DAVID SALOMON
Cornell University

Experimental Cultures: On the "End" of the Design Thesis and the Rise of the Research Studio

In recent years architectural schools have replaced the independent design thesis with, among other things, faculty-led research studios. This essay locates the rise of the research studio in the United States within the historically changing definition and role of thesis in professional degree programs. In doing so, it argues that the research studio, by taking advantage of the shared experimental character of design and research, presents a timely—if imperfect—method for integrating architecture's public responsibilities with its intensely private creative processes and products.

I favor any [proposition] to which I may reply: 'Let us try it!' But I no longer wish to hear anything of all those things and questions that do not permit any experiment . . . there courage has lost its right.

Friedrich Nietzsche, *The Gay Science*

Facts and Fictions: Thesis, Research, and Design

Nietzsche's enthusiasm for things that can be tried or tested was far from a plea for a more rational society. Rather, it signaled an attempt to leave behind the opaque and unquestionable methods of gods, geniuses, and myths, replacing them with a culture of both rational and irrational inquiry. This new culture, logically and intuitively, collectively and individually, would use its skills to alternatively generate and evaluate new experiences, knowledge, and things directly from the material world around it. This recursive process is one that architects and architectural students should recognize, as they are so often asked to do just that as designers.

Nietzsche's insistence on experimentation speaks to the paradoxical nature of architectural pedagogy and practice, and provides insight into the rise of the research studio. For him, experiments are not limited to the controlled tests that demonstrate or provide evidence of some universal truth; that is, they are *not* synonymous with the scientific method. Experiments are also previously untried, decidedly risky operations aimed at creating something of-the-moment and new.[1] While we tend to think research utilizes one type of experiment and design another, I will argue that both modes of experimentation are necessary whenever we seek to successfully combine research and design.[2]

It is precisely the difficulty of successfully integrating research and design within the context of an independent design thesis that, in part, accounts for the emergence of the research studio as an alternative to it.[3] The dilemma of the design thesis is further exacerbated by the problem of establishing the limits of what qualifies as one today. A few examples recently encountered at a variety of institutions reveal this dilemma. In no particular order, they include:

An urban aviary. A strategy for a beach front community that transforms New Urbanist design guidelines into a progressive ecological, economic, and architectural system. A manual for re-presenting the plight of immigrant dock workers. An upscale suburban trailer park for empty nesters. An artificial landscape at Auschwitz. A religious retreat in the Rocky Mountains. A mega-structure for half-a-million people. A regional airport. A beautiful collection of rusty red objects. A subdivision of McMansions resting atop a strip-mall parking lot. A construction system of intricately symmetrical 3-D printed tiles. A grocery store inspired by the writing of Italo Calvino. A form-based zoning plan for the Highline in New York. A quickly erected drywall ceiling that produced an uncomfortably hot environment. A museum of memory. A 100-km-long fence for the Olympics at Sochi. An institute for the production of genetically modified body parts for world class athletes in Dubai.

As the diversity of these projects illustrate, nothing reveals the paradoxical nature of architectural education more than the status, state, and function of the independent design thesis. The seemingly perpetual angst surrounding thesis, the vast array of proposals that qualify as one, and the growing number of alternatives to it, expose the competing and often contradictory demands placed on architecture and architectural education.

At the crossroads of architecture's aesthetic, professional, pedagogic, and social agendas, the independent design thesis is *the* place in architectural education where students' personal desires and abilities directly intersect the field's intra- and extra-disciplinary responsibilities. Somehow, it must reconcile personal exploration with pedagogical agendas, combine the specific requirements of a project with a more general quest for knowledge, and fulfill the desire for invention with the need for professional competency—all the while advancing disciplinary knowledge.

