A Taxonomy of Participatory Design Projects in Architecture

by

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Abstract

Since its advent in the 1960s, participatory design has been an interesting and innovative technique to use in architectural projects. The nature of participatory design projects is varied and diverse. Much of the existing documentation does not provide a generalized framework under which to analyze how participatory design techniques are applied. As a result, it is difficult to understand the benefits or drawbacks to using participatory design. It can also be difficult to evaluate in which context a participatory design technique is appropriate, and how to integrate it within a project. This thesis summarizes eight case studies that use a variety of participatory design approaches within several different contexts and generalizes the approaches for application to other projects. Three methods of categorization have been developed, each providing a different set of considerations for future projects.

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Introduction

Background

Participatory design, or the idea of user participation in the process of design, is a concept that originated in the 1960s. The political and cultural climate of activism in the United States at the time influenced the advent of a process called “Taking Part”, developed by Lawrence Halprin. Borrowing the concept of “scoring” in open ended choreography and the idea of audience participation, from his wife Anna Halprin’s dance work, he theorized a participatory process of design. The process involved the use of Resources, Scores, Valuaction (a portmanteau of value and action), and Performance (RSVP) cycles to transform the linear process of architectural design to a more dynamic feedback loop. By gathering a small, representative sample of users from the site community (Resources), and creating a loosely guided (Scored) workshop for the users to participate in (Perform), Halprin would create a shared experience. Then, a reflection on that shared experience took place in the form of creative responses such as drawings. Halprin’s hope was that a consensus of action based on values (Valuaction) would come from these reflections. Compromise was not the goal, but rather a “collective understanding that would enable a consensus plan agreeable to all.”

In addition, in the 1970s in Scandinavia, the political climate encouraged the development of participatory design in the field of industrial systems design, which allowed

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2 Ibid.
3 Ibid., 128
4 Ibid., 129.
5 Ibid.
iron workers to work with systems designers and computer scientists to improve the quality of their workplace. This case developed the idea that users have their sphere of expertise, and designers understand the design process, but both parties need each other’s input to create a useful product.

Recently, the groundbreaking idea of involving the public in the design of spaces that they use has been more commonly adopted. The mechanisms of public involvement have grown and changed since the inception of Halprin’s Take Part workshops. The advent of computation has further increased the potential of involving the public in new and exciting ways. The concept of community participation has diversified into a multitude of implementations. Multiple projects have attempted to involved end users in different stages of the process of design, to varying degrees of success.

A framework for evaluating the success of participatory design projects has not yet been developed. Part of the problem is the wide variety of projects that can be described as participatory, and some that use participatory techniques but are not labeled as such. Attempting to evaluate the success of participatory design projects is not only hindered by this, but also by traditional architectural definitions of success. A study examining the outcomes of design competitions found that participatory design projects resulted in “commonplace ideas.” However, other benefits to participatory design have not necessarily been evaluated. Commonly, success of a project is not only determined by the novelty of the idea, but by how well it is executed, how it fits within the fabric and culture of the

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community, and most importantly, perhaps, how well it is designed around the users needs. Unfortunately, although existing literature does well to describe the process of participatory design, it does not address whether or not participatory design is an avenue worth pursuing and developing in future projects. Moore puts the problem concisely:

“The main drawback of the literature is its lack of general conceptual framework, against which different designs could be compared and evaluated; or which would guide the development of new designs. It is stimulating, but in the end does not do much for the advancement of knowledge.”

This thesis seeks to create a just such a framework—a taxonomy of participatory projects to better facilitate the future application of participatory design.

**Process**

Eight case studies have been selectively chosen to represent the diversity of participatory design projects. The participatory portion of each case study takes places in a different phase of the design process, uses different methods, and has varied intensity of participation. Each case study’s process will be summarized, and its strengths and shortcomings briefly discussed. The following section will develop three methods of categorization, based on characteristics of each project (e.g., methods of participation, timeline, scale of project), and evaluate the effectiveness of each categorizaion.

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Case Studies

The following case studies have been arranged in order by the degree of involvement of the user, and in which part of the design process the participatory aspect takes place. In the first case studies, the participation of the community occurs early in the process, or is limited in scope. The most involved studies conclude the summary portion of the chapter. A detailed explanation of the taxonomy follows.

1. Urban Planning and Zoning in German Subdivision

This case study examines the concept of participation in zoning decisions and allocation of land. Though decisions on course of actions are made as a collective, the design itself is not created by the users, and so the level of involvement is seen as somewhat limited, and confined to the early stages of project inception, establishing the lower end of the taxonomy.

In Germany, participation in community zoning and development is part of the overarching principle that federal and state governments designate the majority of land for specific uses, but that communities can decide how to develop the land that they are allocated. The communities, as well as the builders and service providers, are all familiar with and engaged in the communal design system, and the policies and procedures surrounding its implementation. As a result, community participation in zoning and development is common, and seems to work well.

In the community of Flammersfeld, population had been growing steadily for several decades, and in the early 1990s it was determined that additional housing was needed. The

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village council chose a site based on several factors: the number of landowners and their willingness to develop their land\textsuperscript{10}, as well as location and fit with the overarching municipal development plan. Once the site was chosen, a Land Stewardship Plan needed to be prepared, to assess the environmental impact of the development. The village council hired an engineering firm to draft the plan. In this case, the plan minimized environmental impact by designating land to preserve as open space, instructing the development of a stream for storm drainage, and even designating which specific trees would remain. The stewardship plan also addressed how common land would be maintained.

Once the stewardship plan is drafted, a local planner is employed to design the site.\textsuperscript{11} In the case of Flammersfeld, this process involved the redrawing of agricultural parcels to smaller, more appropriately-sized development parcels. The planner drafted four different versions of the plan, which were presented to the community and the general public, including regional service providers and neighboring municipalities. Suggestions were made to increase the size of the development slightly, to spread the cost of public services across more landowners. Traffic concerns were expressed as well, which were alleviated by the addition of footpaths to the plan.

The final site plan was even more detailed than the Land Stewardship Plan. Because of the participatory structure of the law, Germany has no local zoning ordinance, so detailed descriptions of each building are included. The plan is user friendly, employing a map key that is used throughout Germany, which ensures that all members of the community can understand and assess the plan.

\textsuperscript{10} Daniels, "A Better Way to Build?" 36.

\textsuperscript{11} Ibid., 37.
Cost and funding decisions are also made by the community. Infrastructure costs are borne by the landowners, with contributions from the community if possible. The community of Flammersfeld hired an infrastructure coordination firm to handle the details—keeping costs down by planning the construction of infrastructure and coordinating decisions between landowners to ensure one common service provider. Infrastructure coordination is a common practice in Germany.12

Several interesting conclusions can be drawn from this case study. Contractors in Germany have settled into and accepted their role as more builder, and less developer. German communities are accustomed to the amount of power and influence that they have, and as a result, understand and participate actively in the process. The mechanics of participation were not addressed to the granularity of a single person, and participation seems to be limited to feedback, with planners creating the plans, and the council making the final decisions and implementing the plans. Even with limited scope to the participatory aspect, the end result is a development that most people have ownership in and are satisfied with.

