U.S., 41% from Northern California and 29% from outside America (Actual locations are marked in Figure 11). Most of the participants who answered our survey had some experience of the place: 55% have lived in California, and a total 82% been in California (visited+lived). Of these 9 people, 7 have actually been on a Native American reservation in California which is 64% of the total participants in the survey.

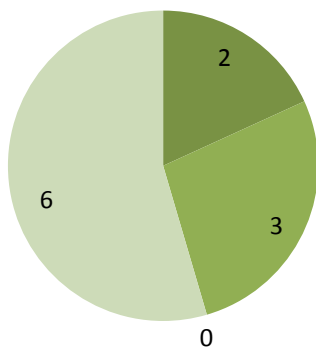
A: Have you ever been in a Native American reservation in California?



B: Have you ever been on a Native American reservation?



C: Have you ever been to California?



D: Have you ever met any Native American people of California?

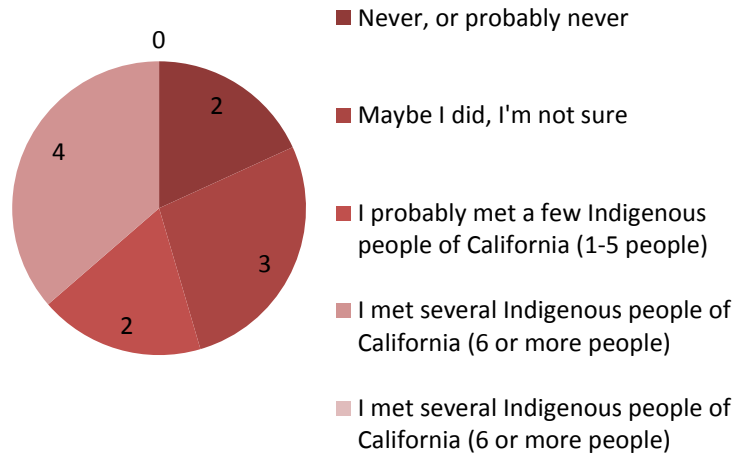


Figure 12: Participant's prior experience with the place

Nevertheless, a few of the participants came into the competition with very little experience of place: 18% never been to California nor met Native American people of California or visited a Native American reservation (one of them commented he did visit First Nation in Canada). 27% never visited any Native American reservation. The level of familiarity with different aspects of the place is presented in Figure 13. As can be expected, those who never been to a Native American Reservation graded their familiarity lower than those who visited the reservations. Nevertheless, it is interesting to see that the subjective feeling of understanding the physical properties of place between those visit and those who never visited a Native American reservation is smaller than that of the activities and the bigger gap between those who visited and those who didn't is in their evaluation of their familiarity with the people. Moreover, people who have been to Native American reservation in California (which are mostly people who lived in California) feel that they know the people more that the activities; nevertheless, those who didn't visit (or live in California) feel they understand the activities more than the people. This may be

due to the fact that people, who lived in California, are mostly American hence by sharing the nationality and mother-tongue (and other cultural aspects) they feel more familiar with conceptions than they are familiar with the unique activities of Native American people.

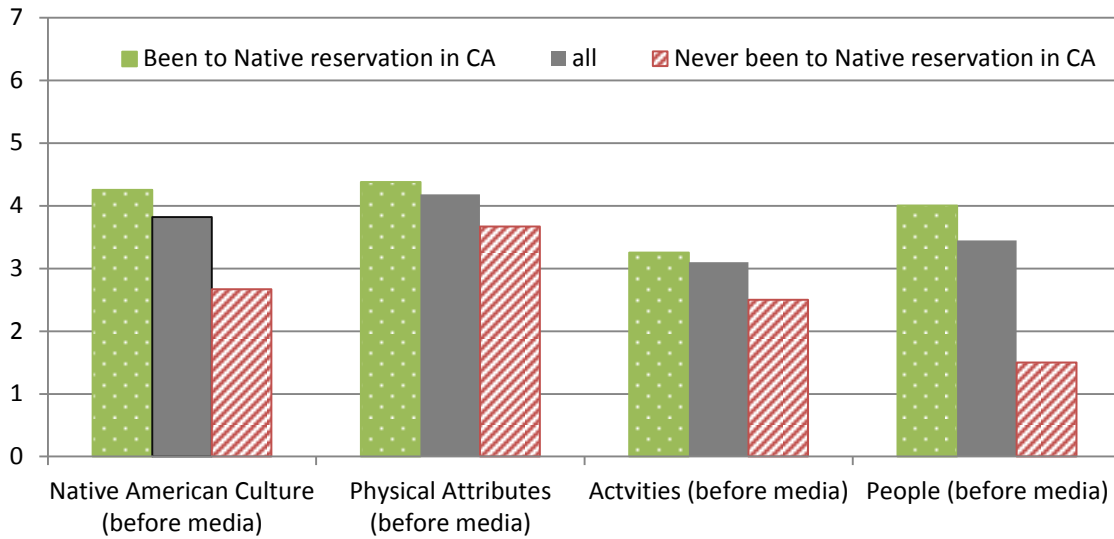


Figure 13: Designer's self-evaluations of familiarity with the place

### 3.3.5.2. What did the participants ask about the place?

Total of seven e-mails were sent with questions from six different participants. These included total of 13 questions. Figure 14 presents how these questions are divided between the different place characteristics they relate to. The left are the questions submitted in the form and the right

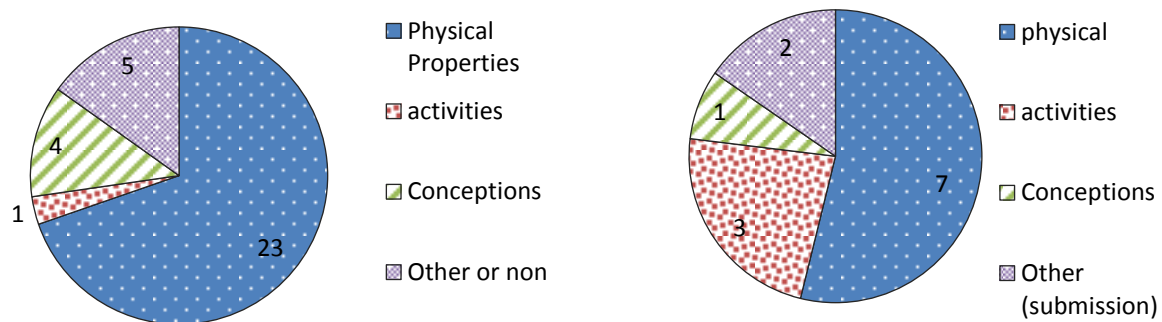


Figure 14: Categorizations of questions sent by designers about the place

are for questions submitted by email later in the competition. Both pie-charts show that most of the questions relate to physical attributes such as asking for site photos, climate data, geologic data etc. Some of the examples of questions pertaining to activities included asking for images of actual tribal members to include in the rendering, as well as asking for more details about square footage of the different spaces/activities defined in the program. Finally the questions pertaining to conceptions included a question about Native believes, as well as asking for tribal stories following a link one of the participant found online.



### 3.3.5.3. Media

The information source that was rated as the most effectual on the design process was the weather data submitted through the competition; this effect was found both by those who visited the site and those who haven't.

To determine the increase in the effect of each set of information, I divided the participants into two groups based on their experience with place, using two different measures:

- Those who been to a Native American reservation in California in the past versus those who never been.
- Those who visited the actual site for the building versus those who have not.

These two groups represent different level of accessibility to the place. The first group represents designers which were currently located very close to the bay area and the PPN, while the second group represents people who are spread in the US but lived in California or had opportunities to visit.

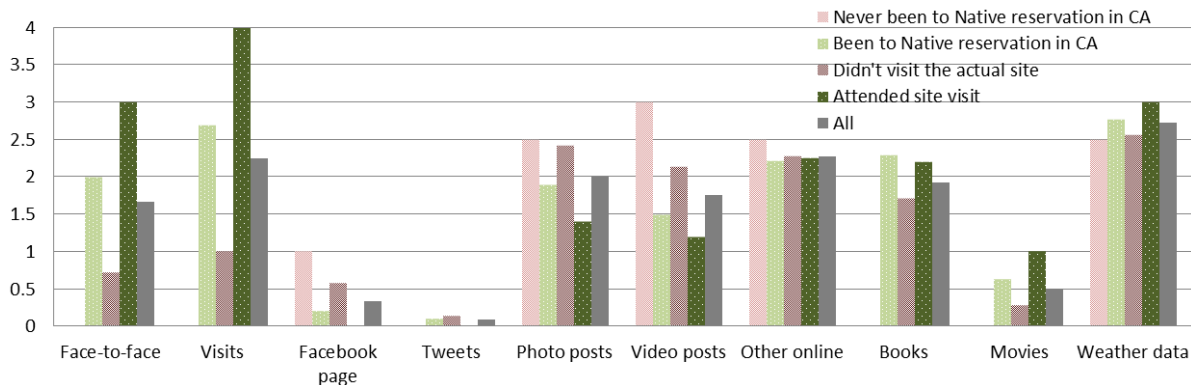


Figure 15: Effect of different information types on the design divided based on the non-mediate experience of place of the participants

Figure 15 shows the effect of different information types on the design of these two groups as they perceive it. The site visit scored highest for those who visited the site: they all graded the site visit as the top effect on their designs. This score naturally goes down when combined with people who haven't visited the actual site, therefore grading it as no influence. The reason there is some effect reported by people who didn't visit the site is due to a designer scoring the influence of his partner's visit to the site (with an effect of 3 on a scale between 0-4)

Most other categories scored very similarly, which means the information provided had the same reported effect whether the designers visited the actual site or have not visited it. The only discrepancy was with books - these scored average of 1.7 out of 4 for those who did not visit the actual site while scoring as having no effect at all for those who had never been to a Native reservation in California. This may prove that books, as opposed to other online sources, are a local source available for those who are in the same country yet unavailable to those from different countries either due to having direct access to the relevant books or due to language difficulties.