For many schools, the inevitable crisis surrounding thesis is avoided by no longer requiring it. The most recent study documenting the prevalence of thesis found that only a third of B. Arch programs and half of M. Arch programs required a thesis.[4] Never universally mandated for a professional (or post-professional) degree, in recent years a number of design programs have replaced

the independent thesis with research studios, research laboratories, design-build projects, or simply a final ''advanced'' studio. Others sidestep the issue by calling the last year's design project a capstone, degree, or terminal project.[5]

Why this change? Why now? More specifically, why is research, specifically the research studio, such a common substitution for thesis? The move away from the individual design thesis and toward research studios can be seen as the result of both internal and external pressures placed on architectural education and practice. The negative argument—expressed by leading educators such as Sylvia Lavin, Mark Wigley, and Brett Steele—maintains that architectural theses are too often non-rigorous, hyper-personal, and quasi-architectural in nature.[6] The positive argument recognizes the need and desire for architecture, as both a profession and an academic discipline, to more directly engage with the production of knowledge. This goal has been enthusiastically engaged by educators as diverse as Rem Koolhaas, Patrik Schumacher, Michael Speaks, and Dawn Finlay.[7]

While the relationship between architectural design and conventional conceptions of science-based university research has been broached many times since the first issue of the *Journal of Architectural Education* addressed the topic in 1947, what exactly are we (architects) talking about when we talk about ''design'' and ''research''?[8] A general and influential definition of design was offered by Herbert Simon, who argued that design was a method for solving problems that have more than one right answer. Simon's definition emerged out of a broader attempt, begun in the early 1960s, to rationally understand and thereby maximize the output of the design process by subjecting it to the methods of systems theory and the behavioral sciences.[9] Simon's position seemingly contradicts the still normative notion of architectural design as being the intuitive and personal ''creative act'' that generates ''figural schemas that lead to built

forms.''[10] In other words, design can alternatively be understood as both a rational problem-solving technique or an intuitive aesthetic act.

Similarly, research is often equated with controlled and objective experiments. However, at a more general level, research can be defined as any ''systematic inquiry,'' or as ''the close study'' of something. This suggests that there would be multiple modes of inquiry—both quantitative and qualitative—that can satisfy these requirements beyond the type of work done in a conventional laboratory.[11]

Such is the argument of three insightful texts outlining the relationship between architecture and research. In the opening essay to a 1984 compilation of essays entitled *Architectural Research*, Michael Joroff and Stanley Morse outlined the different modes of inquiry used by architects. They ranked these methods, from the least to the most objective, as: 1. ad hoc observations, 2. design, 3. review of precedents/current knowledge, 4. manifesto, 5. normative theory, 6. development/scholarship, 7. social science research, and 8. laboratory/physical science research. Regardless of where one's work falls on this continuum, they argue that in order for something to be considered research it must be systematic and it must be self-conscious of the methods it uses—i.e., it must recognize and account for the effects that a specific technique has on the outcome of the investigation.[12] Eighteen years later, Groat and Wang's survey *Architectural Research Methods* expanded upon and fleshed out Joroff and Morse's list, stressing the importance of qualitative methods. More recently, architect and educator Jeremy Till adds that all ''good'' architectural research must be rigorous, original, and significant.[13] By rigorous Till means systematic. By original he means new. By significant he means that this new information is relevant in situations for others beyond the ones that initially generated it, and is thus worthy of dissemination.

All three texts emphasize that research (architectural or otherwise) does not simply compile what already exists, but advances the current state of the art. While the broad conception of research outlined by these authors may not be relevant for other fields, they do provide a specific set of criteria for analyzing architectural work that claims to be research, and they are broad enough to be applied to a variety of architectural situations and phenomenon.

The emphasis on a plurality of research methods reinforces the notion that research cannot be limited to science or the scientific method. In contrasting research with science, Bruno Latour helps establish the affinity between research and design as similarly experimental, subjective, and political processes:[14]

> Science is certainty; research is uncertainty. Science is supposed to be cold, straight, and detached; research is warm, involving, and risky. Science puts an end to the vagaries of human disputes; research creates controversies. Science produces objectivity by escaping as much as possible from the shackles of ideology, passions, and emotions; research feeds on all of those to render objects of inquiry familiar.[15]

Substitute design where Latour writes research and the relationship between the two becomes clear. It should also be noted that none of the qualities attributed to research by Latour contradict the requirements for ''good'' research to be rigorous, its methods explicit, and its findings original and significant. What it adds to these is the recognition of the subjective and cultural forces present in any research enterprise—even the most methodologically objective ones.