2. Engaging Public Voices in Online Participatory Design

The age of big data has brought the idea of computation to many fields, and architecture is one in which it can be found useful. The concept of taking many different ideas and designs and computationally finding the optimal one goes hand in hand with designing for the many users of a building. This concept is presented by Hou.

Hou explores the precedents of crowd-sourcing programs, such as Place Pulse, an online visual survey program designed to determine the liveliness of various locales.\(^\text{13}\) Other precedents of computational programs show how a computer can generalize a hand-drawn programmatic model and generate a floor plan.\(^\text{14}\) With regards to participatory design, Hou noted that most participatory projects make use of Post-It notes and a design charrette-type atmosphere. This provides no guarantee to the community that their ideas will be used, or that they will like or enjoy the use of the final product. Using the two crowd-sourcing and computation precedents as inspiration, Hou developed a platform for participatory design to attempt to address this pitfall of representation.

A site was chosen to test the program. The site was one that had been previously slated for development within Kendall Square, adjacent to the inbound T stop and the Kendall Hotel. This location provided a large number of potential users, and therefore a large number of opinions and thoughts to draw from. The site also provided built-in constraints in the form of zoning laws. Other constraints were programmatic: the site was considered as a location for the MIT Museum, so for the purposes of the experiment a museum space was included.


\(^{14}\) Ibid., 8.
The participatory design generation tool consisted of two parts: a game that collects the public’s interest on generalities, and an image comparison survey to understand the public’s choice of aesthetic qualities. The game portion was based on programmatic blocks that could be laid out on the site and submitted as the user’s ideal design. To develop program "blocks" for the game, Hou used traditionally established museum programs (gallery, art exhibit space, classroom, etc), feedback from the community surveys on desired commercial programs (retail space, offices), and user inputted ideas collected from the gaming process itself. Each program block was categorized based on size and function.

The game interface was fairly straightforward: program blocks were color-coded and listed on the left. They were then dragged to a 3D representation of the site and surrounding area. In the bottom right hand corner of the screen, a graphic demonstrated the distribution of programmatic elements in the user-developed design, i.e., whether the design is MIT, Museum, or Commercial space heavy. Constraints were built into the game, only allowing users to place blocks that adhere to the zoning laws, and also limiting the budget that users had to work with. Completed models were exported to an OBJ file for massing analysis completed later.

The game was played by 24 participants. Their resulting models were ranked based on massing size and complexity. Then, each model was deconstructed into its parts, with each part retaining its coordinates and mass, so that a more detailed analysis could be constructed. An adjacency diagram was created, which further deconstructed the models, breaking form and mass from programmatic decisions, and showing a trend for how most

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16 Ibid., 26.
17 Ibid., 29.
users had structured various programs. With the models broken down into their parts, they could then be consolidated into one cohesive design. An optimized massing solution was created based on where programmatic blocks were most commonly placed, what they were adjacent to, and the size and number of blocks placed.\(^8\)

The second part of the tool was an aesthetic study. Hou compiled two sets of pictures, emphasizing either form or material, and then divided these pictures into eight subgroups of four pictures each.\(^9\) The architectural forms assessed were classical, angular, cantilever, insertion, angled, triangulated, aggregation, or curvilinear. The facade materials assessed were metal cladding, concrete, glass, translucent glass, metal screen, wood, fabric, or parametric pattern. The tool then surveyed the participants using one-to-one comparisons of form and facade materials. Interestingly, there were very large margins between some of the votes in the same category. For example, one of the photos representing glass scored 35 votes, comparable to the scores of all four photos of translucent glass (35, 29, 30, 42).\(^{10}\) The other photos in the glass category scored 14, 18, and 7, a noticeable difference. The top two choices for form were cube and aggregation, and the top two facade materials were translucent glass and concrete.

Using the material and form preferences from the survey, and the massing model from the game, Hou created a design for the building. In order to validate the design, and ensure that it was what the community wanted, the same image comparison survey was used. The rendering of the new design was pitted against pictures of different buildings, with contrasting styles and facade materials. The new design won 6 out of the 8

\(^{8}\) Hou, “Engaging Public Voice”, 32.

\(^{9}\) Ibid., 34.

\(^{10}\) Ibid., 38.
comparisons. To confirm the facade material selection, another evaluation was completed using a second rendering with different materials (metal cladding and metal screen). Interestingly, the lower ranked materials won the comparison. Hou’s tool shows that computation can be a helpful aid in participatory design by providing a method for combining many ideas into one. A drawback of this method is the lack of human interaction in the process. The tool relies greatly on participants—assumed to be users and not designers—creating architectural-type models of what they feel they might want. The testing failure could indicate that what they think they want is not necessarily what they actually want. The quote “If I had asked people what they wanted, they would have said faster horses,” misattributed to Henry Ford and referring to the fact that consumers and users don’t know what they want, might be something worth considering in this case.21

3. Democratic Play—Crowdsourcing for Architectural Design

Another case study addresses the possibility of computation as a mechanic for participatory design. Joshua Choi discusses the development of a game that allows the public to make design decisions together.22 The idea was inspired by the online game Fold-It, in which players interact with models of protein structures.23 Without possessing advanced scientific knowledge, the public can aid scientific research into the complex folding and interaction of different proteins. By creating a “serious” game interface, scientists can gather many potential solutions to a problem, more complex and powerful than solutions provided by computers alone. The same principle can be applied to creating an architectural design.

Through the building game that he designed, Choi collected users’ interests and preferences. There is an inherent difficulty in incorporating many different design ideas together, so it becomes important to structure the crowdsourcing game in such a way that meaningful data is collected. Part of this process is to limit the technical expertise required of users, and to make the game as realistic as possible. All the necessary architectural knowledge has already been incorporated into the game interface by the architect, so players need only play the game to generate ideas. Textures and objects have been captured using photogrammetry, the process of extracting 3D geometry and photographic textures through photos taken at multiple angles.24 This creates a more photorealistic setting, which in turn decreases the barrier to understanding the architectural aspects.

23 Ibid.
24 Ibid., 18.
The site for the game was a courtyard space on MIT's campus, near the lobby on 77 Massachusetts Avenue and the architecture department building. There were several iterations of the game. All iterations used the mechanic of placing blocks as the primary game play. The blocks consisted of predetermined programming ideas chosen by Choi. The categories were determined through an observation of the surrounding spaces: studio, labs, common room, gallery, class, lecture room, cafe, and garden.

