User-Participation and the Design Charrette:
A Systematic Approach to Furthering Design Process

Alexandra Staub and Lisa D. Iulo
The Pennsylvania State University, University Park, PA

ABSTRACT:

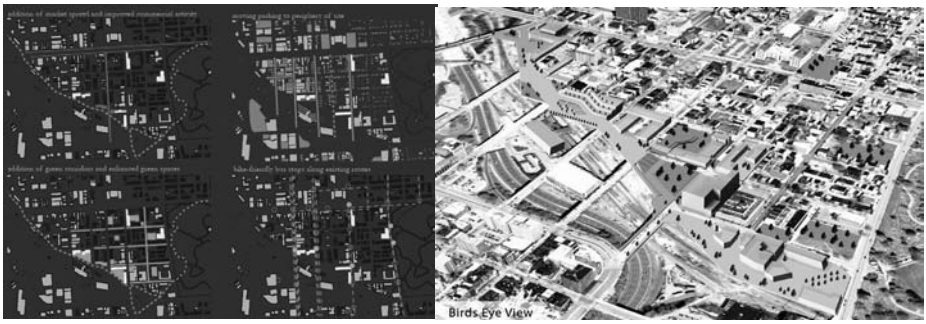
Research in architecture is a many-splendored thing. Technical questions on energy efficiency or materiality, social inquiry on user habits or satisfaction, and philosophical queries about the sense of space and place, all fall within the accepted realm of architecture and its creation. Much less considered is how the design process itself may purposefully be used as a research tool to elicit information that will adjust its outcome. This is perhaps because design is often considered "intuitive" rather than systematic, but it is nevertheless surprising when one considers the central role that design takes in architectural education, and more surprising still when one discovers that related disciplines, such as geography, have begun to examine pre-design steps for their research applicability. This paper examines how design – in this case the design charrette – may explicitly be used as a research methodology to change the very planning dialog that it is drawing upon for its process decisions, or put another way, how the designer uses focused discussions with user groups to obtain information vital to the planning process, while at the same time using the ensuing product to stimulate discussion beyond what would be possible without the design. Drawing on a case study taken from the teaching environment, this paper takes the position that design, both as an iterative process and as a participatory field-research process in the form of charrettes, may successfully be employed as a methodology to establish a dialog between researchers (in this case student-practitioners) and user groups. The latter provide initial design information to the researcher while at the same time using evolving products of the research to help define further parameters for exploration. This methodological approach has helped to focus the student-architects on genuine aspects of design problems, as opposed to self-fabricated ones.

CONFERENCE THEME: On Approaches
KEYWORDS: design, charrette, community engagement, participatory process

RESEARCH AND THE URBAN DESIGN PROCESS: A QUESTION OF METHODOLOGY

> Charrette (shar-ette) n. An intensely focused activity intended to build consensus among participants, develop specific design goals and solutions for a project, and motivate participants and stakeholders to be committed to reaching those goals. Participants represent all those who can influence the project design decisions (Lindsey et al. 2003).

The term "charrette" is often defined as a very individual and personal experience of problem-solving and meeting deadlines, yet increasingly this idea of intense focus on a set of questions has come to involve a more wide-reaching agenda, namely one of collaborative efforts to find solutions to a stated problem.[1] Closely associated with what has been termed the "Integrative Design Process," (*Integrative* replacing "Integrated," stressing the process-oriented approach) the charrette as a tool to elicit information that will adjust design outcomes has become an iterative process based on multiple inputs and feedback loops in design decision-making (Boecker, et al., 2009). The design charrette as a process tool conceptually parallels and augments innovative research methods used in other disciplines, and it is our argument that a more encompassing approach to using such tools can expand and strengthen the architecture and urban design process. In this article, we will discuss the limitations of current research methods as they relate to the this process, and we will present a case study taken from the classroom, in which we use the design charrette as a tool to overcome some of those limitations.