Interesting to see that the online media – photos, videos, and others – were much more influential on the design for those who never been to a Native reservation compared to those who did not visit the actual site.

More generally, all the media were less influential for designers who visited the site or been to a Native reservation compared to the influence reported by those who have not. This proves the (obvious) importance of such alternative sources of information as recognized by designers who cannot attend the place. While photos, videos and other online sources have an influence on the design both for those who visited and those who have not visited the site, the influence of these media is greater when direct interaction is limited or not available.

Figure 16 shows the perceived level of familiarity with the place as it changes after the addition of the social media. This figure includes only the eight participants who filled both the first and the second surveys to control for any changes that may occur due to different scale of evaluations among participants. It can be seen that, on average, there is an increase in the perceived feeling of familiarity for all participants, but looking at those who visited the place vs. those who did not, the social media mostly helped those who did not visit the site.

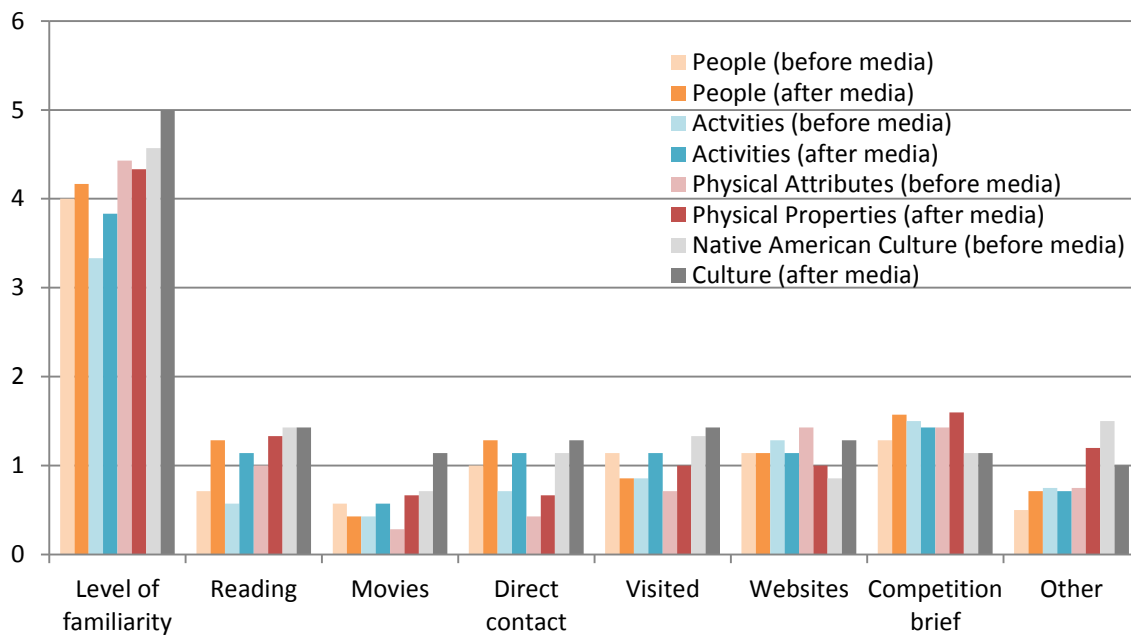


Figure 16: The basis of familiarity with different aspects of place for ALL BEFORE and AFTER social media

### 3.3.5.4. Jury Evaluations

Beyond comparing the differences between participants, it is also interesting to look at the jury and how their evaluations differ. Three out of the five jury members are professional designers with little or more knowledge of Native American culture, yet none of them visited the actual site. The other two jury members are representatives of the PPN. The variations in the

evaluations of the PPN representatives are very diverse ranging from standard deviation of 0 (consensus) to 40. The standard deviation of the professional team ranges from 2 to 21.

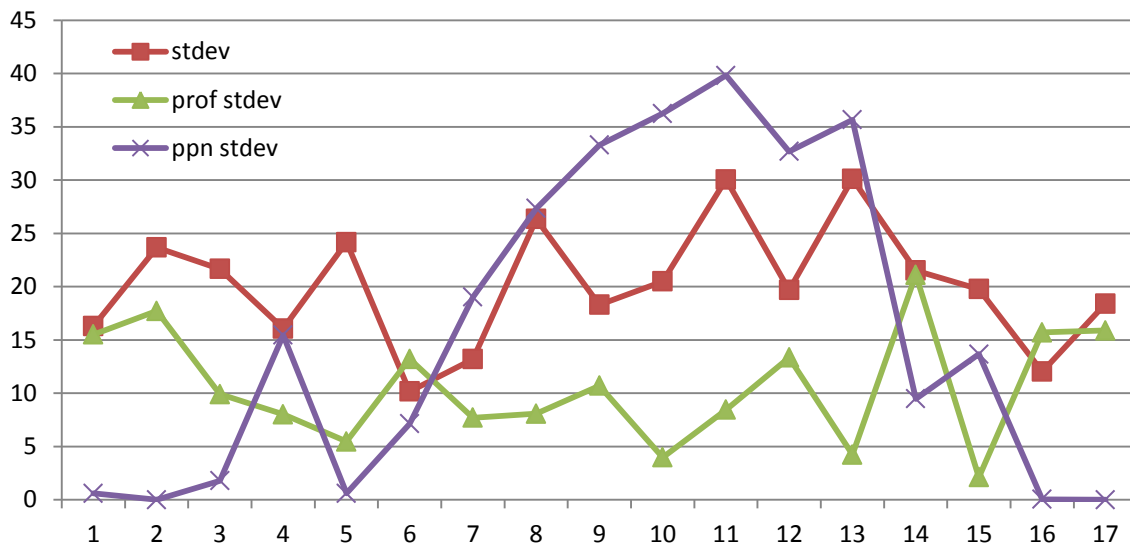


Figure 17: Standard deviations of jury's evaluations: professional jury, local jury and combined

### 3.3.5.5.Meeting the Place – Different Perspectives

Besides 14 questions in the jury's evaluation forms focusing on different qualities of the design, three additional questions asked the jury to evaluate the appropriateness of the design to physical attributes of the place, to the activities and to the people. These evaluations were put together with the self-evaluation that 13 designers filled. Nine of the self-evaluations were coming from designers who ended up submitting a design and therefore their self-evaluations were matched to the evaluations of the design by the jury to look for any correlation between designers' feeling of "meeting" the place and jury's evaluation of how these design "meet" the place. Figure 18 shows the delta between designer's self-evaluation and jury's evaluation, separately for the physical properties, the activities, the people, and the average of the three. As can be seen, in most of the designs, the self-evaluation is lower than the jury's evaluation (negative delta) but there doesn't seem to be a correlation between these evaluations and the delta is sometimes big and sometimes small. Nevertheless, when I separated the jury into professional jury and community representatives, a different picture appears. Figure 18 shows the graphs separately for each component of the place. The different lines represent the different points of view: the designers, the professional jury, and the community representatives. While the community representatives have no correlation with the designers' self-evaluations, the professional jury is very closely correlated to self-evaluation of the designers. This may provide a quantitative proof of the disconnect between professional designers and the local community, or rather the connection between the competing designers and the designers in the jury: When participants felt they are familiar with the place, whether based on real or non-real visits, they also managed to convince the professional jury that they are familiar with the place, but not necessarily the local, non-professional, community members.

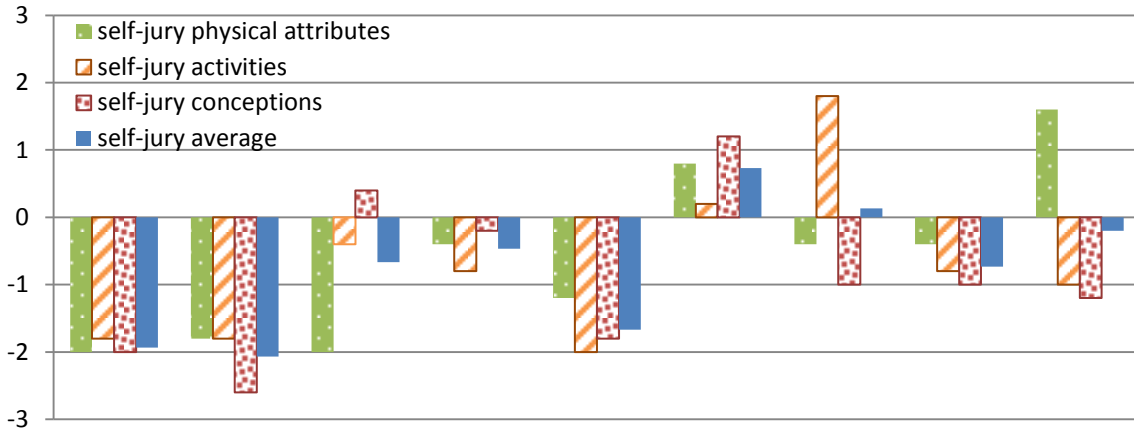


Figure 18: Delta between designer's self-evaluation and jury's evaluations of "meeting" the elements of the place