The first iteration of the game allowed users to place the blocks wherever they wanted. This provided too much freedom, and not enough data to form a cohesive pattern. The second iteration introduced gravity as a limiting factor; i.e., if someone wanted to have a public space on the second floor, there would need to be a block placed below to support it, even if that block was just a structural void block. The second iteration also used simple labeled blocks that were just different colors, like building blocks, and the third iteration elaborated by populating the blocks with design elements.

Twenty different participants made their own designs, and Choi completed the analysis. First, programs were exploded into components, and ordered according to most preferred. Then, the components were generalized into public, semi-public, and private spaces, which were denoted by black, white, and grey. Then the data is collectively combined into these three categories, which made identifying the patterns easier. The averaged data was then incorporated into three example designs (design hypotheses) created by Choi. Hypothesis A generalized private spaces along the edges of the site, leaving public space in the middle. Hypothesis B formed a canopy of private spaces over the public main floor.

Hypothesis C created a core of private spaces, surrounded by a fluid wrapping of public space.

In addition to developing the building game, Choi also developed a navigation game to evaluate the designs created from the data of the building game.26 The three designs were presented to the participants of the study for an initial vote. Hypothesis A received the least favorable response, and so was eliminated. Hypotheses B & C were adapted into the navigation game. This game mapped the route that participants took through a virtual walkthrough of the design. Participants were able to virtually spend time in the space, and were also able to take pictures of their likes and dislikes. The game tracked the amount of time participants virtually spent in different areas of the space. Interestingly, the spaces that were indicated as liked by the pictures taken in that location did not necessarily coincide with where the most time was spent. Using a combination of time spent and pictures of the likes and dislikes, the most popular space was identified for each of the three designs.

4. Democratic Design in Public Parks

Participatory design is heavily reliant on the cultural practices of the population, as evidenced in the first study of German subdivisions: established processes and laws allow the collective zoning decisions to be completed without much resistance. Other communities are less likely to trust government entities, or less likely to want to participate in public design process. It is important, however, to address this issue, because the way in which various cultures interact with architecture differs. The following case studies explore ways in which participatory design can be shaped to include many different cultures in one space. The participatory aspect of both projects is limited to the ideation phase, with the design work being completed by one architect, which places it more towards the middle of the taxonomy (clarified in the next section). It can be seen as a fairly standard participatory design project.

Through the case studies of Peavey Park in the Phillips neighborhood of Minneapolis, and Clinton Park in Oakland, Sherman explores the process of participatory design, especially within the context of inclusivity of diverse populations. In these two neighborhoods, local groups set out to revitalize their communities by redesigning two parks that had become derelict. Underuse of public green space is especially prevalent in multicultural communities, such as the Phillips and Clinton Park neighborhoods. Part of the underuse may be due to limited access, but it seems that a majority of the issue is that green spaces within certain communities come off as unwelcoming in their programming.

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27 Diana R. Sherman, “Participatory Parks Planning: exploring democratic design as a tool to mediate cultural conflict over neighborhood green space” (Master’s thesis, Massachusetts Institute of Technology, 2005), 7.

28 Ibid., 8.

29 Ibid., 13.
The types of spaces that different cultural communities appreciate are not incorporated into designs, and often are not even considered. For example, Latino communities prefer neighborhood parks for the opportunities for sports and socialization activities, while Asian immigrants appreciated parks that reminded them of the botanical gardens of their home countries. Other issues preventing the implementation of multicultural designs includes park policies. In Boston, for example, park policies prohibit the playing of sports like soccer, unless in an organized league, which requires reservations, registrations, and fees. This prevents the open and accessible use of existing green spaces by Latino communities.

Even if the design of a multicultural space is important to a community, how can a multicultural space be defined? Is the proximity of parallel cultural spaces enough to be considered multicultural? This is not always possible in the small area of neighborhood parks, so how can those cultural spaces be reconciled into an area that feels welcoming for all? These are some of the questions that could potentially be answered by incorporating democratic design strategies.30

The design of multicultural spaces needs the support of professionals, architects and public planners who show strong commitment to the desired outcome. The existence of such professionals is dubious—the potential benefits of democratic and participatory design are not universally recognized in the design community. Additionally, many architects are not trained in facilitation and mediation skills, which are fundamentally necessary for the guidance of community planning events, such as town halls and community listening. The two case studies examined by Sherman demonstrate that “when designers and planners

30 Ibid., 13.
facilitate, rather than dictate, the design of open space, power shifts from planner to community.”

A. Peavy Park, Minneapolis, MN

The neighborhood of Peavey Park was an ideal foray into democratic design for several reasons. The civic climate of Minnesota had been somewhat influenced by the Scandinavian tradition of coops, and the idea of the community collectively making decisions was not novel or unfamiliar. Organizations at the city, county, and state levels had established processes that allowed them to pool resources to work together, resulting in one such example, the Neighborhood Revitalization Program (NRP). NRP’s goal was to “revitalize neighborhoods showing initial signs of decline.” Such was the case of Peavey Park. The park had existed in the neighborhood for some time, but had fallen into disrepair and become dangerous over the recent years, which spurred the community’s desire for change. The community had an organization in place—Hope Community, Inc—that had helped to facilitate other projects in the past. With the cooperation of other organizations, they set out to create a multicultural redesign of Peavey Park.

First, the liquor store adjacent to the park was purchased by the city of Minneapolis, and transformed into a public art project by Hope, Inc. Other adjacent buildings, including hospital and a halfway house, were transformed into a school with attached park building and green space, respectively. These improvements helped somewhat, but did not fully

31 Sherman, “Participatory Parks Planning,” 36.
32 Ibid., 46.
33 Ibid., 49.
address sentiments about the park’s safety, and the problem had not been eradicated completely. As Hope Community, Inc., grew, so did their influence. Rather than simply addressing the safety problems with the park, Hope, Inc. took the initiative to understand what the community envisioned for the space. Hope, Inc. had been experimenting with community listening sessions in other spheres, such as housing and quality of life issues, and decided to apply the same technique to Peavey Park.34 As a result, the focus of the participatory aspect centered around Listening and Visioning Process sessions. These were successful in garnering participation because Hope Community had established itself as a trusted organization within the community. Lending legitimacy to the listening sessions, officials on the Minneapolis Park and Recreation Board (MPRB) sanctioned the listening session as the official public process of the park redesign. This reengaged the trust of local organizations, acknowledging the ineffectiveness of the previous participatory system.35 After one listening session, it became clear that many more were needed. The organizations also ensured engagement with many different subgroups within the community, holding individual listening sessions for each subgroup.

The listening sessions themselves focused on creating a central definition of community, as established by the residents of the Peavey Park neighborhood. Themes that were developed from these discussions informed the final design. Hope Community, Inc. brought in an organizer to help facilitate the process, and hired an architect visualize participants’ ideas and incorporate them into a final design. The architect worked with distinct groups to develop specific areas of the park. The final design was approved by vote

34 Sherman, “Participatory Parks Planning,” 50.

35 Ibid., 53.
by the Minneapolis Parks and Recreation Board (MPRB) as well as some of the residents of the Phillips neighborhood, and was adopted as the official city plan.