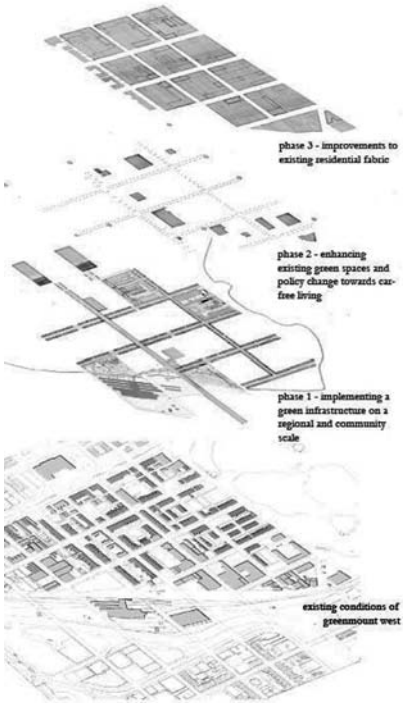
Visualizations: Students' initial design propositions based on qualitative research.

There is much overlap between the pre-design process, where architects gather information about and analyze the parameters of their project, and research methods used in other fields. Despite this, architects and urban planners rarely theorize their approach in the manner that is typical for other disciplines. Grounded theory for example, its roots lying in sociology, uses an iterative process of observation, taking notes and photographs, and interviewing participants, after which data is compared and analyzed to determine further themes for exploration.[2] In architecture, an applied version of grounded theory is often used in the pre-design process of urban projects, especially when user-groups actively provide input for the design process. Here, observations and interviews provide specific data to aid in design decisions, with correct interpretation of the data crucial to the design implementation's success. Much groundbreaking theory building in urban design has involved versions of grounded theory, such as Kevin Lynch's seminal study of how individuals create mental maps of an urban landscape (Lynch 1960).[3]

Lynch's mental mapping extends into the area of visualization, a technique frequently used in geovisualization in cartography, although the term is also used in scientific visualization, where such things as volumes and surfaces are rendered in three dimensions, and information visualization, which tries to present abstract information in intuitive ways such as graphs and maps.[4] The interactive interface possible with computer simulations has been used extensively to visualize complex information in engineering fields and cartography, but has yet to be fully explored in architecture and urban design, where computer use is often limited to examining formal aspects of buildings or simulating energy use. Studies of site conditions are often limited to analytical overlays to existing mapping information. In both cases information is formalized and thus finalized, presenting a specific viewpoint rather than garnering new input to critically further design development.

Maps and visual communication tools, while relied upon as truthful navigation tools, are thus rarely as straightforward as they seem. They communicate information as valued or deemed relevant by the sponsor and/or cartographer. While maps – especially when used in the context of GIS (Geographic Information Systems) – communicate quantitative data, quantity alone does not indicate relative value, especially when there are different opinions as to what constitutes importance. Architect and urban planner Rafael Fischler has investigated the power embedded in such communicative information, specifically in what planners value and *how* (emphasis Fischler's) planners communicate information to exercise power. He reveals two sides to the "power" coin – while communication tools can reveal biases in the interest of influencing behavior, such power may also be necessary for effective management. Analyzing the form of representations used in planning practice can thus reveal both the structural biases of planners' interventions and the strategic value of their statements in particular circumstances (Fischler 1995). Urban planners have begun to recognize this, with many now turning to interpretive methods in order to understand what collective decision-making or the application of knowledge to action specifically means.

Geographer J.B. Harley also explores "the discourse of maps in the context of political power" (Harley 1988, 278). Using three theoretical vantage points – maps as a language that translates into "historical practice," maps as iconography used to identify both literal meaning or the geography and symbolic dimension associated with a message, and maps as a social product – he interprets maps as



Student site documentation and initial propositions for design improvements. Project by Michael Costa, Miriam Lott, Wei Yee Lu, Sohayla Movahedi-Lankarani.

a form of discourse largely controlled by dominant groups, and expresses concern that maps are an impersonal type of knowledge that tends to "desocialise" the territory they represent and foster the notion of "socially empty space" (Harley 1988, 300ff).

