THEORY by DESIGN

Architectural research made explicit
in the design teaching studio

FACULTY OF DESIGN SCIENCES
ARTESIS UNIVERSITY COLLEGE
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intervening in real life
part 1

THE DELIBERATE DESIGNER

Integrating Research and Design into an Interdisciplinary Design Studio

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The operative terms design and research function as both verb and noun. They reflect action through process and material in product. Whether tangibly constructed or empirically derived these constructs reveal the integrative and iterative nature of the process through which they are connected. Through this connection it is commonly understood that the products of research assist in informing the process of design, and yet through design actions we have the opportunity to generate new perspectives that specify and deepen research.

In an instructional setting, the processes of each are as important as the products. Niedderer et al. define the design process as "envision(ing) something not yet in existence."(2010, 2) The products of design are not wholly determined from the outset as they are influenced by the creative and often visionary capacities of the designer(s) engaged in the project. On the other hand, the process of research is often empirically constructed to generate relational information by employing methods of evidence, reason, and logic that is accessible and usable for application and use. The Oxford English dictionary (2008) defines research as "the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions." Despite the difference of approach, the boundary between design and research remain permeable, opening rich ground for innovation. With research understood more broadly as a "search for knowledge", design offers multiple ways to expand knowledge-production. Combined, both design and research offer a grounded approach to knowledge-production, experiential learning and application.

This work showcases the integration of research and design in a design studio course at the University of Washington (USA). We use an established transdiscplinary collaborative framework to examine the process of integrative learning, which we then evaluate through participant responses. Finally, we reflect upon the implication and challenges of this integration to studio instruction.

Pedagogical Framework + Course Structure

Existing literature across multiple disciplines have established the benefits of

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Disciplinary divisions of students and faculty for inter/transdisciplinary studio course.

2
Students gathered around interpretive signage during site visit to San Juan Island National Historical Park.

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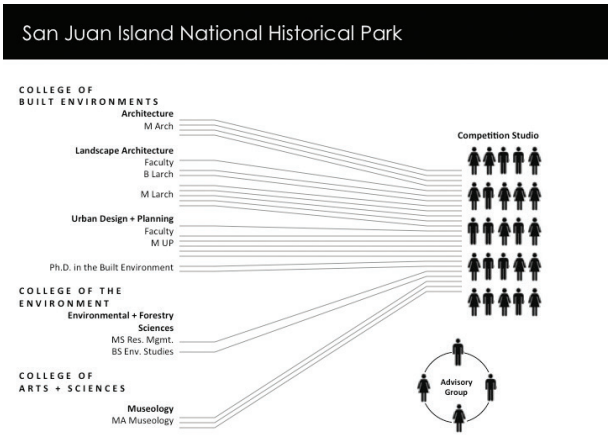

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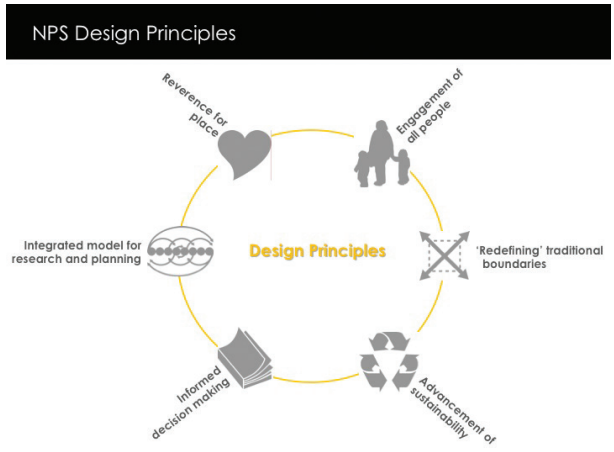
interdisciplinary and transdisciplinary collaborations for instruction (Repko 2008, Szostak 2007, Klein and Newell 1996). We modeled the course on Stokols' (2006) conceptual framework for transdisciplinary action research, which emphasizes community-based problem-solving strategies, and outlines three types of collaboration: 1) among participants from different disciplines, 2) between researchers and community practitioners, and 3) between organizations on multiple jurisdictional levels. These collaborative engagements foster distinct types of knowledge-production that assist participants in generating outcomes that are generally agreeable to multiple engaged stakeholders. We used Stokols' framework to foster inter/trans disciplinary collaborations among students and stakeholders, and between them to encourage "serendipitous" connections that may otherwise be missed (Dalke and McCormick 2007).