B. Clinton Park, Oakland, CA

Although the neighborhood of Lower San Antonio in Oakland, California had fallen into disrepair and poverty, a number of established community organizations had been able to secure resources to begin the process of revitalization.36 One of these organizations, the East Bay Local Development Corporation (EBALDC), and other development and local business associations, invited Urban Ecology, a group of activists and architects, to lead the design effort to revitalize Clinton Park, a public park in the Lower San Antonio neighborhood.

Based on observations conducted by Urban Ecology and by statistics provided by the Oakland Police Department, it was established that Clinton Park was in a state of neglect—it was a place of robberies, drug dealings, prostitution, and ethnically-motivated arson.37 In addition to safety concerns, the actual state of the vegetation in the park was dismal, due in part to residents taking plants and sand from the park for various personal uses. Urban Ecology observed residents using the park, finding that children played on the structures and adults socialized.38 Based on these observations, goals for the project were established, which focused on providing spaces better suited for existing activities (playing and socializing), eliminating crime and creating a safe space, and additionally increasing use by

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36 Sherman, “Participatory Parks Planning,” 65.
37 Ibid., 68.
38 Ibid.
making the park more easily accessible by pedestrians, and more open to the different cultures of the neighborhood.  

The participatory aspect of the park design included collecting information from surveys, which had been translated into Spanish, Cantonese, and Vietnamese, the three most common languages in the community. The surveys echoed the observations of Urban Ecology. Residents noted that they were too afraid to enter the park after dark, and that children were prohibited from playing in the park by their parents. A small group of Vietnamese children was the first to express with their visions and hope for the park, through drawings and stories created in a workshop. Adults noted children’s passion for participation, and emphasized the importance of creating a space for youth activities.

Residents, city officials, and local business owners, came together to participate in a large design workshop to address concerns and to brainstorm ideas. The workshop focused on four major categories: traffic and parking, public safety, culture, and park activities. Many ideas were generated, despite the struggle with participation. Workshop organizers needed to bridge cultural and language barriers—some of the residents came from countries where public participation is discouraged or even illegal—and many residents had jobs or school engagements that prevented them from participating as much as they initially wanted. Although the design incorporated some of the ideas that were created through the workshop, the process of constructing the final park design plan was not clarified.

39 Sherman, “Participatory Parks Planning,” 69.
40 Ibid., 70.
41 Ibid., 71.
42 Ibid., 73.
Both the Peavey Park project and the Clinton Park project examined the cultural aspect of participatory design strategies. Understanding cultural values not only influences the final design outcome, but also the way in which the participatory design process is structured and implemented. Language barriers play a role in limiting participation, but can be overcome as long as the structure of the process allows residents and stakeholders to feel comfortable enough to share ideas and concerns. By additionally analyzing barriers to use—in both Peavey Park and Clinton Park the primary barrier was safety—participatory design can inspire residents to take ownership of the space, creating a positive feedback loop of participation.
5. Courtyard Design in Paraguay

An existing public space in Remansito, Paraguay, was transformed into a courtyard through participatory design. A narrow, previously unused site was donated to the people by the municipality of Villa Hayes, and brought to life by the efforts of the Center for Community Development in Remansito. The community was involved in the decision of how to use the donated land, engaging with local government and with businesses, who additionally agreed to donate materials for the courtyard.

The architects led guided workshops for the community, including children, teens, and adults in various participatory brainstorming activities. They taught the participants how to think about public space, and discussed what the ideal space would look like in their mind. All participants were asked to make sketches, clay models, as well as watercolors to bring their designs to life. The ideas facilitated in the workshops were compiled and synthesized by architect Lukas Fúster.

The focus of the final design was on incorporating culture and traditions. The concept of public land and socializing as a community is not foreign to the small village, and this value is reflected in the design of the courtyard. The gazebo invites people in for tereré, a traditional ice tea common in Paraguay. The social importance of tereré is a central part of the design, providing a place for the community to engage in culturally significant activities. The layout of the playground equipment allows for socialization between adults, while staying connected to and involved in children’s play. Each aspect of the courtyard can be used by both adults and children, providing many possible opportunities for play.


An important participatory aspect of the project was the construction. In addition to incorporating the donated local materials (tires, scrap metal, lumber), the architects involved the community in the construction of the playground, further fostering the sense of ownership. Residents, adults and children alike, were taught fabrication techniques using the recycled materials. Hammocks, chairs and tables, as well as game-centered playground structures including a carousel and climbing net were imagined and constructed. The skills learned through the workshop can then be utilized in future jobs.

Although a relatively small-scale project, this courtyard is distinctive in the involvement of the community in the implementation of the design. The name of the project speaks to the level of emotional connection and ownership the community feels towards the project: “The Courtyard of Our Dreams.” Additionally, the small community allowed for civic participation, interaction with government, and development of skills required for communicating with authority organizations to create change. With three aspects of participatory design, the Courtyard of Our Dreams pushes participatory boundaries to create a sphere of community and ownership in rural Paraguay.

45 Lukas Füster, “The Courtyard of Our Dreams.”
6. Three University Buildings in Canada

Reception theory, a concept typically applied to literature and film, is sometimes applied to architecture as a way of evaluating intentions. “How does the general public see and experience architecture?” One definition of participatory design is when this and similar questions are asked during the entire timeline of design. Inspired by his mentor, Charles Moore, who was a collaborator of Lawrence Halprin, Brian Mackay-Lyons, of Mackay-Lyons Sweetapple Architects (MLSA) has taken the idea of participatory design to heart. The development of three projects on three different university campuses employ participatory design to ensure the buildings fit within the identity of the community.

A. UPEI School of Business (Charlottetown, Prince Edward Island)

By the time MLSA was brought in to propose a design, most of the site planning had already been established by the university. The core of the plan was a new building, the renovation of an existing building, and the double courtyard space between the two buildings. MLSA recognized a potential inconsistency with the courtyards not fitting within the design language of the campus as a whole. In the first site planning workshop, they demonstrated how a shift in orientation would reinforce the quadrangle structure present throughout the campus as whole. The idea was adopted and initial plan was revised to reflect the new orientation.