For Latour, design and research are open, flexible, and timely concepts. They are simultaneously constructed from real phenomena *and* invented, but accurate, relationships. In his

terms, they are ''factish''; equal parts empirical facts and fetishes. In other words, both design and research are well-fabricated hybrids. Composed of both objective truths and personal fictions,[16] they are equally exposed to individual and historical shifts. Rather than searching for unchanging and universally valid truths, both design and research stress what is important and accurate to individuals and cultures *now.*

Within architectural education the thesis has been a valued technique for engaging the relationship between facts and fictions and, as a result, has provided an opportunity for both a personal and a disciplinary specific form of research. Today, one can ask how or whether the research studio provides the same opportunity, or if it challenges the notion that research be an integral part of professional architectural education.

History of Thesis I: Pre-Thesis, 1860s–1870s
Design, and the design thesis, have always occupied an awkward position within the culture of the university. When the architectural thesis was first introduced in the late 19th century, it—and architectural education in general—was conceived of as a combination of the fine arts, building science, and art history. Each of these came with their own disciplinary spaces and techniques—building science with its laboratories and experiments, art history with its libraries, collection, and scholarship, and fine art with its studios and imagination.[17]

If the algebra of architectural education and the theses was: Architecture = Building Science + Art History + Fine Arts, then design was the ''+''. At once absent, yet dominating the process, its task was to combine and integrate the three into a coherent whole. Consistently recognized as the most important subject taught in architecture schools, design was also the one with the least academic credentials. Although closely related to the fine arts, it remained distinct from them because of its pragmatic component.[18] It was not

until almost a century later that design itself would become a distinct discipline.[19]

In short, it was not clear how design was a form of scholarly research or how a specific design qualified as a thesis. The traditional definition of the scholarly thesis was a series of statements or propositions that either built upon, added to, reinforced, or challenged an existing body of knowledge by ''constructing an argument that can stand up'' by itself and be ''maintained against attack'' from those qualified to judge its veracity.[20] In other words, a thesis is a new idea that needs to be proven relative to a field's established set of facts. As such, the unique design for a building was not in and of itself a thesis. It could be so only if it added something to, reinforced a weak point within, or contradicted something in the multiple fields that made up the architectural discipline—of which design was not quite one.

Internal Affairs
In 1996, the book *Building Community: A New Future for Architecture Education and Practice*—commonly referred to as the ''Boyer Report''—was published by the Carnegie Foundation for the Advancement of Teaching.[21] The report concentrated its recommendations for reorienting architectural education around seven goals—many of which emphasized a renewed vision and commitment to the multiple publics that it served.

Research, however, was not seen as a central means for achieving this end. Rather, in a brief section on the subject, it emphasized that more discipline-specific modes of scholarship should be substituted for the conventional definitions of research associated with the physical and human sciences. Three of the four categories outlined for a profession-specific scholarship conform to the normative triad of basic, directed, and applied research. The fourth suggested that teaching itself is a means for advancing ''learning.''[22] However, the text is not clear who is learning—the student,

the teacher, or the discipline—what is being learned, and if this information is already established or new. In other words, it is not clear whether the classroom environment is the site for generating research.

The distinction between learning and research is critical to understanding the limits of the contemporary architectural thesis. Most work done in preparation for thesis and the thesis itself, rarely, if ever, qualifies as ''good'' research; nor does it often obtain the goal of the scholarly thesis. The carrying out of literature reviews, precedent surveys, and site and programmatic analysis can only be considered research if they are rigorously pursued and knowingly contribute to an established body of knowledge or practices—a qualification that is difficult for an individual student to achieve in the time allotted. Certainly, they can produce relevant, even essential information regarding the project at hand, but that information—even when thoroughly compiled—is generally not significant in Till's terms. Not all learning is research.