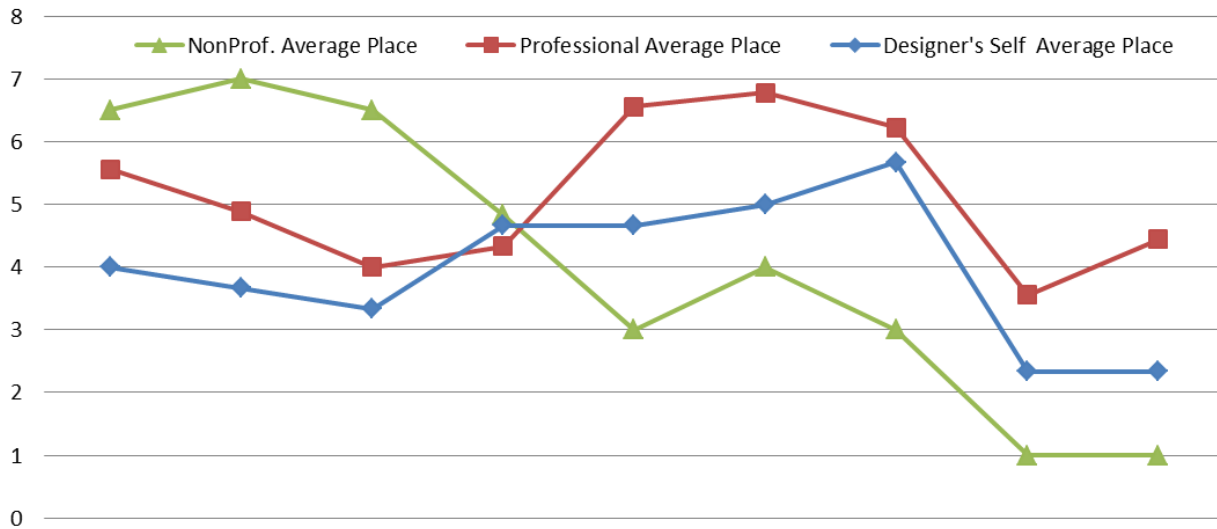


Figure 19: "Meeting the place"- Comparing evaluations of professional jury, nonprofessional jury, and designers

### 3.3.5.6. Place-Appropriateness of the Submissions

In order to evaluate the effectiveness of the social media in bridging the gap between designers and place I evaluated the place-appropriateness of each submission. My goal was to measure the place-appropriateness of solutions produced by designers who visited the site versus those who did not visit and relied solely on ICT. This comparison highlights whether global designers and local designers were equally able to produce place-appropriate designs.

I therefore created a list of all place-appropriate features as they were collected from the place, from the submissions and from the building's program (Table 3). I categorized all the features according to Canter's place definition to those pertaining to physical attributes, activities, and conceptions.

Physical Attributes:	Activities	Conceptions
situated on the map/aerial climate flora / trees fauna  Landscape water sources  wind sun angle  local, natural material road access and visibility Connection to nearby locations (reservation, cemetery, big-time, etc)	decrease energy solar energy wind energy natural ventilation/passive cooling/air labyrinth evaporative cooling water catchment/grey water water treatment construction (with community) Educate provide revenue Accessibility  phased construction <b>Outdoors &amp; Landscape</b> Gathering and socializing in nature Arbor  Children activities Meditation Water feature Build (e.g. blocks, sand, etc) Herb garden Native garden  Parking walking trails food garden <b>Preservation of History &amp; Language</b> Helpdesk Digital Archive / Computer Stations Research Locked storage Recording studio/room Comfortable lobby/lounge area Art display	4 directions circular journey to the ocean Abalone  Mother earth/mother nature wind/wind hole creek  drum/grinding rock arbor  fire light water  seasons underground east entrance  connecting in-and-out / nature-indoors/views Natural material transparency/honesty youth and elder share the story following the slope Separate identities of Pomo / separate buildings- village feeling seven council members weaving/basketry

	<p>Elders’ story-telling</p> <p><b>Art Studio</b></p> <p>Baskets: making, storage, display</p> <p>Regalia: making, storage, display</p> <p>Arts &amp; Crafts: drawing, painting, collage</p> <p>Socializing: homework, library, educational classes, kitchenette</p> <p><b>Performances and Ceremonies Space</b></p> <p>Arbor</p> <p>Changing</p> <p>Seating (50-100)</p> <p>Storage</p> <p><b>Nation’s Nutrition Center</b></p> <p>Participation beyond cooking</p> <p>Cooking area</p> <p>Sink area</p> <p>Freezer area</p> <p>Food storage and process</p> <p>Tools and utensils</p> <p>Work area</p>
--	--

Table 3: List of place-appropriate features

The use of each of these features represents a comprehension of place, that can relate to the place’s physical attributes, activities, and conceptions. The evaluations of the entries were not done just as a check-list but also qualitatively. Therefore, if an arbor was positioned, but its design was not culturally appropriate, the entry will not get the point for this feature. Nonetheless, the design style, by itself, was not evaluated. For instance, if visibility of the building from the road was considered, the design will get a point for this feature whether it was implemented by making a highly visible building or a building that hides or blends in its surroundings. The place-appropriateness of the entries is not an indication of the quality of the design, but an indication of how appropriate is the design to the place and therefore reflects the designer’s comprehension of place. In example, inefficient or problematic design solutions were not counted differently than those who came up with efficient alternatives.

To control for the initial knowledge that each designer had, I also graded their initial comprehension of place based on their initial experiences: Have they been to California? Have they been to a Native American reservation? Have they ever met Native people of California? These questions cover objectively their initial experience of place before they started working on the project. Based on these two evaluations – initial comprehension and final place-appropriate designs – I compare “meeting the place” before the design and at the end of the design (Figure 20). The left graph (a) shows six designers who were able to visit the site – all are current California residents – and therefore their initial knowledge of place is higher than the international designers represented on the right graph (b). As can be seen in these graphs, throughout the design process, all designers came to meet the place deeper than when they

started it. Moreover, those who started with a lower knowledge of place and couldn't visit the site improved their knowledge more than those who had prior experience of the place. The interesting part is that at the end, on average, though coming with less experience of place, those who couldn't visit the place end up accumulating as many place-appropriate features as those who were able to visit the place.

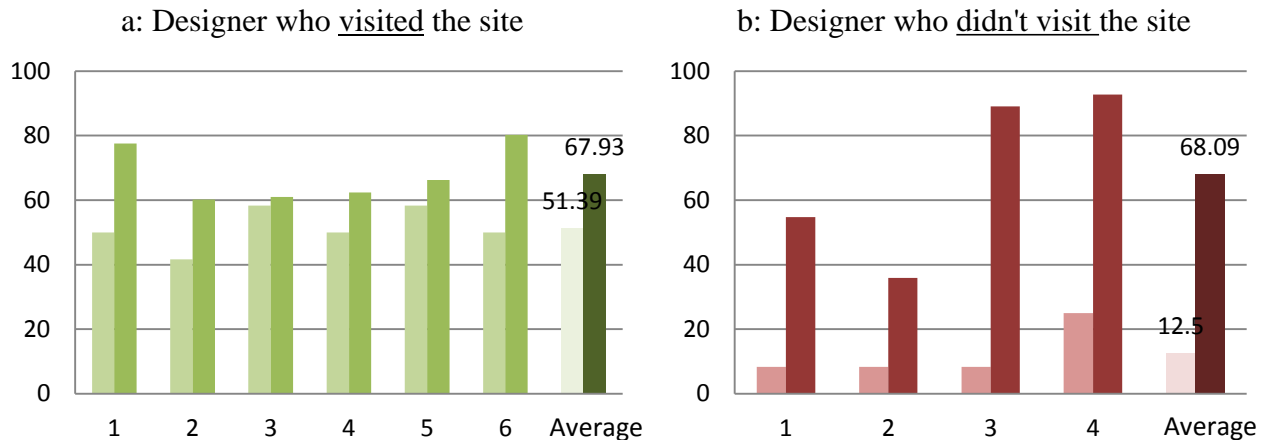


Figure 20: "Meeting the place" before and after ParticiPlace

### 3.3.6. The ParticiPlace Paradigm: Summary and Conclusions

Through the ParticiPlace competition case-study I compared local designers who visited the place and non-local designers, relying on ICTs: what methods the different designers were using; how effective they felt their comprehension of place was; and how place-appropriate were their design results. The ParticiPlace paradigm used in this case study includes information technology such as digital photos and videos produced by-or-with the community and communicated through different web-based social media such as Facebook, YouTube, Flickr etc. This set of technologies aims to reflect the conceptions of the local community of users regarding the (current) place and the project (future place). In this process I identified different characteristics of comprehending conceptions and place through ICT:

Based on objective usage data and subjective reports provided by the designers through questionnaires and interviews, not all media were equally effective for the design. Designers who have limited or no access to the place find online sources of information such as videos, photos and others, more effectual than those who have some access to the place. Visiting the site is definitely important for comprehension of place, nevertheless, the physical attributes of place are easy to communicate through photos, video and weather data. Physical properties are those that all designers feel most familiar with, and the difference between the subjective evaluation of familiarity of those who visited the site and those who didn't are small. Designers are used to "decoding" these media for their comprehension of place. Video posts were declared as the most effectual on the design by those who have the least knowledge about the place. For those who attended the site and had face-to-face interaction with the people, books and online information were found more effectual than photos and videos of the site and the people. Despite global

service such as Amazon, place-related books are still bounded in their spread and may not be available to those outside statutory boundaries, either due to language barrier or technical barriers in identifying and accessing books.