The subsequent planning workshops included qualitative discussions as well as quantitative analysis to establish the size and number of classes. The sessions were


47 Ibid., 19.
conducted with faculty that would be working in the newly planned business building. Faculty in the business sphere were familiar with providing quantitative data, but were new to the process of providing more qualitative feedback. Some sessions were informational, such as those on acoustics. MLSA had the opportunity to include facilities workers from the university in vigorous back and forth discussions on LEED. These sessions resulted in a thoroughly thought-out design plan, "utilizing geothermal heating and cooling in radiant floors, abundant daylighting in all spaces, and sensor-activated switches in hall-ways and washrooms."48

B. NSCAD University Port Campus (Halifax, Nova Scotia)

The site for the NSCAD building was a strip of commercial building space near recently revitalized Pier 21. As in the previous case, initial programming was decided by the university in conjunction with a consulting firm. The residents of the new building were decided, the majority of which were faculty in machine-intensive arts, such as ceramics and metal working. The unique nature of these departments and the need for expansive amounts of space were taking into consideration by the university and the consulting firm, and the specifications were included in the request for proposals.

The kick-off participatory session with MLSA centered around three groups working in parallel. MLSA brought three copies of the footprints of the existing buildings, color coded by program, and presented one to each group. The goal of the workshop was to look for programmatic and organizational consistencies amongst the groups. It also served to introduce MLSA to the identity of the art school as a community. After the workshop, the

groups gathered to discuss results, and several design choices were found in common. There was “widespread consensus” on the organization of the building: heavy-duty shops on the first floor to ease the transportation of materials, faculty spread amongst three floors to maintain proximity to their teaching spaces, and a design that took advantage of the unique aspect of the vast space of the warehouse. More design workshops in the same style followed, with groups ranging from one-on-one meetings to gatherings of 500 people or more, with the goal of understanding each part of the community, on different levels of granularity. The artistic community was assisted in the participatory design process, and MLSA ensured that they thoroughly understood the artists and their needs, garnering the appreciation of the academic vice president of the college.

C. Plaza 2006 Building, Brock University (Saint Catherines, Ontario)

This project originally called for two separate buildings, one to be connected to the existing Student Center, and another planned for an adjacent site. The contract was awarded to MLSA, in conjunction with Rounthwaite Dick and Hadley Architects (RDH). The site planning was established in a workshop session, where participants used dry erase markers, cutouts of the building plans, and campus maps to envision the location of the new structures, and their potential interaction and contribution to the existing paths of raised pedestrian walkways. The site planning workshop was small—“a few dozen people”—compared to more than 80 people that participated in the building workshop. The building

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49 Macy, “Participation: Three Recent University Buildings,” 20.
50 Ibid., 21.
51 Ibid., 23.
52 Ibid.
workshop divided participants into teams, each led by an architect from MLSA. Additional architects, engineering consultants and landscape consultants served as supplemental critics. The main purpose of these workshops was to understand the desired spacial interactions of the different programmatic elements, and how those can be distilled into public and private spaces. The integrity of the project was jeopardized when project costs grew unsustainably, and a decision was made to combine the two buildings into one. MLSA maintained the participatory work that had been established thus far by stacking the building designs on top of one another, keeping the programmatic relationships intact, but effectively turning two three-story buildings into one five story building. Other design challenges arose as a result, but the choices made in collaboration with the building users were preserved.

Overall, each of the three project processes kept the emphasis on listening to the users, thoroughly understanding their needs, and designing around those requests. The choice of MLSA to remain open to the look and feel of the project (not imposing design ideas early on) helps users feel comfortable and invested enough to contribute their own ideas. The final results were buildings that fit neatly within the community of each campus.

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53 Macy, "Participation: Three Recent University Buildings," 23.
54 Ibid.
55 Ibid.
7. Large-Scale Public Project: Mediaspace (Aarhus, Denmark)

Thus far, the projects discussed have been small-scale or have involved a small, homogenous group of end-users and shareholders. In Scandinavia, the stronghold of participatory design, it is unsurprising to see ambitious, large-scale public projects in which participatory design practices are utilized. The Mediaspace project is dually ambitious, implementing participatory design practices not only for the building construction, but also for the reimagining of the library as an institution and its function in the community. Although not yet complete, the Mediaspace project intends to implement participatory design practices in each stage of production, from design conception to final building completion. The finished building will house the municipal library as well as the Citizen’s Service Department in Aarhus, Denmark.\textsuperscript{56}

The library presents a near-perfect stage for an experiment in participatory design. The public is already engaged with such an institution, yet the changing nature of technology and readily-available information could potentially render it obsolete, establishing the public’s investment in the future of the library. The role of libraries is changing from “repositories for and disseminators of information”\textsuperscript{57} to meeting places, cultural development spaces, and a venue for community engagement. This uncertain future makes the library a prime candidate for participatory design, since it provides the opportunity to define the future role of the library in the community concurrently with the building that will house it. Additionally, the city of Aarhus had previously established

\textsuperscript{56} Peter Dalsgaard, “Participatory design in large-scale public projects: challenges and opportunities,” Design Issues 28, no. 3 (2012): 36.

\textsuperscript{57} Ibid., 35.
political aspirations to become a “city of knowledge”, a goal that is directly supported by a public involved in the development of a new role for libraries in society.

The project began with the definition of a central vision with several key values. The most important theme was the involvement of the citizen. Therefore, the next logical step was to identify and define the stakeholders involved in the project. Aside from the obvious stakeholders (the current users of the library), other parties to consider include the potential future users, (more broadly, the citizens of Aarhus), as well as library staff and municipal employees. When planning the design process itself, the network of shareholders increases to include the architectural firm. A competition was established to choose the firm, to ensure that the firm supported the values of the project. Each firm that was considered had to present a strategy for involving stakeholders in the design process, and clarify how this strategy would support the chosen values. An existing framework of groups and centers also aided in the process: the Dalsgaard research group had previously partnered with the Center for Digital Urban Living to explore the way technology changes life in the city. The library project fits neatly into this academic sphere, and the Dalsgaard group took on the responsibility of implementing the participatory design workshops and analyzing their efficacy.

The participatory activities of the projects ranged from conventional to traditional, to radically customized participatory design events. Straightforward hearings and meetings with stakeholders were held, which had previously been announced and promoted through social media channels. The public and large-scale nature of the project ensured that the

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58 Dalsgaard, “Participatory design in large-scale public projects,” 37.

59 Ibid., 38.
news reached a significant number of people, although the organizers continued to look for additional ways to involve citizens who weren't yet regular users of the library. These meetings took the form of open discussions and question and answer sessions to address straightforward aspects of the project, such as location or accessibility issues.\textsuperscript{60}

More traditional participatory design workshops were also part of the Mediaspace project. Collaborative design events were held, where professional designers and members of the public with previous design experience were paired to create design concepts. The participatory design technique used in the workshops was developed previously by Dalsgaard\textsuperscript{61}, and involved the creation of 2"x3" Inspiration Cards divided into two categories: Domain and Technology. Domain Cards embody concepts directly related to the design domain; in the case of Mediaspace, the domain is library. Technology Cards are mostly created by the designers, documenting various technologies that can be used in the design process. In addition, blank Inspiration Cards are also provided to the participants, for new ideas developed during the activity. In the workshop, the cards are combined collaboratively and affixed to cardboard posters to embody one idea. Brief descriptions and explanations are added for clarification, and the workshop serves as a brainstorming, idea-generating time.