The question at hand is whether the structure and practices of research studios are better equipped to produce research, i.e., new disciplinary knowledge, than the independent design thesis. Underlying this question is a more general one: is any educational setting—classroom, studio, or thesis—where students need to learn, an appropriate site for research? Design instructors have long used the studio as a de facto setting for examining and experimenting with their own disciplinary and design interests and agendas. When the independent thesis followed the scholarly thesis model—which was not technically taught by any faculty—it provided the chance for students to do the same.[23] The shift from an independent thesis to a research studio shifts the burden of defining a research project back to the faculty.

Despite the ambiguity of the use of the term ''learning,'' the Boyer Report does imply that the classroom could be a place for the production, not

just the dissemination, of knowledge. One method it recommended for achieving this end was for the creation of a more ''connected curriculum.'' More specifically, architectural education needed to become a more ''liberal,'' ''flexible,'' and ''integrated'' experience. The first, it argued, would help foster links with other disciplines and with the public, while the latter would help produce a more able professional. Toward that latter goal, it recommended that

> all graduates should be required to pull together, in a single piece of design work, what they have learned in the professional degree program and express their design concepts clearly—orally, in writing and in two- and three-dimensional representations.[24]

While it defines such a project as a ''thesis,'' one could argue that as described it more closely resembles the NAAB requirement for a comprehensive design project. In other words, it does not meet the traditional definition of a scholarly thesis, or of good research. At best, it might reinforce the goals of the curriculum, but it does not require making a larger disciplinary argument that stands on its own.

History of Thesis II: The Beaux-Arts Era, 1880s–1930s
Surprisingly, the Boyer Report's definition of the architecture thesis does recall the diploma project of the Ecole des Beaux-Arts—the educational system that was the model for most American schools of architecture from the 1880s through the 1930s. In fact, its influence has never completely disappeared.[25] Distinct from the various competitions it ran, the diploma exercise was the only place in the Beaux-Arts curriculum that required students to integrate all aspects of their training in one project. In the US version the thesis project was a comprehensive design for an assigned building type and location, complete with

working drawings, structural calculations, and a brief written description.[26] At the Ecole in Paris, all students were given the same site and program. In the United States, many schools relied on the New York-based Beaux-Arts Institute of Design (founded by former Ecole students from the United States in 1916) for the assignments.[27] The nature of the exercise was more about proving one's competency and talent than it was about making an argument, stating an idea, or producing new knowledge (Figure 1).

Research Studios Plural
Exhibit A: The Project on the City—The Design of Research
Despite the Boyer Report's general de-emphasis on research, its aforementioned assertion that architectural work demands multiple modes and definitions of research beyond the normative scientific ones was one of its key conclusions. In fact, an experiment to create such a method was already under way.

In the same year the report was issued the Rem Koolhaas–led Project on the City at Harvard's Graduate School of Design was inaugurated. The ''project'' consisted of a series of year-long research studios, ultimately taken by students in lieu of an individual design thesis.[28] In outlining the agenda of the project, Koolhaas noted that it would focus on ''the economics, politics, social conditions, and architectural and urban design issues'' but not on design proper. He was blunt in his agenda for the studios. For him, it was an opportunity, outside the pressures of his professional design practice, to manifest a

> commitment to research as a prelude to design, like two things that are almost bonded or laminated together. Conditions are so incredibly quickly evolving that without continuous cross-reference, architecture becomes an increasingly inappropriate activity.[29]

The message was clear. Representational, compositional, and technical skills alone were not enough to be relevant—either as an academic or as a practitioner. For students and professionals alike, to design—and in order for your design to be significant—you must first research the context it operates in and on. No longer can one rely on what the client or your consultants give you; nor was information from ancillary fields (sociology, etc.) satisfactory. It was up to architecture to produce its own data, and, in the context of this research studio, it was would-be thesis students who were deemed qualified and available to do it.