Geographers LaDona Knigge and Meghan Cope have identified some of the inherent power issues associated with visualization techniques. Expanding on qualitative methods as both a research and communication tool, they have attempted to circumvent some of the problems associated with visualization in developing what they term "grounded visualization," a method they call "iterative and recursive…[allowing] simultaneous consideration of particular instances and general patterns, and [encouraging] multiple views and perspectives for building knowledge" (Knigge and Cope 2006, 2022). In part a critique of the undiscriminating use of GIS as solidifying existing power structures through ignoring alternative perceptions of data, their work is a formal and integrative combination of quantitative and qualitative methods as a tool for understanding difference, context, and power, which in the urban design process would translate into incorporating various participant perceptions along with an analysis of physical measurements into the design process.[5] As they put it, "Displaying quantitative spatial data in a variety of ways may reveal patterns, and statistical analysis may reveal correlations, but it is often the case that explanation (and thus theory building) is grounded in the experiences of real people living through specific conditions and they are in many ways the `experts', even if their explanations seem to be at odds with other sources of data," (Knigge and Cope 2006, 2028). It is this statement that sums up the value of user input as a mechanism that allows a multivariate, user-based approach to the design process.

How then to combine the process of information gathering, analysis, visualization and theory-building with design production itself? How can information from multiple sources – that are sometimes at odds with each other – best be obtained and processed? Can a specific context inform general situations and vice versa? Design generally involves research being applied to a creative and usually practical solution. This procedure is always iterative to an extent and involves a series of

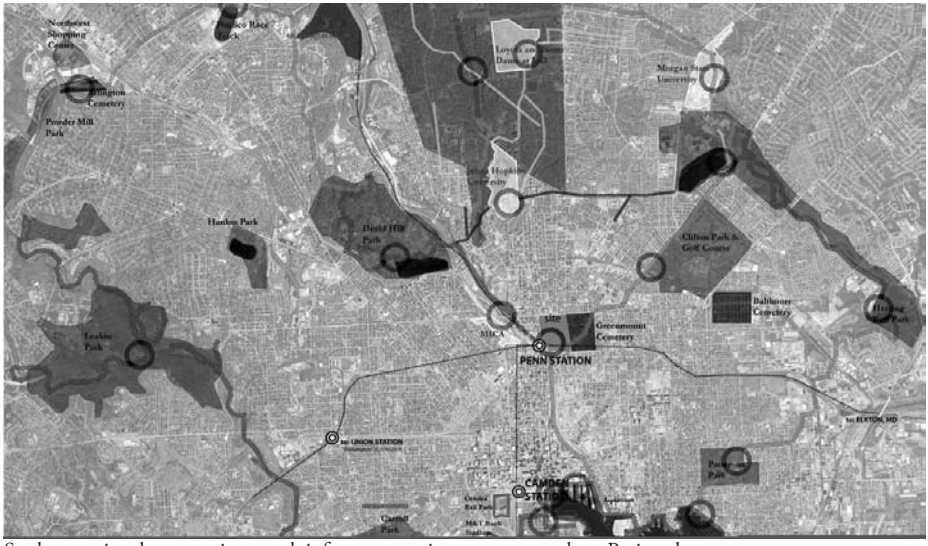
decision-makers who influence the design outcome. In the case of an architecture or urban design studio, this may take place between a student and a critic, in practice, between the architect and client.

The visualization tools through which this iteration happens are architectural drawings and renderings. They present and communicate the designer's decisions and intentions. Yet visualization tools, as we have seen, can distort or even be used to manipulate information and outcomes. When laypeople are involved, the problem is compounded as drawings become isolating and exclusionary, especially to a population not equipped to "read" them. This creates real problems in urban and community design projects, where breaking down barriers, establishing relationships, and building stakeholder confidence through community input is essential.

While basic research contributes heavily to policy making, architects and urban designers take this one step further, as they act to give such policies physical shape. No matter how neutral they claim their work to be, architects and planners help establish or at least implement measures that sweepingly affect how we live. Despite this, designers rarely attempt theoretical reflections on how policy-building information is produced and disseminated, and what their role within the process is or should be. Rather, methods of information-gathering, analysis and presentation are handed down almost intuitively from generation to generation in the architectural design studio, with little effort to formally define or analyze the process with which this occurs. Theory-building thus often occurs in disciplines that are not involved in directly working on the built environment.

In our pedagogical work, we propose an alternative framework in which design is coupled with a participatory field-research process. This aims to uncover biases and garner multiple "realities" which students may then integrate into a refined design product. With future users providing direct input, students are challenged to both accept and incorporate different perspectives to a design problem. The idea of user participation is not new, what is novel is the notion of multiple valid viewpoints being integrated and graphically expressed in a complex design project undertaken by teams of student designers, and the challenge to the conventional studio format this poses.