An additional aspect of the Mediaspace project that makes it particularly salient is the participatory design elements that were designed specifically for this project. The Living Blueprint activity addressed one issue that is commonly cited as an argument against participatory design: that users do not have the same capacity for design thinking and

\textsuperscript{60} Ibid., 39.

\textsuperscript{61} Kim Halskov and Peter Dalsgaard, “The emergence of ideas: the interplay between sources of inspiration and emerging design concepts,” \textit{Codesign} 3, no. 4 (2007): 187
visualization as architects do, and that as a result, there will be difficulties in communication and visualization. In the Living Blueprint activity, participants used cardboard avatars to navigate through the blueprints of the building to better envision the space. This gave users enough insight to form opinions and to ask questions about the unbuilt building. 62

Another participatory design activity took the form of an installation. The Voice of the City Installation provided two dedicated kiosks, located in the original library building. The installations took the form of interactive tables that allowed users to explore maps of the site, the city of Aarhus, of Denmark, and of the world. These maps encouraged the users to think globally, and to consider the role of the Mediaspace library within many contexts. The installations additionally allowed citizens to leave notes and voice memos tied to specific map locations, creating a new technological foundation for community dialogue.

The final participatory design experience was novel in its length. A three-year Lab project tested physical spaces and configurations by constructing prototypes in the lobby of the existing library. There were several labs constructed at various times, each with a different focus, including literature, news, music, exhibition, and square. Because the installation of the labs was staggered, feedback from one lab was implemented into the next. Each lab helped the designers understand the values that users felt were important, and additionally helped develop ideas for future uses of the library.

Several factors specifically made this project unique when compared to the previously discussed case studies. First, the participatory design activities were invented specifically for this project, using established participatory design principles, but tailoring them distinctly for the technological and dual nature of the Mediaspace project. This dual

62 Dalsgaard, “Participatory design in large-scale public projects,” 39.
nature is also fairly unique: not only is the site designed in a participatory manner, but the function of the institution that it will house is also tailored at the same time, allowing a very seamless and thorough design process. Additionally, the large scale public project provided an ample number of people to participate in the participatory design aspects of the project—although there is always a need for more diversity and the question of how to include future users in the planning. The involvement of researchers in the process provides keen insight into the workings of participatory design, since each participatory design activity was then analyzed from a research perspective. In this way, the shortcomings of these types of activities can begin to be understood.

Some conclusions were drawn from this project that can be generalized to other participatory design projects. The most important concern with participatory design is ensuring that the community feels it is worthwhile to participate in the process. This, in turn, increases the likelihood that the participatory design activities are actively productive, and that the stakeholders are assured that their input matters, which, after all, is an important goal of participatory design. The Mediaspace project had the distinct advantage of being an already established institution, with dedicated and invested stakeholders, and with a previously existing partnership with a research group that had experience in participatory design. Additionally, the existing space could be used to conduct these activities, and the extended timeline allowed for the activities to be custom tailored to the project. However, these factors aside, the authors have distilled the techniques of Participatory Design into more widely applicable ideals and values that can be integrated into projects that do not necessarily use participatory design from the beginning. A widespread acceptance of participatory design principle could result in projects that
successfully accommodate their users needs, which is the very definition of a successful architectural project.
8. Playground Design (South Boston, MA)

On a plot of vacant land near a housing project in Roxbury, South Boston, in the late 1960s, a participatory design experiment took place. In a neighborhood wrought with poverty, Robin Moore created a playground that was designed collaboratively with the children that used it.63 The development method for this case is the most participatory and iterative of all the cases discussed thus far. The goal of this case was to develop a participatory framework that could be applied by other playground designers. Play is an indispensable aspect of child development that can have many far-reaching consequences, which makes the design of effective playgrounds an important endeavor.64 The project was initiated by the South End Neighborhood Action Program (SNAP), and a number of community organizations provided volunteers. The support from the mothers of the neighborhood was outstanding—they were invested in the potential positive impact on their children.65

The primary method of participation was the interaction with the playground as it was being constructed, and the direct observation of these interactions by the architect. There were no traditional participatory design workshops. An initial, flexible design had already been primarily developed, with the help of architects and several specialists in educational research66, when the playground began construction. The initial design was also inspired by the childhood experiences of Moore himself, and by once again playing the role of the child in an effort to understand their perspective and needs.

64 Ibid., 12.
65 Ibid., 21.
66 Ibid., 28.
Before observation, loose guidelines were established for the children, in order not to infringe on their free expression while simultaneously maintaining the integrity of the experiment. Littering, throwing rocks, property destruction, and removal of anything from the site was not allowed. Minor squabbles and mild personal endangerment (in the form of play) were ignored and allowed to progress uncorrected.

Observation during construction was thorough. Moore analyzed the peak times of use, as well as classifying the different types of play that occurred into five styles: Active, Creative, Imaginative, Cognitive, and Social. The original design supported much active play, as well as large amounts of creative and imaginative play. It should be noted that these evaluations are qualitative, since there was no traditional playground to compare to. Once the changes began to be implemented, Moore observed that new things naturally drew the attention of the children, but if the new play creation was not of particular interest, interaction dropped off. This emphasized the importance of determining an appropriate time frame for observations.

Originally planning to track activities by the sequence in which they were completed, Moore noted that this method was not effective. This prompted a study of the Pattern of Activity in Time and Space (PATS), using the five previously established play styles. The analysis of the patterns of activity provided additional guidelines for the design of the space, including that “creative and active spaces should be separated, areas for active and imaginative play should be complex, and continuous, a choice of creative areas should be provided, and manipulable materials should be dispersed throughout the environment.”

68 Ibid., 74.
69 Ibid., 75.
Each of these observations informed the final design, as well as helped to establish general
guidelines.

Finally, Moore conducted a small survey of nineteen children, asking three questions
to gain understanding of the perception of the playground.\textsuperscript{70} There was no clear consensus
on which, if any, piece of the playground was the most intriguing or exciting, and the sample
size was not large enough to determine any trends. An additional factor was the inability to
determine if the pieces of equipment mentioned were talked about because of their
memorable identity, or because the children actually enjoyed playing on them.

As a result of the observations, updates to the playground design were made, several
times, and then observed in action again, until project funding was depleted. Most notably,
playground structures needed to be sturdier and hold up to much more intensive play than
originally planned. What was thought to be vandalism—most often, broken swings—turned
out to be poorly manufactured playground equipment that could not stand typical play.\textsuperscript{71}

Similarly, most elements were designed very conservatively, on the smaller side, and less
challenging than the kids would have liked. For example, with the abundance of free-floating
materials, the children created their own versions of the see-saw, which were larger and
more unwieldy than the standard ones found in parks. In response to this, a giant see-saw
was permanently installed in the park, to the profound joy of most children.\textsuperscript{72} Finding a
balance in how challenging playground features should be came to a head with the giant see-

\begin{footnotes}
\item[70] Moore, "An Experiment in Playground Design," 16.
\item[71] Ibid., 54.
\item[72] Ibid.
\item[73] Ibid., 53.
\end{footnotes}
researcher had begun to consider removing the see-saw, the children learned how to use it without issue, and it remained, which again reiterates the point that finding the right length of observation is invaluable.