Stokols' framework was applied to a course that posed design process as a research endeavor, also known as "design-research." There is a growing body of literature on this topic that makes explicit the interrelation between the two (Neidderer, 2010, Bayazit, 2004; Laurel, 2003). In some design settings, research is commonly seen as a necessary prerequisite for responsible design development. (Kieran 2007) Although it is generally accepted that the process of design must be informed by research, less thought is given to the process of design itself as research. This studio accepted the premise outlined by Neidderer (2010) that design, as an organized inquiry, can generate new, experiential knowledge that unifies understandings from disparate disciplines. Design becomes a problem-solving exercise and generates its own practice-based research that is readily accessible to a wider population. This framework was put to use in the formation of the course, during the 2012 winter term at the University of Washington (UW), USA. As part of a student design competition sponsored by the Van Alen Institute and U.S. National Park Service (NPS) titled, Parks for the People, the course used the design-research methodology to test the merits of inter/trans disciplinary collaborations. Asked to explore the potential of design to inform NPS management strategies for the 21st century for a park site, the design-research mythology

3
Illustrated design principles guiding studio work.

4
Map of project site.



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offered possibilities to generate a better understanding of current park strategies and practices to develop improved approaches for guiding future management.

The class comprised of 21 students from 7 programs in 6 different academic departments across UW (fig. 1). Within the collaborative framework, students were encouraged to examine and understand knowledge-production through their own disciplinary lenses, and assess their approach within an inter/trans disciplinary group. The class met three times a week for 4 hours at a time in a design studio setting, with 2-hours a week designated as a research seminar. As several students were from departments outside the design disciplines, the research seminar provided a familiar classroom setting emphasizing readings and discussions. In the seminar, faculty members and invited guests were able to communicate specific ideas and priorities to the students — ideas to be engaged in the studio work. Seminar topics ranged from conservation and preservation theory, to history and heritage, as well interpretation methods and visitor management strategies in the context of the NPS. The breadth of topics reinforced the collaborative framework and design-research methodology. The topics directly corresponded to studio assignments and field trips, intended to develop a richer understanding of topic and site For example, by having a seminar discussion on interpretation, and then engaging with the display materials on site, the seminar-studio connection enabled the students to develop a nuanced understanding of the topic. (fig. 2)

The studio portion of the class was structured around a series of small, yet progressive, group assignments (one per week) that were developed to initially introduce the students to the project and site, and gain familiarity with their working groups. As the term advanced, the assignments increased in complexity requiring the teams to build on the information and discussions from the seminar to develop programmatic and conceptual solutions. Students were encouraged to build on their disciplinary strengths in research and/or design and to seek opportunities to clarify distinctions and embrace commonalities while using visual communication strategies in the development of their work. To promote more class-wide collaboration, students were also encouraged to join new groups for different assignments.

The integration of research seminar with design studio allowed the application of our design- research methodology, and allowed our course to benefit from both a design exploration of the site, and a critical review of literature. It was our goal to communicate the benefits of design-research as a pedagogical methodology, and encourage students to think and act in both design and research realms for their site explorations and design development.