History of Thesis III: The Modernist Era, 1930s–1970s
The desire to integrate real-world information into architecture and the architectural theses also marked the shift from the Beaux-Arts to the modern thesis. During this era, from the late 1930s through the early 1970s, architectural education and the design thesis no longer conformed to neo-classical norms but instead sought to creatively combine new programs, materials and compositional techniques. Thus, before solving a design problem, students had to establish the parameters for that problem. In the face of new social, cultural, economic, and technical realities, the need for research and analysis was understood as a necessary precursor for design.[30]

Pioneered by curricular changes at the University of Oregon, at a number of schools thesis students were required to develop their own programs and select their own sites, after which they would independently investigate them—a marked change from the Beaux-Arts–inspired system, and one partially made in response to a growing professional demand for aid in site selection and programming.[31] Later, especially at schools like the Illinois Institute of Technology, students would work closely with a faculty member to study, experiment with, and base their designs around new
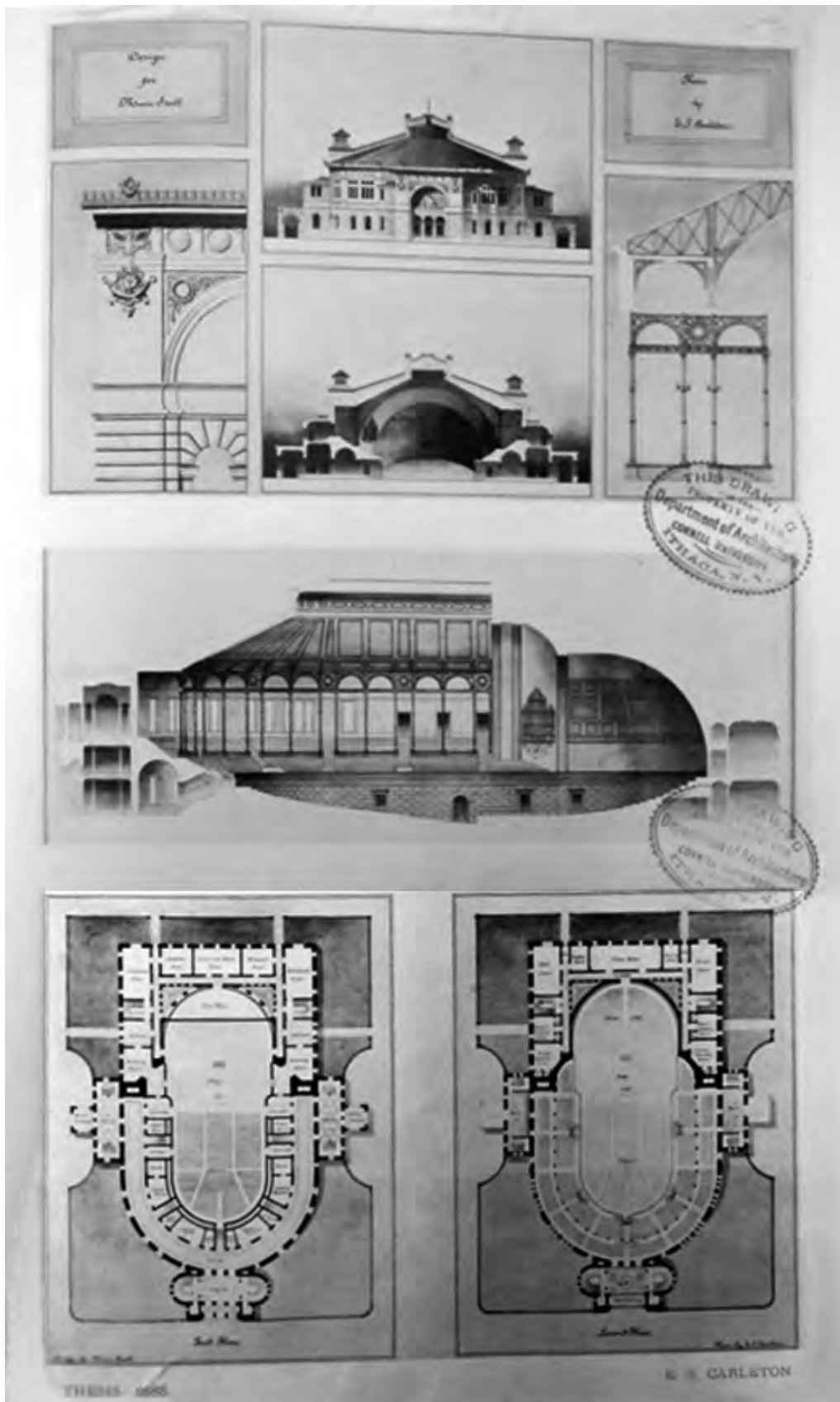
structural systems and materials.[32] By the late 1960s, with the emergence of programs and schools focusing on ''environmental design,'' students began to use sociological and anthropological studies of the user-built environment relationship to generate designs.[33] While the thesis maintained its role of testing a student's ability to use their design skills to combine things into a coherent whole, the parts that made up that whole were more diverse and less formal, and the results were more experimental, less predictable, and potentially more relevant for an expanding field and the culture it saw itself serving.[34]