Exploratory texts bear this out. In their article, "Is there a Role for Evidence-Based Practice in Urban Planning and Policy?" Kevin Krizek, Ann Forysth and Carissa Schively Slotterback argue that planning is a reflective craft requiring skills of mediation, negotiation, listening and framing (Krizek et al., 2010, 461). These same skills are inherent to a well-facilitated collaborative design charrette, but not necessarily in that order. First and foremost in the framing comes listening, whereby each



Student regional connections and infrastructure improvements plan. Project by Michael Costa, Miriam Lott, Wei Yee Lu, Sohayla Movahedi-Lankarani.

side begins to understand the questions and issues – many of which may not be immediately evident – of the other parties. After a respectful "common ground" is created, mediation and negotiation is revealed that allows for everyone to contribute to the discussion of design and contribute their individual expertise; a principle that architects Syn Van Der Ryn and Stuart Cowan (1996) call "Everyone is a designer". Like Lynch, Van der Ryn and Cowan respect everyday experience, decisions, and intuitions as design skills. Taking this further, they discuss knowledge of local conditions as "everything necessary to design, build, and maintain […] places," arguing that architectural education is flawed in that "real players and the real information are kept out of the learning," (Van Der Ryn and Cowan, 1996, 146 ff.). A participatory process such as the design charrette circumvents this, as disciplinary languages and expertise take a back seat to shared understanding, suggesting a cultural process rather than one guided by strict expertise. It is this process that allows students to access real-life problems as opposed to self-fabricated ones.

A collaborative design charrette employed in a community-based studio project, and introduced following initial research to develop preliminary design ideas, provides opportunities for an enhanced educational experience. Community members review initial design ideas and provide feedback to the design teams during a hands-on design charrette. Assessment is immediate, as students modify projects to conform to a richness of demands and viewpoints simultaneously. A successfully modified design incorporates creativity in both the process and the product. Following ideas of process presented by Edmund Bacon as early as 1967, the charrette can assist in confirming assumptions based on research, the vision for the project and basic urban design moves; gaining input from community members on urban design goals and strategies in order to refine the project goals; and providing insight into community needs. The design charrette becomes a research tool to elicit information that will adjust design outcomes and assure socially grounded solutions.

In the urban design studio presented below, we show a revised pedagogical process that takes into account the problems and pitfalls inherent in many information-gathering and visualization processes and techniques, both for architects and for laypeople. In doing so, we have combined the concept of grounded visualization with the idea of direct user participation to explore an iterative design process that allows both research and application through design, solutions through community input, and reiteration and affirmation of the product. We explore the well-facilitated design charrette as a venue for validating research and preliminary design decisions, while building upon solutions through community input.

APPLYING THE METHOD: GREENMOUNT WEST, BALTIMORE

Student streetscape improvement studies for the Greenmount West neighborhood in Baltimore.

> "Listen to every voice in the design process. No one is participant only or designer only: Everyone is a participant-designer. Honor the special knowledge that each person brings. As people work together to heal places, they also heal themselves." (Van der Ryn and Cowan 1996, 146).

The Greenmount West project began with a thorough assessment of the area in the context of the city of Baltimore. Students were asked to consider the area's history, defining characteristics in comparison to other areas of Baltimore, and the physical and social makeup of the quarter, both past and present. A first site visit allowed the students to document spatial features from the ground, and to gain an impression of the area's physical and social distinctions. Parallel to this, students read a variety of texts

to introduce them to ecological, economic, and social sustainability as a theoretical framework for urban planning and design.

The students quickly realized both the area's challenges and opportunities. Once a working-class neighborhood of brownstones interspersed by a few factories and bounded by a large cemetery, Greenmount West's economic downturns had led to abandoned properties, empty lots, and an eroded social structure. The area's proximity to MICA (Maryland Institute College of Art) provided for a budding arts scene and new residents, while a Montessori charter elementary school brought in a diverse clientele from throughout the city. Resident organizations reflected this newer population, although the members expressed great sensitivity to the older residents' concerns, such as a lack of job training, neighborhood drug trafficking, and longstanding racial discrimination.