The Project

As a selected team for the national student design competition "Parks for the People," in association with the U.S. National Park Service (NPS) the course was tasked with using design as a catalyst to explore how the NPS can more effectively connect with the 21st century visitors. This exploration was framed though a set of specific design principles laid out by the National Park Service as guiding management strategies into the future. (fig. 3)

More specifically, our task was to explore the design principles on the San Juan Island National Historical Park (SJI-NHP) located on an island in the far northwest corner of the continental U.S. (fig. 4). The 142 km2 island is part of a larger archipelago known as the San Juan Islands containing a diverse ecological and rich cultural history. The park, founded in 1966, commemorates the peaceful arbitration between the United

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Involved stakeholders and the collaboration involved in the studio course.

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States and England over the Northwest boundary between the U.S. and Canada. For 12 years prior to the 1872 arbitration decision the island was jointly occupied with military encampments from both countries. These camps, separated by 13 miles, form the primary lands of this 709 hectare national historical park.

Alongside this military history emphasizing international diplomacy, the parklands maintain a rich cultural history (associated with the Native Americans groups), and ecological diversity. In addition the Park continues to play a contemporary role in the lives of the island residents and local economy. The SJI-NHP current interpretive efforts focus largely on sites associated with the military history; however it has a much broader array of cultural resources that can engage multiple histories associated with different cultural groups and time periods. The Park's historical, ecological, and cultural resources made it a complex site to test the design principles.

Assessment + Synthesis

To assess the student reception of the course, we developed two anonymous surveys with 12 questions each focusing on student experience and perceived learning. One survey was provided at midterm and the other at the end of the term. In general, the students responded positively to the class, the project, and the experience. When asked to assess their overall experience at the end of the term, the majority of students (71%) ranked their experience from good to excellent. While such response affirms the quality of topic and approach it does not tease apart the difference from traditional pedagogical approaches.

A primary benefit of our pedagogy, we found, was that the course produced a different type of knowledge in the minds of our students, where their own judgments and sentiments were valued, without direct ties to disciplinary instruction. We found that working in inter/trans disciplinary groups expanded the students' field of engagement into multiple disciplines. Unencumbered by a discipline-specific research methodology, the students were able to combine information and insights collected from their particular disciplinary approaches, and relate them through specific interventions on different park sites. These interdisciplinary interactions offered opportunities for generating new insights on the topic and the site (fig. 5). Collectively, this "new" knowledge was rooted in a "collective understanding", and findings reinforced by a shared experience and priority.

Site studies and design development was guided by field explorations and seminar/studio interactions and periodic feedback from faculty and invited reviewers. As it is with most studio instruction, design development was an experiential exercise where students were able to learn from tangible experiences, develop iterations, prioritize interventions, and share the work with faculty and peers. As one student noted: *" ... design work carries with it an experiential element. Good design often requires designers to step outside of the logical mind and engage in a more visceral approach to understanding place."* The first "step outside of the logical mind" was critical in developing a collaborative work relationship between participants with varying disciplinary backgrounds.

When asked what the greatest educational benefit of working in the studio was, 76% (16/21) students responded that it was simply the opportunity to work with people from a variety of academic disciplines. The exposure to how other academic disciplines view the word provided the largest benefit to the instruction — ranging from understanding diverse frameworks of inquiry, to representation and communication techniques. Many students felt unfamiliar with the "language of the studio." For many, the design process offered a different way of seeing the world.

With a strong emphasis on dissemination of knowledge through periodic reviews and presentations to community groups, students were expected to communicate their research and designs to diverse groups of people. The visual and verbal presentations, coupled with innovative communication techniques helped students think from the start on how others would receive their work. One student noted that a major revelation was "realizing how easy it is to leap into design language and how important it is to be mindful of the words we choose when communicating ideas to a larger audience." The visual material not only presents collected research, but itself becomes a research document– one that future research can utilize to generate additional knowledge.

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Example student product from studio, generated from a combination of research and design framework.

The students' knowledge was also enhanced by openness to uncertainty of the studio environment and the nature of the products. As a design exercise, the process of "envisioning something not yet in existence" forced students to project ideas and knowledge in to the future. Whether planning for a future scenario (like global warming), or trying to promote certain values in the future (sustainability), the course encouraged extending knowledge beyond the documented and observed. One student stated that this course was unique in revealing the "intricacies of the NPS system and the real-life challenges that occur when making changes."