Facebook, as a social network, proved to have only a slight influence on the design. Most designers claimed that they were not regular users of Facebook or other social networks. The local community had concerns relating to privacy that limited their choice to communicate through this medium. Video posts were declared as the most effectual on the design by those who have the least knowledge about the place. For those who attended the site and had face-to-face interaction with the people, other sources such as books and online websites were found more effectual than photos and videos of the site and the people. Social media might be useful in bridging conceptions; nevertheless, it requires time to allow people get active and some guidance in extracting conceptions through such broad medium, as designers are not trained to use it as part of their place-comprehension process.

An interesting correlation was found between designers' self-evaluation of knowing the place and the evaluation provided by the professional jury based on how well the final design suited the place. Despite a standard set of evaluation forms provided to the professional and nonprofessional jury, weak correlation was found with the evaluation provided by the local, non-professional jury. This implies that there is a correlation between the designers' subjective evaluation of their own place-knowledge and their final design as evaluated by a blind professional jury. Better insight is needed to learn how local users evaluate the design and the source of discrepancy in the evaluations within a transdisciplinary design team.

Non-mediated experiences, such as visiting the site and meeting with local users, are important features of comprehending place. Yet, in conditions of wide geographical and cultural gaps, the ParticiPlace paradigm can help overcome the gaps and allows both local and non-local designers to "meet the place". It should be noted that this paradigm is project-specific and its time-efficiency compared to face-to-face interactions was not evaluated as part of this research. It would therefore be wrong to assume that ICT should replace non-mediated interaction in global projects.



## 4. MEETING THE PLACE—THE PLACE OF ICT: DISCUSSION AND CONCLUDING REMARKS

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*“The single biggest problem in communication is the illusion that it has taken place. “*

*George Bernard Shaw*

#### 4.1. PLACE-APPROPRIATE METHODS AND TECHNOLOGIES—SUMMARY OF FINDINGS

Following the introduction of the research goal in the first chapter, the subsequent background chapter discussed what is *place* and what its influences on design are—in theory and in current design practice. Chapter three describes the case-studies and the detailed evaluations which examine and assess the hypothesis. Throughout the process I have relied on Canter’s 1977 definition of place as the axiom behind this research.

##### 4.1.1. Place-Appropriate Design as Place-Driven Design

Based on Canter’s perspective of place (1977) as the overlap between physical attributes, activities, and conceptions, I have questioned the ability of ICT to bridge the gap between global designers and place. The defining of the activities that will occur in a place such as a building is usually the starting point of most construction projects—a house to live in, a school for learning, a mall for shopping, and so forth. The design brief will usually provide more details on these activities and the space they require. Some design paradigms emphasize certain place elements over others. The ecology movement started with a focus on low energy building design, reducing the use of natural resources, and protecting nature, and as such, it puts great emphasis on the physical attributes of place—landscape, flora, fauna, sun angle, and winds. The social design movement emphasized conceptions and understanding the users through social science methods such as interviews, observations, questionnaires and other ethnographic methods. By bringing together these different design paradigms, each focusing on different elements of place, I aim to reach a complete view of how place is comprehended in design. I show the different starting points of the social design movement and the ecology movement and how these grew into a joint, more holistic, and comprehensive approach tying all elements of place into sustainable design yet still missing effective methodologies for practice. I argue that using Canter’s perspective of place provides a comprehensive approach to place-appropriate architectural design, which I have termed place-driven design. Place-driven design is also sustainable as per the United Nations definition emphasizing environment, economic, and social factors (UN 2012). The UN’s environmental factors are the physical attributes of place, the economic factors are part of the activities of place, and the social factors are represented through Canter’s conceptions of place. Therefore, by considering place-driven design that is influenced by all elements of place, sustainable development goals will be achieved. Identifying effective methods for place-driven design is the core of my research.

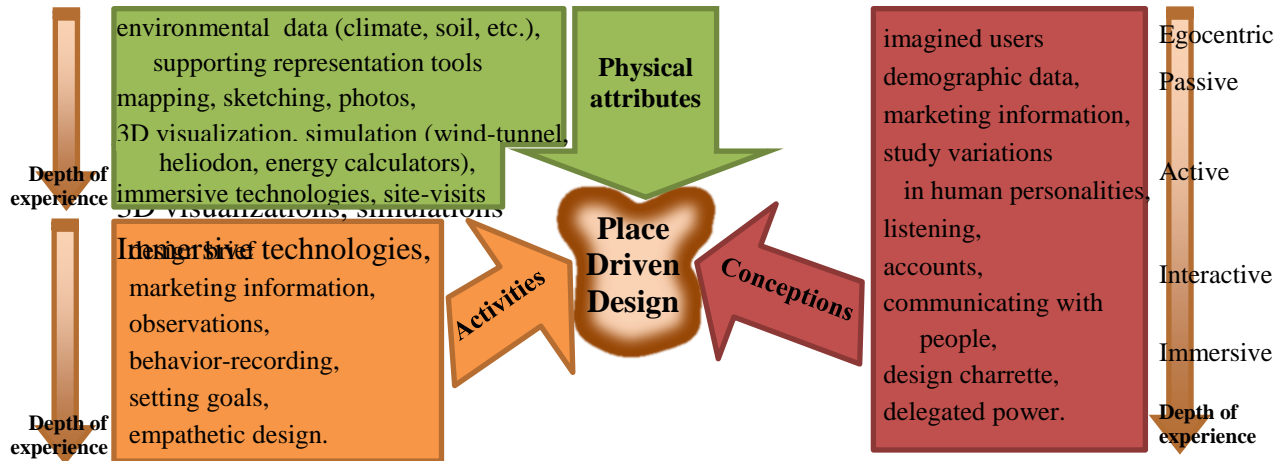


Figure 1: Depth and breadth of methods for meeting the place

By conducting interviews with practicing architects, focusing on how they familiarize themselves with the place, particularly when designing in extreme conditions of cultural and geographical gaps, I learned how designers are currently bridging the gap between themselves and the place through direct and mediated experiences. I listed all the methods found in practice and in the literature, categorized the experiences according to the main elements of place that they expose (breadth) and placed them on a scale of the depth of the experience (Figure 1). In the non-profit design world, the organization often serves as the “bridge” by collecting relevant information about the place and making it available for the designers, located miles away. The account from the NGO usually includes information about the three elements of place. The situation in the for-profit, commercial design realm is less comprehensive, and little information about the place is provided to the designer. Designers, both in the non-profit and for-profit realms, are already trying to bridge the gap through different ICTs, such as email, digital photos, and Google Maps. While these technologies have the capability to give a broader picture, in practice they mostly just provide help in understanding the physical attributes of the place. Moreover, further exploration into methods used when only a minimal geographical or cultural gap exists emphasizes the importance of spontaneous, informal social interaction with clients and users as part of the design process. Such social interaction may find a digital solution in online, interactive social networks. With recent development of social networks and the growing use of them in developing regions, as discussed previously in this project, the potential for these technologies to bridge the gap between designers and all three elements of place is examined. These technologies are currently used in the non-profit design realm to document, to educate, and to advocate plans, as well as to reach out to designers. Expanding their use to communicate about place and, particularly, conceptions of place, could support the design process especially in the extreme design conditions I have defined for the purpose of the research.

With architecture defined as place-making, architects and other environmental designers are responsible for changing place from its existing conditions to its designed solution. Place-driven design allows place to influence this evolution as the place changes from existing-place to designed-place to occupied-place which keeps changing until it becomes again the existing place

of a new design. Hence, as part of a place-driven design process the physical attributes, activities and conceptions are communicated for the existing, pre-designed conditions throughout the evolution of the design process, and, ideally, further into a post-occupancy evaluation of the new place to feed future designs. Figure 2 shows the evolution of place through the major steps of place-driven design process. Yet, in practice, the place and its three elements keep changing in a continuous process as shown in Figure 3.