To a certain degree the Project on the City revived the interest in directly engaging contemporary issues. Where it differed is that rather than focusing on structure, building systems, or program, it instead looked at existing urban conditions as a valid starting point for generating new architectural forms and new forms of architectural inquiry and expertise. In other words, it established the problems that design would subsequently engage.

As is now well known, the first two years of the Project on the City focused on the rapid growth of the Pearl River Delta region in China, and ''Shopping'' as a ubiquitous urban phenomenon. Both investigations—which included field work and statistical and historical research—resulted in thick, graphic books (*Great Leap Forward,* and *Harvard Graduate School of Design Guide to Shopping*, respectively) filled with charts, graphs, photographs, and essays generated by the students' empirical, yet personal, research projects.[35] On the one hand, such work directly speaks to the Boyer Report's call for architectural work to be engaged with larger social and cultural phenomenon. It also illustrates an expanded definition of what creative architectural research could be. In comparison with urban planning's, sociology's, or geography's methodologies, the data collection methods were self-consciously more journalistic than quantitative, emphasizing breadth over depth, and timeliness

over timelessness. In other words, it was more thorough than it was systematic. In short, it was an example of teaching as research.

On the other hand, the lack of any architectural design work—let alone a project that combines all aspects of the curriculum—fails to meet the Boyer Report's criteria for a comprehensive project, or any other conventional definition of a design thesis. While directed at architectural and urban design interventions, the results were not intended to be applied to any particular situation or architectural or urban design problem. Nor were the findings of the work proprietary to Koolhaas, the GSD, or the students. As published, the information is there for all to see, judge, and use.[36]

The Boyer Report and the Project on the City seem to offer two opposing views of thesis: the one focusing on design as an extension of a conventional curriculum, without any mention of a broader intellectual or research agenda; the other, focusing on larger issues, with little or no design component. Of course, this is an exaggeration. Overall, the Boyer Report is consistent about including social and cultural issues within architectural curricula, and it is implied that they would also be present in a thesis project. Still, the Boyer Report's definition of thesis implies that, *unless it was already a central part of the curriculum*, students need not do any directed research as a ''precursor'' to design. Further, the emphasis on expressing their own ''design concepts'' suggests that design is primarily the personal creative act of generating ''figural schemas that lead to built forms,'' and not a mode of inquiry or a means to other ends. Similarly, the Koolhaas-led research, despite its detachment from a specific design project, was not exactly independent from a design agenda. Both its methods and findings would eventually find their way into Koolhaas' own discourse, such as his essay ''Junkspace,'' and the work of his firm, OMA, particularly their IIT's McCormick Student Center, the Seattle Library, and the Prada stores.[37]