These student insights were evident in several design proposals that were developed in the course, one of which we would like to highlight in this paper. Several sites within the SJI-NHP are considered sacred by local Native American tribes. Rooted in the traditions of fishing, hunting and living off the land, a particular stretch of shoreline is at the convergence of many different disciplinary (and management) concerns. From ecological vitality to the social justice concerns around Native American's current disassociation with the site, to the conflict around Western and native historical understanding and interpretation of this place, the complexity involved in proposing a design solution that fully engages the diverse ecology and deep cultural attachments of this site was a challenging task.

The students explored the contextual intricacies of these issues and their design products demonstrated the value of such collaborations and methodology through a nuanced approach to design intervention and interpretation. For example, by tracing the edge of an underlying shell midden, the project reveals hidden layers of the site — reprioritizing lost narratives, without eliminating current uses. (fig. 6) The quality of the proposal was enhanced by design-research methodology and inter/trans disciplinary collaborations.

Several students found that participating in the course advanced their understanding of the parklands in multiple ways. The process of translating research and design ideas into spatial forms, guided by a shared experience, created a deeper understanding of the site in students' minds. One student stated: "The ideas generated from research of the type we conducted need testing in the real world. Design plays these concepts out in that world and asks whether the ideas generated still resonate. When questions arise in the creative/design process, one returns to research to ground the answers. A combination of creativity and research is critical for the development of any original ideas." Supported by an iterative design process, students were able to envision multiple scenarios for the future — weighing the merits of each on how they lend themselves to cultural and ecological resilience of the Park enhanced respect for the place and people.

While the course was successful in integrating design and research within a inter/transdisciplinary framework, our course did face several challenges. First, we found that students felt uncertain in their own individual role in an inter/trans disciplinary environment, lacking of confidence to move ahead productively. Only 38% of students (8/21) thought they were able to contribute to the fullest extent of their abilities. Coming from their different disciplines, students did not feel they were putting everything they knew to use, despite 90% (19/21) feeling that they were well-prepared for the course. Some students expressed anxiety about the hybrid investigative process, citing " lack of clear expectations" as a learning deterrent. These frustrations are not that uncommon in design studios, where expectations and results cannot always be clearly defined from the onset, but they can be even more pronounced in a design studio that engages a real site, community and students from non-design disciplines (Varnelis 2007).

Second, the working environment composed of both design and non-design

dependency on opposition.[12] While their proposition is based on an identical format ("autonomy and process vs. force and effect", "index vs. diagram", and "hot vs. cold"), the proposed transition "From Dialectics to Doppler"[13] resonates with our pedagogic intentions.

If critical dialectics — they say — *established architecture's autonomy as a means of defining architecture's field of discipline, a Doppler architecture acknowledges the adaptive synthesis of architecture's many contingencies. Rather than isolating a singular autonomy, the Doppler focuses upon the effects and exchanges of architecture's inherent multiplicities: material, program, writing, atmosphere, form, technologies, economies, etc. It is important to underscore that this multiplying of contingencies differs greatly from the more dilute notion of interdisciplinarity, which seeks to legitimize architecture through an external measuring stick, thereby reducing architecture to the entirely amorphous role of absorber of heterogeneous life. A projective architecture does not shy away from reinstating architectural definition, but that definition stems from design and its effects rather than a language of means and materials. The Doppler shifts the understanding of disciplinarity as autonomy to disciplinarity as performance or practice*[14]

However broad, the Projective program remains lineally directed [15] (or at most bi-dimensionally represented by waves in the Doppler tank), and therefore fundamentally limited, just as Critical postures in their autonomy and necessary "in-between-ness".