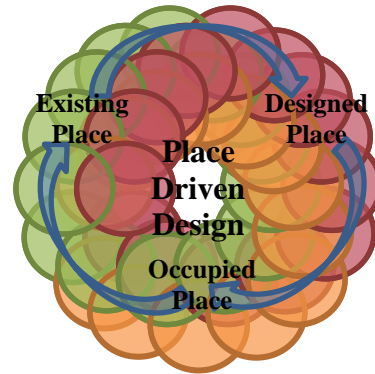
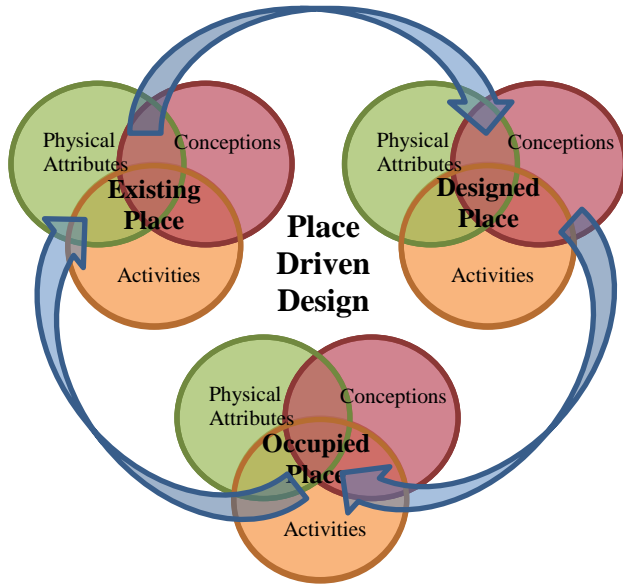


Figure 2: Evolution of place through place-driven design      Figure 3: The evolution of place, a continuous process

With this understanding of the place-driven design process, and acknowledging the special difficulty of incorporating conceptions in the design, participation of users is indeed a good way to comprehend conceptions through immersion, yet not the only way available for designers. Moreover, participatory processes which do not include comprehending the existing conceptions but bring in local users only late in the process, when design solutions already exist, may be incomplete and may have a harder time in comprehending the place and achieving place-appropriate solutions.

#### 4.1.1. Extreme Design Conditions in Marginalized Places.

In order to make sure I exhaustively address the challenge of “meeting the place” as part of the design process, my research focuses on the extreme design conditions of places that I refer to as “marginalized places.” The characteristics of these places, as detailed in the background chapter, include:

1. Underserved community (lack of services)
2. Low resources (natural and financial)
3. Emerging region (being in a condition of fast and vast change)
4. Cultural gap (sociocultural, at the societal level but also at the individual level)
5. Difficult access (e.g. located remotely from the designers, limited means of transportation, safety and security obstacles)

These extreme conditions make comprehension of place more challenging. At the same time, providing place-appropriate design solutions in marginalized places is more crucial due to their limited services and resources, which restrict the ability to make adjustments or correct unsuitable designs.

#### 4.1.2. Place-Appropriate Design Methods and Technologies.

Through the two case-studies in Chapter Three, I evaluate in detail the advantages and disadvantages of different ICTs used to communicate place for design purposes. The first case-study focuses mostly on direct face-to-face interaction, with ICT having a supplemental role when face-to-face opportunity is restricted. This case-study is exploratory and has the goal of identifying the characteristics of non-mediated methods of learning place conceptions as well as exploring mediated methods to support the process. The second case-study mostly relies on ICTs, with supplemental face-to-face interaction as a control group for those using only the mediated interaction.

Through the use of non-mediated interaction in the first case-study, I identify three stages for learning place conceptions: the first avoids form and physical attributes and focuses on broad concepts, the second encourages reaction to physical attributes and their form, and the third requires interaction with the physical attributes of a place and its form. Since the conceptions of both community members and designers are based on places they are familiar with, it is crucial to start discussions around relevant concepts that help pinpoint the design problem rather than be restricted by familiar solutions. Once general conceptions are shared, form can be discussed through the analysis of a broad set of case studies and solutions for similar design problems. The reaction of the community in each case study then informs the designer about local, subjective opinions in the context of a particular shape. Finally, tools that allow designers to work with shape directly with community members help in comprehending conceptions of place as they relate directly to the physical attributes and activities of the specific design problem. This stage not only allows interaction through the physical attributes of the designed place, it is an immersion in conceptions. However, instead of immersing the designers in the user's conceptions, an impossible task in its pure form, it immerses the local users in the design process. By making the users part of the design team, the design team as a whole better comprehends place, as it specifically relates to the design challenge. If the designer cannot come to the place let the place come into the design-process.

Taking this process into the digital medium requires a platform that is rich and flexible enough to support breadth and depth of the experience of place. The Drupal Content Management Systems (CMS), which allows the sharing of a variety of media and different ways of interaction, initially seemed appropriate virtual space for comprehending place, including conceptions through the inclusion of local users. Nevertheless, I learned that despite Drupal's great advantages of being open-source, freely available, and highly flexible, both designers and the community found the structure cumbersome, and the Drupal site was used passively, for the most part, rather than actively by community members. While this is not proof of the unsuitability of CMS for comprehending place (Drupal, in particular), it reinforces the advantages of other, systems which are less flexible yet easy to set up and use.

Since at the time of the study Facebook did not allow the exporting or embedding of its content into external websites, the ability to use several parallel systems to allow participants to choose how they preferred to connect was restricted. Therefore, in my second, experimental case study, I used YouTube, Flickr, Twitter, and Facebook to combine a variety of content and test the tools' effectiveness in communicating conceptions of place in the conditions of an international design competition. Through this experiment I found that while social media tools may be readily available, the various platforms embody restrictive privacy concerns, which may have hindered designers and community members from taking full advantage of their immersive and interactive capabilities. While in the case of the designers, this may have been due to the context of the competition, which restricted their readiness to share design information, in the case of the community there were more fundamental objections raised by the little control they felt they had over what information they were sharing with whom. Video blogs, conversely, were found to be highly appreciated both by the community and by the designers, particularly those who had the least direct experience with the place to be designed.

Based on this study, to support a place-driven design in marginalized places, I recommend developing a project page, as a virtual representation of place that aggregates information from different sources and spreads it to different media. While this was hard to do when social networks such as Facebook did not allow users to export information to other sites, it is now an integrated feature in most social networks. Moreover, privacy has somewhat improved through Google+'s "circles" and Facebook's ability to post to different lists. Spontaneous online posts and sharing of personal information through social networks provide informal opportunities and additional information that is exchanged unconsciously, an important feature for fully occupying the mind and creating an immersive experience of place. Social networks can then become an immersive representation of conceptions of place.

With improved privacy controls, social networks can allow users to communicate conceptions and may support design work. While some CAD-based tools allow collaborative work, their professional focus makes them inaccessible to lay people in marginalized places. With better integration between social networks and design tools, facilitating interaction through shaping the place will ensure that conceptions are influencing the physical attributes and activities of the place. In addition to CAD tools, immersive, multi-user virtual environments (MUVES) have similar potential to represent many of the physical attributes. By representing the local community members as users in the virtual environment it can communicate conceptions. Moreover, the representation of users through avatars may allow immersive representation of activities, though these capabilities are still limited. MUVES, which could work on regular browser technology and be integrated with highly-used websites such as social networks, will make these technologies accessible in marginalized places.

#### 4.1.3. Meeting the Place—Summary of Methods

Place-driven design has a qualitative character and a holistic, place-appropriate perspective will produce unique recommendations for place-appropriate goals and features for each different project. The starting point for implementing place-driven design is comprehending place in its full breadth, meaning considering the three elements of place, through different experiences of place (breadth) that may have different levels of depth. The following section

summarizes both digital and non-digital methods for comprehending place that are readily available and that I identified as suitable for “meeting the place.” I present them side-by-side as, ideally, digitally-mediated methods should be a complement to direct, face-to-face interactions, rather than a replacement of them. With this list of options, designers can identify further steps relevant to different contexts to better comprehend a place. Following this list I will discuss how technology can take place-driven design processes a step forward.

#### 4.1.3.1. Comprehending Physical Attributes

The physical attributes of a place are often well comprehended through site visits, maps, environmental data (sun, wind, and climate), photos, and so forth. Apart from the visits, most other information is freely available online or can easily be made available. Site visits represent a direct physical immersion in the place and can have different depths depending on the time spent and the experiences permitted. As a digital alternative, Google Earth provides a three dimensional representation of topography and, for some locations, of the built environment as well. Other digital and virtual technologies, some of which are available free of charge, such as Sketchup, Second Life, and a few computer aided design (CAD) products, can help produce a 3D representation of place. Adding an immersive feature by representing a person through an avatar or by scaling up the screen can deepen the experience of place. Though some of these technologies are used by designers to represent their designed place, they can also be used by the designer for comprehending the existing condition of a place.

Non-ICT-Based	Depth of Experience	ICT-Based
Site visits	Immersive	Immersive digital environments
Printed maps and aerial photography	Interactive	3D representation
Sketches	Active	Interactive maps and aerial photos
Environmental data (sun, wind, and climate)	Passive	Photos
	Egocentric	Environmental data (sun, wind, and climate)

Table 1: Methods identified for comprehending the *physical attributes* of place

#### 4.1.3.2. Comprehending Activities

In most projects, the building program will provide most of the information about activities. While the program defines elements that go beyond the activities (e.g., important historical information, physical elements that should be taken into account in the design, etc.), the design brief, with its listed activities and correlating spaces, is the main source of information for architects to learn about activities. Identifying the activities and creating a detailed and accurate program is often not considered part of the design process; moreover, it is not taught by many design and architecture schools, and architects are often expected to create it intuitively. In small projects, relying on intuition is feasible; for example, architects will start a private, custom housing project by interviewing the customers, studying local design guidelines and restrictions and creating the program themselves. In large, complex projects, such as hospitals, a professional

company will be responsible for the programming, and the program itself can include hundreds of pages. Yet in between these two extremes, buildings may suffer from an ill-defined program and representation of activities. This is particularly perilous in marginalized places, and while creating a program may not necessarily require design skills, skills are required in organizing the information into meaningful design tasks. To better comprehend activities, special attention needs to be given to the program and the definition of all activities of the particular place. In addition to the program, firsthand observations are recommended for learning a place's activities<sup>1</sup> and can be used together with photos and videos. Participant observations allow an immersive experience of the activities. Multi-user virtual environments (MUVE) have the potential to be a technology-mediated method for comprehending activities by creating an immersive dimension to the experience (Michon and Kalay 2012, Michon et al. 2008). Moreover, MUVE have been found to enhance creativity and appropriate solutions in design studios (Hong et al. 2013). However, such environments were not found in use in the design process of real environments and their ability to represent real environment is listed here only for future research.