Requirements for the students' analysis were specifically framed to reflect social and economic factors in addition to physical ones. Much information could be assembled through quantitative data, such as types of businesses, location of infrastructure, and statistics gained through census reports (which unfortunately were almost ten years old). Working as a class, the students developed maps, diagrams, and charts, graphically representing the information gathered, and drawing conclusions through an active editing process. Even at this stage, students critiqued each other's analysis based on experiences or observations in visiting the site, vetting information and bringing biased assessments to the fore. Students compiled the revised proposals and accompanying visualization tools into a documentation booklet referenced by the design teams throughout the course.

In smaller teams, the students incorporated this synthesized knowledge into their proposals for the area. Five groups created five different proposals: One tied Greenmount West into an existing network of bike trails, one bridged a dividing highway to rejoin Greenmount West with amenities provided in neighborhoods to the south, one created a series of elevated walkways as a secondary web of pathways through the area, one restructured the area to create retail channels and new housing opportunities surrounding green courtyards, and one created a cultural "boardwalk" that joined MICA to Greenmount West along an existing ravine (formerly a riverbed) that contained a highway and rail lines. Students developed plans, sections and models of the area, but also diagrams to explain the various aspects of their group concepts. Political and economic feasibility was not the main issue, rather students were asked to creatively provide a "blue sky" vision for reinventing a troubled neighborhood that was showing slow signs of revival. It was with this understanding that members of community groups met with the students for a design development charrette once the tentative proposals and design guidelines were in place.

The charrette took place in Baltimore, halfway through the semester, with all seventeen students and approximately twenty community members in attendance. Students presented their analysis of the area, followed by their urban design master plan ideas. The presentation was a form of group interview, as community members were asked for their feedback on all aspects of the material presented. Community members confirmed and modified many of the student perceptions of the area, for example regarding transit use patterns and acceptance of various commercial areas (who shops where). They also pointed out further avenues for exploration, for example in describing infrastructure impact that the students had not considered, or in raising awareness of duplications, such as existing

Public presentation of student work in Greenmount West Community of Baltimore City.

venues that replicated program being proposed by a student group. In this way, students were able to confirm, adjust and build upon their own analysis, often made from quantitative data such as census information, through the qualitative observations made by the community members.

The students gathered information not only verbally – through the group interview of the community members – but also visually. After presenting the preliminary proposals for discussion, student groups and community members moved to tables, where rolls of trace paper and boxes of markers were waiting. For the next two hours, students and the community members worked hands-on and in tandem to create visual representations of the ideas that had been discussed. The design charrette allowed concepts that had been presented theoretically during the discussion phase to be translated into a modified design, with community group members setting priorities from their perspective while students used their skills in manipulating spaces to highlight the community's priorities, add desired infrastructure elements, modify spaces to better reflect transportation and movement habits, and eliminate elements for which there was no clear need.

At the beginning of the hands-on workshop each of the five student teams organized their work around a table. At the beginning of the discussion the students took a seat at the table, trace overlaying their site plan and marker in hand. Each student team was joined by at least one community member or community group representative. Although several of the guests had a background in architecture, planning, or public policy, most represented the intuitive design sensibilities that come from intimate knowledge through an engagement with place. The session began with guests politely standing over the tables while the students' tried to capture what they thought they heard on paper. In some cases community members rotated between the tables quietly taking in the scene and student responses. Within minutes, the tables were turned, or at least roles reversed, as community members took ownership of the colored markers and the proposals being represented on the tracing paper. Soon student designer and community designer were working line by line to visualize propositions, work through ideas, and strategize for the futures of their collective visions. Throughout this process, the community provided qualitative feedback and intimate knowledge as a basis for refining the designs, after which students framed new spatial and organizational options that the community could immediately review.

After the charrette in Baltimore, the students returned home, where over the next two weeks they worked out details and created more formal presentation drawings and models. The final review took place at our university, with several community members from Baltimore in attendance.