The architect stressed that “the experience of manipulating the environment first hand is impossible to substitute for, even in the best model.” Participating in the construction, Moore could make small adjustments in the moment, react quickly to feedback, and “really sense the quality of the spaces I was creating.”74

Observations of play also informed the legitimacy of the design. Children were quite sure of what parts of the playground were acceptable to play on, and the fact that the space had been created just for them gave them a sense of ownership. “The kids were only too happy with an area of the environment which they could clearly call their own.”75

Once the playground was completed, the community took ownership of it as well. A political candidate hosted a tea, local youth programming groups ran sports and crafts nights. Moore acknowledged that part of the motivation for involving the community in the design process was to create a sense of ownership, and that this “would tend to build up a pressure for keeping the playground maintained in such a way that the general spirit of the activities remained catered for.”76

Guidelines for playground design were generalized from this experiment. They included the recommendations for characteristics of the play structures (robust, complex, manipulable, and open-ended), their orientations (separate play structures for Creative and Imaginative play, and separate, smaller structures for younger children), and their

74 Ibid., 47.
75 Ibid., 57.
76 Ibid., 61.
accessibility (appropriate for all ages and physical ability, and providing the possibility for more formalized use).\textsuperscript{77} The limited budget ignited a resourceful, ingenious way of thinking that can be applied to other projects, even those with a more traditional budget.

Unfortunately, the project was time consuming, laborious, and dangerous for playground design to some extent. Similar research would be virtually impossible to approve in this day and age due to safety concerns, but the existing project has provided a wealth of information about effective playgrounds, and more generally about participatory design and the role of the architect. Moore writes:

"Participation in the creation of this playground became so complete that in retrospect it was very difficult to distinguish my own abstract ideas about the playground from the multitude of influences gained from working with the children and their environment. By the time I had to end my own involvement in the project I felt that I could have gone on forever adding to the environment, changing it and experimenting with it."\textsuperscript{78}

This sentiment truly captures the role of the architect as something more than an ivory tower designer—as a creator engaged in the community they have chosen to better.

\textsuperscript{77} Moore, "An Experiment in Playground Design," 3.

\textsuperscript{78} Ibid., 48.
Taxonomy

Organizing by Participation in Design Phase

Each case study presented has approached the involvement of users in a slightly different way. This involvement can be categorized in several ways, which will each be described in depth. The first categorization addresses the phase of the design process in which the participation takes place. Architectural design can be generalized into four different phases: the civic policy phase, where a site is chosen and zoned for a certain project, the ideation phase, where design constraints are identified and ideas are brainstormed, the design phase, where the actual design is drafted and formulated into a proposal or plan, and the implementation phase, where the design plan is executed and the project constructed.

1. Civic Policy and Planning Phase

Of the case studies presented, only one implemented participatory design exclusively in the zoning and planning process: Case Study 1: German Subdivision Design. Once the site had been determined and the purpose of the project established, independent firms were brought in to complete the ideation and design. Participatory elements returned in the democratic process of approval of the plans, but in the context of other case studies addressed here, that participatory aspect is negligible.

2. Ideation Phase

The majority of participatory design projects in general incorporate participatory design in the ideation phase of design. In this work, Case Studies 2, 3, 4, 5, 6, & 7 represent this
category. Case Studies 2 and 3, both computation projects, were the least involved of this category. In these cases, users were able to visualize and design their own plan for the site, but the final design decisions were made by an architect who aggregated all designs into one. Users also weren't able to design to the level of detail that an architect would have to, and mostly made decisions about programmatic layout, which were then averaged across all users.

In a more traditional participatory design setting, Case Study 4, the two Park Redesigns, and Case Study 5, the Courtyard in Paraguay, users took part in ideation through workshops and idea-sharing, and the architects of the project incorporated user requests and consensuses as constraints in their own designs. User preferences and needs were more strongly considered than in the two online projects.

Even more involved in the Ideation projects was Case Study 6, the Three University Buildings. Larger and small workshops, qualitative discussions, quantitative analysis, and one-on-one interviews make this a thorough participatory design project focused on the ideation phase. The workshops were specifically geared towards the users, including more free artistic endeavors for those users in the art department. Additionally, the look and feel of the final design was left open until very late in the process, truly allowing the users to input their vision and ensure that the building fit within the community.

Case Study 7 had the longest running and most involved participatory ideation phase of all projects analyzed. Custom art installations allowed users to leave their vocal feedback
and ideas. Prototypes of labs and physical spaces were installed and used before the building was completed, and were assessed for inclusion into the final design. Meetings, question and answer sessions, and workshops all contributed to the list of constraints and design considerations that were applied to the design phase.

3. **Design Phase**

Case Study 8, the playground study, implemented participatory design in the main Design Phase concurrently with the Implementation Phase, in an iterative process. Through play during the construction of the playground, the children’s involvement instructed the architect on which features of the playground needed changing, and which new features should be included.

It is worth noting also that Case Study 7, the Mediaspace project, also applied participatory design techniques to the design phase. The focus here was not on the physical building itself, but on the function of the library as an institution. Through participatory activities designed to ideate the facility, the nature of the institution was being molded and shaped by participation, which in turn influenced the design phase of the building.

4. **Implementation Phase**

The inclusion of users in the Implementation phase of the design process will likely not influence the look or feel of the final design, but it does have an impact on the ownership that users feel towards the project. Case Study 5, the Courtyard in Paraguay, included participatory design within this phase. Users were taught construction
techniques and were a part of the completion of this project, which was an aspect unique to this case study.

A timeline of the design process, placing the case studies along its path, provides a clear visual of this taxonomy:

![Timeline of Design Process](image)

Figure 1: The timeline represents the process of design. Each shaded section denotes a new phase, and the tick marks represent the case studies. Their placement indicates where in the design process the participatory methods took place.

**Organizing by Project Scale**

Another method of categorization is in the scale of the project. Typically, due to the nature of running workshops and other similar participatory design activities, most projects are small or involve a small sample of users. For the sake of this analysis, the size of the project refers to the number of users participating in the design process.