Non-ICT-Based	Depth of Experience	ICT-Based
Participant observation	Immersive   Interactive   Active   Passive   Egocentric	Multi-User Virtual Environments (future)
Interviews		Interviews
Observations		Photos, videos
Building program		Building program

Table 2: Methods identified for comprehending the *activities* of place

#### 4.1.3.3. Comprehending Conceptions

Conceptions, as local, subjective perceptions of place, are comprehended in non-profit design projects through interviews, questionnaires, and communication with people. Yet designers expressed frustration over the difficulties with and limitations of these methods and felt these were often not effective when a big geographical and cultural gap existed, though for local projects, official and casual interviews and communication with users were found to be effective with helping form accurate conceptions of place. When using ParticiPlace, designers brought in additional tools, such as books and websites that focused on Native American art, culture, and history. Despite the potential ubiquity of these sources, they were used surprisingly infrequently by those who were located out of the country and had no prior knowledge of Native American culture. This low use may imply a language or information barrier and a need for some

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<sup>1</sup> In "The Social Life of Small Urban Spaces," Whyte observes and records public spaces in New York to identify what makes some popular for and some empty of human activities. Based on his observation he defines design guidelines to enhance social life in public spaces (Whyte 2001).



basic assistance in order to identify appropriate, relevant sources of information. As a digital addition, together with the local community, we have gathered and created video blogs in which community members explain the importance of the place and its history, different aspects of their culture, and other conceptions of place. Social networks allow a digital immersion into conceptions by allowing direct interaction, discussions, and sharing of social capital (Ellison et al. 2007) and can, as some argue, reduce barriers to interaction and enhance self-disclosure (Bargh, McKenna, & Fitzsimons 2002; Tidwell & Walther 2002). Moreover, social networks allow information transfer both consciously and unconsciously, and I argue that they fully occupy the mind in an immersive way, hence social networks, actively used by local users of place, are a representation of the conceptions of place.

Non-ICT-Based	Depth of Experience	ICT-Based
Design charrette	Immersive	Collaborative virtual environments
Community workshops	Interactive	Social networks
Official and casual interviews	Active	Communication technology
Mail correspondence	Passive	Project-dedicated blogs and video blogs
Books	Egocentric	Online sources and websites

Table 3: Methods for learning the *conceptions* of place

## 4.2. DISCUSSION

### 4.2.1. Comprehending Place through People

Technologies used to help designers “meet the place” already communicate a variety of physical attributes of place. Architects are used to working with these technologies, which are often more effective than non-mediated methods. For example, capturing weather data by sitting at the site throughout the different seasons is obviously far more challenging and time-consuming than reading a psychrometric, meteorological chart. While some data may be filtered out through mediated technology, this is true for non-mediated technology as well, since site visits are by themselves a representation of the place at a certain moment in time for a certain person who will not see and experience the place as someone else might. Yet, the reason that site visits are so important to architects is that they are used for capturing the spirit of place, the subjective feelings that arise within the architect and her conceptions. These may or may not be similar to conceptions of the place for other users, stakeholders, and local people. When designers and users are different entities, understanding conceptions becomes a challenge, probably an impossible task in its ideal form—can we truly understand someone else and learn how someone else experiences the world? Experiences a place? To overcome this problem local people are often brought into the design process through design charrettes or participatory design. This participatory process allows immersing the local community in the design process instead of trying to immerse the designer in the conceptions of the users.

Some architecture schools require psychology classes as part of their curriculum so that the students can learn ethnographic methods of research such as questionnaires, interviews, and

participant observations. Other design disciplines refer to design that requires stepping into the user’s shoes as empathic or empathetic design (Landwehr 2007). These exercises help in understanding place through immersion into activities, but to get the full representation of place, designers need to interact and immerse themselves among people at the place who can share their conceptions of the place in addition to its physical attributes or activities.

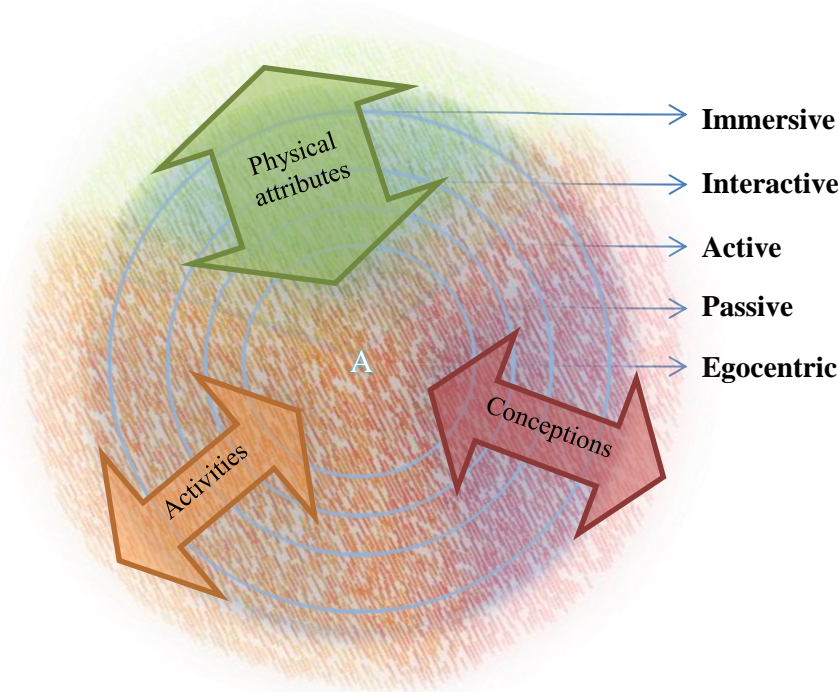


Figure 4: Strata of experiences for comprehending place

The scale of learning the place can be organized in a circular scheme in which the depth of the experiences is going in and out (Figure 4). The designer, through learning herself, in an egocentric experience can better understand the place. Theories of self-awareness and design put forward the idea of looking inward (both designers and users) to understand the place (Marcus 2006, Peled 2005). Therefore, as part of learning the place, architects can go deeper and zoom into themselves to learn about physical attributes, activities, and conceptions of place or go further outwards to the world surrounding them, not necessarily in growing geographical circles, but through different types of experiences or different lengths of time. Overlapping these experiences with Canter’s three elements of place is challenging, as place is really the overlap of the three elements, and most often the three elements are hard to separate. The elements of place—physical attribute, activities, and conceptions—will mostly occur in parallel in each experience of place. Through interviews with local people one can learn about conceptions and activities. Moreover, some features may become more dominant than others, depending on the place, the people, and the designers. For example, in the site visits architects did for the ParticiPlace competition, some architects focused on the physical attributes by taking photos, walking the land, checking plants, and making sketches, while others focused on walking with community members and talking with them, discussing the significance of the land and cultural history.

Comprehending conceptions is not only the architect's responsibility; in order for the process to remain efficient, it also needs to be the community's responsibility by emphasizing and sharing points of significance with the designer. However, the role of local people is not restricted to expressing conceptions of place; by being *in* the place they can also communicate the physical attributes of place and activities. Participatory GIS (Global Information Systems) is a field focusing on local community contributions to GIS development and its democratization (Abbot et al. 1998, Dunn 2007, Van Wart 2010<sup>2</sup>), bringing together physical attributes and conceptions. Therefore local communities, through the use of ICT, can be the bridge between designers and the place. Without the local people, technology can communicate some physical attributes and activities, but the understanding of place will not be complete unless local people are taking/given an active part in representing place.

Giving the community an active role in communicating place is by itself a challenge. The non-profit organizations I interviewed, which were working to bring quality design to underserved communities in marginalized places, were all using non-local people "on the ground" as the bridge between community and designers who were responsible for this communication. People such as Erol Kellogg and Jeff Cane, interviewed as part of the background chapter, served as the middlemen, "standing on the bridge" and transferring information between local people in the place and designers and vice versa. This extra process, as Jeff Cane mentioned, being the "architect of record" and doing much of the design work on the ground with the local community, makes the design process place-driven. But as the ParticiPlace competition case study shows, activating the local community into representing and communicating their own place is enough to bridge the gap between designer and place and allows both distant designers and local ones to implement place-appropriate design. This begs the questions: can the middleman be eliminated by ICT? Can we develop an ICT that will allow communities to directly interact with international designers and produce place-appropriate design without a mediator "standing on the bridge?" Such technologies exist for design fields that are not place-dependent.<sup>3</sup> The ParticiPlace competition highlights the fact that with rich information communicated about a place, designers who did not visit the place, on average, included as many place-appropriate design features as those who did visit. Nevertheless, some professional design knowledge was required in identifying, capturing, communicating, and organizing this place-information. Therefore, the idea of creating a digital bridge, a platform for communities to supply information about their design needs and receive design services, without depending on a middleman, requires future research particularly in marginalized places.