On the contrary, the flexible nature of competition and collaboration within positive heuristics, together with a circular epistemological movement, generate a theoretical/practical model that is flexible enough to achieve depth. The manifold possibilities of an architectural event competing and collaborating simultaneously in space, time and positive heuristic fields, allow it to become an active component of threads, stems, grids, webs and rhizomes, among many other expressions of intricacy and informality.

In doing so, the notion of intervention allows for architecture to remain bound within its own disciplinary limits, while staying fundamentally open to an almost infinite array of combinations, both in the realms of ideas and events. Such a practice is always related to the fundamental categories of aesthetics, use, stability and knowledge, enhanced by the constant process of becoming and disappearing.

A student taking the Studio Public Realm is therefore free to choose and orient each exercise and its constituent parts with relative flexibility, according to specific aims and aspirations, while building strong connections between the elements of a profession that becomes discernible precisely because it is assumed as — we started saying this — fundamentally relational and experimental. Facing disparate expressions, different components of architecture make sense of the whole by performing with each other. Assuming it as an intervention within space, time, history and art as a whole, the spectator of Kosuth's chairs will not only get to know one particular chair, but comfortably drift into the realm of understanding. And this is where architecture happens.

Notes

1 http://www.moma.org/collection/browse_results.php?criteria=O%3AAD%3AE%3A3228&page_number=1&template_id=1&sort_order=1 — retrieved May 21, 2012

2 " ... theory never played any role in daily office practice in Europe and America. Architects get their ideas elsewhere — from confrontation with the specificity of site and program, from work of other architects, from periodicals and professional literature. The discourse on theory, in fact, streams along in all of its convoluted complexity, largely unnoticed by the average practitioner of architecture. If the articles get too complex, simply no one will read them. Indeed, there has always been 'chatter'; and in fact, there will probably always be 'chatter' in the architectural office with its chaotic work processes, and also in the Universities ... " — Graafland, Arie: *"On criticality"*, published in Sykes, Krista E (Ed.).: *Constructing a New Agenda: Architectural Theory 1993–2009*. New York: Princeton Architectural Press, 2010. pg. 401

3 Motta, Giancarlo and Pizzigoni, Antonia: *La Macchina di Progetto / La Máquina de Proyecto* (bilingual edition — trans. Ed. Rodrigo Cortés and Nancy Rozo). Bogotá: Universidad Nacional de Colombia, 2008

4 The following information stems from the original (abridged) MSc 1 Public Realm Studio brief. Spring 2012

5 From: *Complexity and Contradiction in Architecture.* New York: MoMA, 1977 (second edition), pg. 16

6 Popper, Karl: *The Poverty of Historicism*. London: Routledge and Kegan Paul, 1960

7 Manfredo Tafuri: *Theories and History of Architecture.* London: Granada, 1980,

8 Ibid., pg. 159

9 As proposed by Louis Althusser, according to Brewster, Ben: *"Ideology and Ideology and Ideological State Apparatuses: Notes Towards an Investigation"*. In Lenin and Philosophy and Other Essays, Monthly Review, New York, 2002.

10 Somol, Robert and Whiting, Sarah: *"Notes Around the Doppler Effect and Other Moods of Modernism"*, in Sykes, Krista E. (Ed.), Op. Cit, pg. 190

11 Hayes, K. Michael: *"Critical Architecture Between Culture and Form"*, Perspecta, Vol. 21 (1984), pp. 14 — 29

12 "Critical architecture, under the regime of textuality, required the condition of being "between" various discursive oppositions. Thus "culture and form" can alternatively be figured as "kitsch and avant garde" (Clement Greenberg), "literal and phenomenal" (Colin Rowe), "objecthood and art" (Michael Fried), or "capitalist development and design" (Manfredo Tafuri)." Ibid., pg. 192

13 Ibid, pg. 196

14 Ibid. Pp. 196 — 197

15 "Rather than looking back or criticizing the status quo, the Doppler projects towards alternative (not necessarily oppositional) arrangements or scenarios." — Ibid., pg. 197

References

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