1. **Small Projects**

   Case Study 5, Courtyard in Paraguay, focused on one plot of land in a small city, although no specific numbers were included in the description of the workshops. Case Study 8,
the Playground, involved as many as a few hundred construction workers, although the
users involved were families from within a few blocks radius of the park, with the actual
playground users constituting a group of about twenty children. Case Study 4, the two
Park Redesigns, included as many members as possible from the surrounding
community, but the workshops themselves were small. Case Study 1, the German
Subdivision, included only the members of the community in the planning. The
population of the village in which the case study took place was about 1,400,79 but not all
of the community members took part in the project, as most of the planning was
organized by the village council.
Each of these case studies would be considered small-scale projects. The number of
participants that were users or future users of the project was typically less than fifty.
The projects were also considered small based on the amount of time it took to
complete.

2. Small Projects with potential scalability

Two case studies, 2 (Online Participatory Design) and 3 (Democratic Play), also used
small samples. However, what distinguishes these projects from other small projects is
their scalability, which is inherent in a computation project. Although both of these
project used sample sizes of about twenty participants, they provided a framework for
mass participation and a method for incorporating and averaging the ideas of many
members of the community.

3. **Large Projects**

Two case studies are distinctly larger than all the others. Case Study 6, Three University Buildings, was completed by an architectural firm well-acquainted with participatory design. Some of the workshops had participants numbering in the hundreds, and the university community at large was involved in preliminary surveys.

Case Study 8, the Mediaspace Library project, was the largest scale of all projects discussed. Due to the long timeframe (several years), the existing user base of library patrons, and the participatory activities that were conducted in the existing library building, hundreds of users had input on the design of the new library. Workshops and meetings involved many members of the library, and scouted the greater city of Aarhus to include potential future library patrons, as well.

**Organizing by Level of User Investment**

The level of investment of the users is another factor of classification to consider.

Investment level can depend on several factors: whether the current users will also be the future users, whether the projects fosters user investment, and the culture of the community itself. The case studies discussed in this work can be broken down into two categories in this manner:

1. **Involved, invested users**

   Most of the case studies discussed fall into this category. In Case Study 1, German Subdivision, the users were invested because the decisions made affected their future, and also because of the tradition of participatory zoning laws. In Case Study 4, Parks
Redesign, Case Study 5, Courtyard in Paraguay, and Case Study 8, Playground Design users were invested because the parks were an existing, integral part of their community, and the projects all ensured the public spaces would increase in usability and safety, which was a primary concern of the residents. The timescale of these projects also ensured that the users who participated in the design would still use the project after completion. Case Study 7, the Mediaspace project, also had invested users in regular library patrons. Even future users could be considered invested, since their participation could shape the future library into something they would want to use.

Case Study 6, Three University Buildings, had some elements of invested users—faculty, staff, and university employees would likely work in the building for long-term. By nature students are transient users, who may not have been as invested, unless they considered the needs of future students, as well.

2. **Transient, uninvested users**

Case Studies 2 (Online Participatory Design) and 3 (Democratic Play) had the least invested users. Because of the nature of the projects—proof of concept participatory prototypes—users were aware that the choices they made did not necessarily apply to a project that was actually slated to be completed. The indirect nature of the online participation could also have some influence on the lack of investment. These are both concerns that can be considered for future projects.
The summary of classifications can be found in the following table:

<table>
<thead>
<tr>
<th>#</th>
<th>Case Study</th>
<th>Design Phase</th>
<th>Project Scale</th>
<th>Invested Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>German Subdivision</td>
<td>Planning + Zoning</td>
<td>Small</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Online Participatory</td>
<td>Ideation</td>
<td>Small (scalable)</td>
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</tr>
<tr>
<td>3</td>
<td>Democratic Play</td>
<td>Ideation</td>
<td>Small (scalable)</td>
<td>No</td>
</tr>
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<td>4</td>
<td>Democratic Public Parks</td>
<td>Ideation</td>
<td>Small</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>Courtyard Design</td>
<td>Ideation + Implementation</td>
<td>Small</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>University Buildings</td>
<td>Ideation</td>
<td>Large</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>Mediaspace</td>
<td>Ideation + Design</td>
<td>Large</td>
<td>Yes</td>
</tr>
<tr>
<td>8</td>
<td>Playground Design</td>
<td>Design</td>
<td>Small</td>
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</tr>
</tbody>
</table>

Table 1: Summary of Case Studies and Methods of Organization.
Discussion

Each of these methods of classification can help architects design their own projects in a participatory manner, based on the specific characteristics of that project. Each method also calls the attention of the architect to various properties that might require consideration. From each of these classifications, themes can be drawn. Traditional participatory design workshops are mostly applied to small scale projects, but have been shown to work well in larger settings, if architects are well-versed in management. Other participatory methods have been developed, specifically for the purpose of increasing the number of users that can participate, but run the risk of creating users that are not invested in the project. Most commonly, participatory design occurs in the ideation phase, as well as in the zoning and planning phase through mechanisms like committees and boards. The case studies discussed show that participatory techniques can be included in the design and implementation phases, as well, which has the potential to increase ownership and investment in the project.

Some of these case studies were not described as participatory design, or only used some principles of the process, and yet they all have something in common: the desire to make architecture better for its users than products of conventional design. The framework developed here seeks to introduce architects to some of the possibilities of participatory design, so that products of architecture continue to be more useful to their communities. The development of new methods and techniques will aid in this goal, and innovation is the key. Dave Premi, collaborator with MLSA, put it concisely: “You have to mold the process each time to suit the requirements. It’s not a ‘one-size-fits-all method.’”

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80 Macy, “Participation: Three Recent University Buildings,” 25.
In conclusion, the wide variety of projects described here have shown that the role of the architect is changing. Today's architect needs to expand their function from traditional designer, to facilitator, mediator, computer program designer, data analyzer, people manager, and scientist. The role of the architect as an activist, engaging the community, necessitates the inclusion of people that would not necessarily take part in participatory design, while simultaneously not alienating those that would. Participatory design requires an architect to think globally, and develop a deep contextual understanding of the chosen site and the users of the building. It requires the architect to develop many new skills: the ability to understand the relationships between different programmatic elements, draw conclusions and make generalizations without sacrificing granularity or insight.

The exploration of these case studies has shown that while the role of the architect may be changing, some have struggled with the transition, which may contribute to the slow growth of participatory design. Architects can become guarded and protective of their designs and resistant to change. This is especially true if the benefits of participatory are not immediately perceivable. Perhaps this project can show the architectural community the possibilities of participatory design, and the challenges and opportunities that it presents to the architect.

The hope for this taxonomy is that it can ease the addition of participatory techniques into future architectural work. With the clarification of participatory processes and the settings in which they have been used, architects can more easily replicate as well as innovate in the field of participatory design.

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Future work can build on this organization, and develop even more refined and diverse schemes by which to classify participatory design projects. Additionally, the use of this framework as a basis for evaluating participatory design projects is possible, since this is an area in which work is lacking. Participatory design can provide the potential for bigger, better, and more useful projects, and by understanding all the techniques and methods that can be considered participatory, it can find its way into many more architectural projects.
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