#### 4.2.2. Design Freedom

Meeting the place and producing place-appropriate design that incorporates the conceptions of place do more than simply serve the goal of better design per se. When implemented in marginalized places, place-driven design, and particularly conception-driven

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<sup>2</sup> Local Ground is a great example in this field as it combines paper-based and digital technology to document local geo-spatial knowledge. <http://localground.org/>

<sup>3</sup> Design crowd is an example from the graphic design world <http://www.designcrowd.com/>

design, will provide design freedom and hence support the development of the place as per Sen's development as freedom perspective (Sen 1999). Communities lacking local design skills, services, methods, and technologies to choose from are lacking design freedom. The choice between their traditional methods and non-traditional methods produced for them by external aid, with little understanding of their lifestyle, is too often a choice between two inappropriate options that are inadequate for their current lifestyle, priorities, and needs.

We all aspire to influence and make choices about our built environment and the place where we live. As part of the design process, architects are constantly making decisions; involving local people in each and every one of them is usually not feasible. Yet, equipped with the appropriate information about the people and the place along with a variety of tools to communicate and complement missing information, architects are likely to make decisions that are more place-appropriate and provide the local community with appropriate design alternatives. Hence, participatory methods that provide inappropriate choices or choices that do not reflect local priorities will not obtain the goal of design freedom. Moreover, methods focused solely on informing, listening and voicing the public regarding different choices and alternatives are not enough to provide design freedom unless the public has a real opportunity to influence these choices.

In 'Development as Freedom', Sen (1999) emphasizes that both "the process" and "the opportunities" are necessary for the freedom to enhance development. Adding people into the process is not enough; they need the opportunity to influence it. Technology can support the process of place-driven design and facilitate it. By evaluating the final design solution, this research ensures that the opportunities were indeed implemented. Despite the potential of many online technologies to enhance development in marginalized places, the most commonly used methods are social network sites. While it may seem that this use of technology is not beneficial to development, Sen's freedom perspective highlights the contribution such use has to freedom, particularly social freedom, through the opportunity it presents for people to gather, communicate, and socialize online (Perez and Ben-David 2012). Harnessing this present use of technology to design allows designers to bring together various conceptions of place, empowering the local community and achieving place-driven design.

#### 4.2.3. Meeting the Place through Place-appropriate ICTs

This study shows the capability of ICTs to bridge the gap between designers and marginalized places and produce place-appropriate design through a process of place-driven design supported by ICT. The ICTs used in the study (Figure 5) were chosen for the specific marginalized locations tested, and the information communicated therein was gathered and analyzed to represent the unique place of the design project. Different unique characteristics of place influenced the choice of ICTs. The use of videos stemmed from the interest and motivation of community members to learn this technology, while the choice of social media stemmed from the community's already extensive use of it. Nevertheless, unique cultural characteristics also influenced the effectiveness of these ICTs. The Pinoleville Pomo Nation, as an underserved community situated in a highly served country, and due to their particular historical and political conditions, is highly sensitive to privacy issues; hence, their use of public social networks such as Facebook for the project, was limited. Other communities may be unaware of or less sensitive

to privacy concerns, and the use of social media for comprehending the place might be more effective there. Hence, this research supports the call of other ICT for Development (ICT4D) projects to adjust the technology to the specific cultural characteristics of the place. When the technologies used are appropriate for the place, as this research shows, ICT can indeed be an effective tool for comprehending place and can support place-driven design. Yet, it would be wrong to assume that replicating the technologies described in this research in other marginalized places would automatically result in similar effectiveness. A pre-process of identifying the appropriate technologies for the place and its people, and using a broad variety of ICTs to fit different preferences within a marginalized community, are necessary to communicate well and comprehend a place.

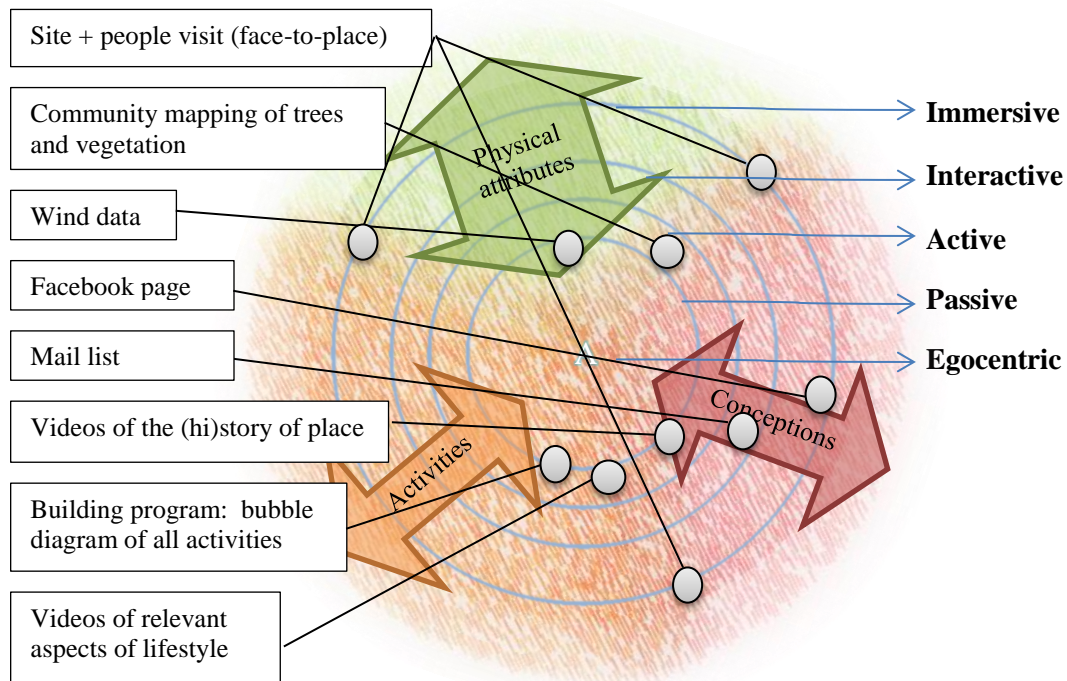


Figure 5: Depth and Breadth of Comprehending Place: Examples Used in ParticiPlace

Meeting the place requires a place-driven design process with an understanding of the physical attributes, activities, and conceptions of the place. When the project is not situated in extreme conditions—in marginalized places—the process can be simpler, and even an egocentric designer’s attitude might result in place-appropriate design if the designer’s self-conceptions of place are similar enough to the local conceptions. Hence, Peter Eisenman’s architecture as “made by architects, for themselves<sup>4</sup>” is not necessarily less place-appropriate than Samuel Mockbee’s rural studio projects that included extensive unmediated work with the local community (Douglas 2010). But in conditions of marginalized places, restricting the depth of understanding of place may result in inappropriate design, as in May’s criticism of the McDonough and Partner

<sup>4</sup> Ellis and Cuff 1989: 65

project in China (May 2008). The amount of effort and depth necessary for meeting the place depends on how far removed from the place one is.

#### 4.3. FUTURE WORK

- Design competitions provide a useful platform for research of design methods and can enable the continuous refinement of ICTs to fit the design process. A competition dedicated to design goals, however, may impose some restrictions on the experimental design of the research. Having a variety of designers working on the same design task in the same timeframe provides a more realistic design context than a simulation of the design process in a reduced laboratory setting. Nevertheless, some variables, such as time and the total number of tools used, are difficult to control and may need additional research through a simulated design exercise in order to highlight more details about the effectiveness of ICT.
- As the case studies focused on non-commercial designs in marginalized places, it would be interesting to evaluate the effectiveness of ICT in the case of commercial designs (such as shopping malls) in marginalized places. The commercial setting, being driven by finance, has a different set of priorities that may change the effectiveness of ICT in these cases, for better or worse.
- As methods for place-driven design are being developed, place-driven design measures need to be identified. Such measures can help complete existing measures for sustainable design and provide a more holistic approach for evaluating design solutions.
- Social networks today offer a variety of social interactions and can help communicate conceptions but are not catered for design. Computer-aided design tools allow for the rich representation of the physical attributes of place but are limited in their capacity for collaboration and human interaction, particularly when the humans are non-design professionals. Still missing are design tools that allow representation of the physical attributes, activities, and conceptions of place. Research into multi-user virtual environments may assist in the development of tools that allow depth and breadth in comprehending all three elements of place to facilitate place-driven design.

#### 4.4. CONCLUDING REMARKS—

##### GLOBAL ARCHITECTS MEET THE PLACE, BRIDGING THE GAP THROUGH ICTS

“Meeting the place” is both an end goal and a means to that end in that ‘meeting the place’ and comprehending its physical attributes, activities and conceptions results in meeting the needs of the place – the end goal of a place-driven design. *Place* is therefore both the existing place and the designed place, and “meeting the place” implies a place-driven design rather than a place-inspired design—a continuous process by which the place keeps changing and the designer needs to keep collecting new information to comprehend it. With this in mind, many architectural styles may fit place-appropriate design; a building can merge with the environment or stand out, as long as the design is place-driven. This research evaluated the effectiveness of ICT in supporting place-driven design not as a design style but as a design method. By looking at how designers comprehend place, I highlight the gaps between designers and place, and I evaluate the effectiveness of ICT in supporting the process while exposing methods for place-driven design.