CONCLUSION: REFLECTIONS ON THE PROCESS

We found the charrette experience to have a positive impact on the studio itself. Students became reinvigorated by the procedure, and the real-life aspect of the discussions made them eager to continue with the studio project. Even if none of the projects were to be built, students felt they had become part of a greater process taking place within the neighborhood and that they were "making a difference" as budding professionals. Most importantly, they came away having learned how to reach

Students and community members collaborating during the design charrette.

out to and communicate with laypeople interested in shaping their environment. The community design experience reinforced ties with the not-for-profit developer who had introduced us to the neighborhood, but also forged relationships with community leaders and other individuals who remained contacts for the students as they developed their designs.

The studio project explored a systematic approach for information gathering and its application to design. Beginning the project with factual data collection provided the students an opportunity to become familiar with the city and the neighborhood. An early site visit allowed them to become aware of preconceptions, biases and misunderstandings or misinterpretations of data that were embedded into their initial documentation. This phase allowed students to more critically engage with information they had obtained through the internet or written documents, data that had often already been visualized in some way by others. Students subsequently vetted this information through discussions, re-evaluated and in some cases recreated facts and figures, and assembled their analysis of the data into a documentation booklet. Based on "corrected" information, students worked in groups to propose ideal visions for the community design project. By introducing public voices into the design process in the middle of the project schedule, students were exposed to a new, critical layer of both questions and information. Community members did not always speak with one voice, confronting students with a vision of multiple realities that had to somehow be reconciled. The charrette gave students an opportunity to test their ideas against the community sounding board, but it also allowed them to receive grounded feedback about information sources that would inform project development in the weeks that followed. The resulting architectural projects grew in scope and sophistication as students worked to incorporate and express various user viewpoints, in the process refining program and design intentions. With each scale of refinement, the students gained a more intimate understanding of the actual site relationships, leading to a more socially engaged and civic-minded approach in their work. Although not ideal in terms of a true integrative design process, our intention was to have the students work in teams and allow multiple opportunities for grounded feedback, in order to stress the value of iterative learning and collaboration.

Rarely is research theory brought into the architectural and urban design studio, yet it is exactly such scrutiny of process that allows us to move beyond standard pedagogical formats. Much studio research appears to be mere fact-finding, and students are often not taught concrete ways to analyze the material they find. Qualitative research is generally limited to observing action patterns or spatial uses, which amounts to a passive input from potential users. In our studio, the design charrette allowed students to explore new ways of understanding not only the problems associated with blighted urban areas slated for revitalization, but more importantly, the charrette gave the students an opportunity to reflect on their own methodologies when researching the parameters of a design problem. We interpret the design charrette, as we conducted it, as a form of "grounded visualization" – in this case an opportunity to allow the user to provide extensive qualitative material and to play an active and immediate role in setting priorities, exploring alternative solutions at different scales, and providing feedback. Our experience has been that this open-ended design approach is both more rigorous and more creative than the typical process supported largely by quantifiable data and the designer's artistic choice.

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ENDNOTES

[1]This form of charrette, also termed collaborative design, has for example become a frequent part of the process for achieving green or high-performance building standards. Many green building guidelines and certification systems either require or strongly encourage at least one project design charrette, in which multiple stakeholders are brought together to establish project goals and strategies for achieving them.

[2]First developed by Barney Glaser and Anselm Strauss in their 1967 book *The Discovery of Grounded Theory: Strategies for Qualitative Research* and revised by Anselm Strauss and Juliet Corbin in their 1997 book *Grounded Theory in Practice*, the research approach has been extensively described and used in the social sciences.

[3]User interviews about wayfinding allowed Lynch to formulate five elements of urban design ¬– paths, edges, districts, nodes, and landmarks ¬– based on the ways that people perceive, relate to, and remember their environments. While Lynch's text has become a landmark in urban theory, such detailed analysis of methodological process remains the exception.

[4]Michael Friendly, professor of psychology at York University in Canada, provides a concise history of the visualization of quantitative information in his interactive article, "Milestones in the history of thematic cartography, statistical graphics, and data visualization," published online at http://www.math.yorku.ca/SCS/Gallery/milestone/milestone.pdf (accessed 15 December 2010).

[5]While GIS is not commonly taught in architecture programs, the mapping diagrams constructed by architects and urban designers are similar, albeit less sophisticated, visualization aids. The great advantage of GIS is the range of information databases readily available for import at various scales (levels).