The main gap to be bridged is the information gap: physical attributes of place are usually studied as part of the design practice, and the activities of place are communicated through the building program. Conceptions of place, however, while being heavily emphasized in the design literature, are often neglected in practice. Being physically situated at the place, local people are the best “drivers” for place-driven design: they are *at* the place and they *are* the place. Physical attributes and activities of place can be comprehended effectively without the involvement of local people, yet failing to include the local population will provide an incomplete representation of place, as only the people themselves can relay their own conceptions of the place. Therefore, with the help of local people, comprehensions of place will be more complete, efficient, and effective. Apart from the information gap, there is also a freedom gap, one that is particularly stark, when designing in marginalized places where freedoms are restricted by low resources and limited services. Design freedom, therefore, is the goal in bridging these gaps. Considering freedom as part of the design process means identifying design alternatives that help people “lead the kind of lives they value—and have reason to value” (Sen 1999<sup>5</sup>).

Place is subjective: every person will have different conceptions of a given place, and every place will provoke different conceptions from different people. With so many unique conceptions, how can they be captured, and furthermore, communicated and comprehended? Face-to-face and face-to-place meetings, by providing an unmediated immersive experience, allow spontaneous, casual, social interactions, which are less likely to occur when mediated by non-immersive experiences of place. Social network sites encourage self-disclosure and personalization and therefore have great potential in capturing conceptions through spontaneous, personal, broad, and informal interactions. Design relying only on prescribed, accurate, and planned information-gathering processes will likely be lacking in meaningful conceptions of place.

With this goal in mind, ICT to support place-driven design should enable or do the following:

- Set-up project boundaries and definitions including privacy settings
- Engage diversified local community members and other stake-holders
- Suggest broad concepts that are relevant to the project and facilitate discussions of these concepts
- Allow interaction through manipulation of form and other physical attribute of place
- Gather relevant available information about the place
- Identification of missing information
- Facilitate identification of the variety of elements of place (breadth) through diversified media and different levels of depth (passive-interactive-immersive)
- Curate the information gathered about the place

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<sup>5</sup> Sen’s definition of “Expansion of capabilities” as part of the development of freedom.

As George Bernard Shaw points out, there is an illusion in communication, in that impeccable communication never really takes place. Subjective feelings will always influence both sides of the communication line and may result in misrepresentation; yet, a variety of media and the ability of ICT to bring together different points of views can sharpen a designer's image of place and enhance place-driven design.



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## 6. APPENDIX A: PARTICIPLACE2012 DESIGN BRIEF



### International Design Competition

#### Building Program Brief

##### Who

The [Pinoleville Pomo Nation \(PPN\)](#) is a Native American, Pomo Nation of about 300 people located near Ukiah, in Northern California. The Nation's citizens are descended from one of many Pomo, Poma villages within a broad linguistic group that shares many values and cultural practices. The Pinoleville community received federal recognition in 1911. Federal recognition was withdrawn from 1966 to 1983, and the tribal nation lost land to non-Natives. In 1983, following a class action, federal recognition was restored, and the PPN Tribal Council has since established a firm foot print on the reservation, with administrative offices, educational and training programs, housing and social services, environmental enhancement and economic development projects. The Living Culture Center is a priority for the PPN Tribal Council, and the design competition will kick off the effort to seek grants and to construct the actual building.

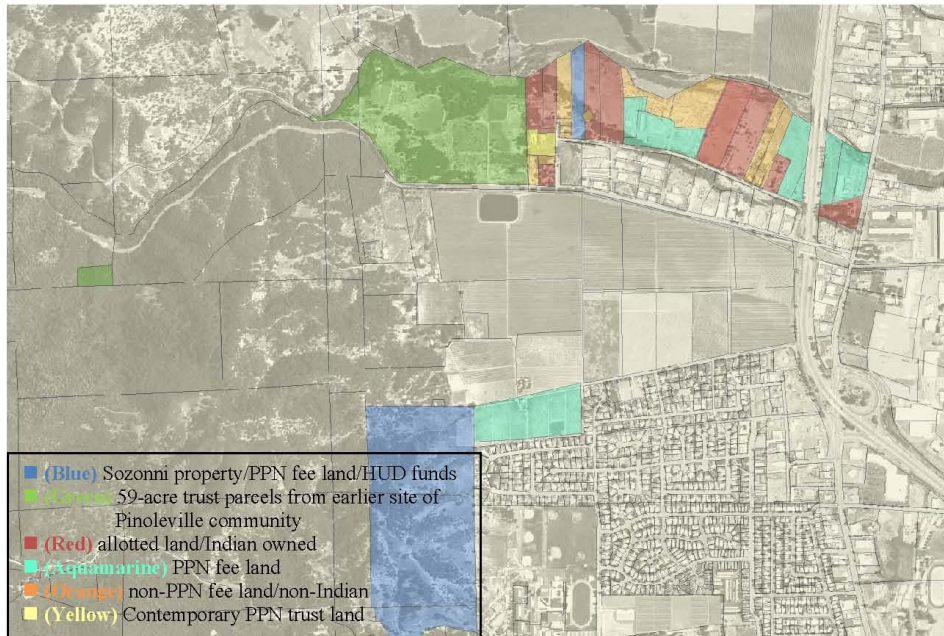


Figure 1: PPN Lands

### **Where**

The site for the Center is on the green “trust land” from the earlier Pinoleville settlement. The land was managed by a trusteeship for many years, but this was recently dissolved, and the PPN is now re-purchasing its land. This process is now in its final stage.

The trust land consists of approximately 59 acres, of which the PPN will control at least 30. The Living Culture Center will be located on the north east side of the trust land, under PPN control (see figure 1)



**Figure 2: [Living Culture Center allocated lot \(Click to link to the Google Map online\)](#)**

The PPN reservation lies along Ackerman Creek, in a valley below oak woodlands and, higher up in the surrounding hills, conifer forests. PPN citizens make frequent trips to the coast to harvest abalone, seaweed, and fish, and to hold social and cultural events.

The California Energy Commission established 16 climate zones to represent geographic areas in California. Ukiah is located in Mendocino County and is situated in California Climate Zone 2. This climate is characterized by cool winters and mildly hot summers with limited number of days within the comfort zone.





### **What**

The Living Culture Center will allow the Nation to practice, preserve, and revive their unique Native Pomo culture. The building is a community center meant to encourage active social exchange, cultural education, and living cultural practice. It should create space for PPN citizens to integrate long-standing traditions with contemporary lives.

The building has five main parts and functions as described below and as can be seen in the detailed bubble diagrams attached in the appendix.

1. **Outdoor and Landscape** should connect to all other spaces and reinforce connection with nature. It should include space for a native garden, herb garden and water feature, space for socializing and for meditating in nature, a small playground, and a parking lot for about 50 cars.
2. **History and Language**. This space will be used for research, documentation and teaching of the Pinoleville Pomo Nation language (a Northern Pomo dialect) and history.
3. **Art**. This is the studio area to create and display some of the PPN traditional artifacts such as woven fiber baskets, dance regalia and jewelry. This is also an area for youth to do homework and socialize after school.
4. **Dances and ceremonies**. This area is mostly an outdoor space for performing dances and ceremonies. It requires connection to an indoor storage area and a changing room.
5. **Health and nutrition center**. This community kitchen will provide state-of-the art appliances and place for cooking and preparing traditional foods, including areas for drying seaweed, dressing wild game, and processing abalone.

### **How**

The Living Culture Center should be a building that “FIT”s. The tribe decided to adopt [Fully Integrated Thinking \(FIT\)](#) as a holistic design approach for the building. The design should use the different FIT lenses in creating a holistic result that is [universally accessible](#). We encourage multidisciplinary teams to be able to carefully look through the different lenses.

Main design principles:

- Comply to the [Biomimicry Guild's Life's Principles](#)
- Accessible to people with and without disabilities
- Main entry from the east
- Emphasizing the 4 directions
- Emphasizing connection to nature, connection between indoors and outdoors and natural light.
- Circular shapes and round corners
- Willow arches as gates
- Space for seasonal arbor
- Variety of spaces for gathering and socializing
- Promoting tribal self-sufficiency in energy, water, materials and skills



### **Submission:**

All boards should be combined into one PDF file, not bigger than 50 Mb in size. Boards should be 40"x30" oriented landscape. Submission should be in the English language and in Imperial units. All entries must be submitted without any marks, logos, insignia, or writing that identify their authorship. It should allow non-professional designers to understand your design ideas. There is no limit for the number of digital boards you can produce but these are the minimum requirements:

- One summary board for printing size 40"x30" oriented landscape.
- 1/8" plan of all the building's floors
- 1/32" site plan
- 2 sections
- 2 perspectives
- A narrative for each of the [FIT lenses](#) and how the [life's principles](#) were incorporated
- Any additional board for details, images, visualizations, etc. Boards can include hyperlinks to additional information or movies but there is no guarantee that jurors will follow all these links.

All submissions should be made on line, as will be instructed in the [registration website](#). Each registered individual/team may make only one submission.

### **Research**

Please note, as a research project this competition will study different design methods. We will send out a variety of surveys during the competition, and introduce different systems. We aim to make them short and simple. Please note that all the information you provide as part of the research will be kept private and will not be available to other competitors nor the jury.

### **Copyrights:**

Once submitted to the competition, your creative work is protected under the Creative Commons attribution-ShareAlike. For more information about this license visit:

<http://creativecommons.org/licenses/by-sa/3.0/>

### **Further Information**

For more information visit <http://2012.participplace.org/>. All questions and clarifications should be directed to [participplace@berkeley.edu](mailto:participplace@berkeley.edu).