Exhibit B: Rural Studio—Design as Research
By 1996, there was already a program established that had begun to address the Boyer Report's desire for thesis to produce an integrated project and Koolhaas's stated goal of research informing design. Auburn's Rural Studio program, founded by Samuel Mockbee in 1993, created a series of pedagogical experiments in which students did field investigations followed by design projects for residents in rural Hale County, Mississippi. Students spent their second (now third) year of the five-year B. Arch program examining the existing physical and social facts of poverty on site, before participating in the design and construction of a relatively small building project. Working closely with residents—with Mockbee initially acting as an instigator, moderator, and mediator—the undergraduate students produced design work for a local family or institution. Selected students now return in their fifth year and complete a group thesis project. Working in small teams, and again working directly with members of the community, they propose, design, develop, and build a project. Both construction and aesthetics are important components of the thesis. Using unorthodox, recycled, found, and donated materials, the students produce a unique identity for each project, while maintaining a relatively consistent identity for the program.[38]

With the example of the Rural Studio, it is unclear whether the thesis reflects the curriculum or whether the thesis is what produces a new curriculum. Nor is it obvious what the priority is: community service, design innovation, or educational experience. What is clear is that these issues are so fully integrated with one another that establishing any hierarchy among them becomes irrelevant. Thus, despite the fact that it does not formally frame itself as a research studio, in practice it has become one. Organizationally, the faculty-led agenda and group projects are consistent with other research studios. Further, it has built up a body of knowledge about a place and its people through the design of architectural artifacts. In other words, the

structure, the practice and the architecture produced by the program are sustained, systematic, self-conscious, original, and significant. Despite the unique conditions of the Rural Studio, its success suggests that similar investigations in other contexts, under the direction of other teachers, would result in different forms, use different materials, and address different audiences. What is generalizable and repeatable is neither the material conditions nor the style of the work, but the design and research methodologies used to generate it.

On the matter of style, the formal inventiveness of the work makes it clear that design-build, community-based, and group projects need not be aesthetically neutral. In fact, it is the innovative, even ''subversive'' nature of the rough and eclectic designs that separate the work of the Rural Studio from similar programs. While community-based design-build programs had been around for many years, one of Mockbee's key contributions was to recognize the importance of personal aesthetic innovations in garnering the attention of students, the discipline, and the local community. In doing so, the Rural Studio has been able to contribute rigorous, original, and significant material to the larger disciplinary debates regarding the relationship between design, place, and function. It also affirms that formal and educational experimentation, when framed by a particular context and a personal conviction, can be an effective means of raising the awareness of the relationship between social issues and architectural ideas (Figure 2).

History of Thesis IV: Post-Modernism, 1970s–2000s
In 1997, a year after the Project on the City began, the Architectural Association in London opened its Design Research Lab. The next year, Sci-Arc's program in Metropolitan Design and Research was inaugurated.[39] In 1999 UCLA began to replace its requirement for a thesis with research studios. These were created, Sylvia Lavin would later recall, ''in the spirit of a thought experiment. It replaced a

2. Rural Studio Thesis Project, Antioch Baptist Church, McElroy, Michaud, Nauck, Fulton, 2001–2002 (Photographs courtesy of Xavier Vendrell).

traditional thesis which, as a piece of curriculum, had become nostalgic and neither thoughtful nor experimental.''[40]

Lavin's analysis echoes Koolhaas's earlier plea to end the ''semantic nightmare'' of the 1970s and 1980s and replace it with a ''new sobriety.''[41] During that period, architectural discourse, production, and theses focused on issues of language, meaning, and authorship, often at the expense of performance and politics. Whether it relied on reintroducing historical formal operations and tropes, or if it imported ideas from other disciplines—e.g., semiotics, linguistics, and philosophy—the emphasis was on the manipulation of form.[42]

This trend took on two tracks. The first, ''formalist,'' one focused on the autonomy of architectural form and emphasized the transformation of either historical or modernist tropes. Projects ranged from radically siteless work—aka ''paper architecture''—to hyper-contextualist ones.[43] Within thesis work, the focus on formal and representational issues allowed students to produce original and significant work within a specific, but limited, aspect of the discipline. Focused on aesthetic issues, theses in this vein were more like projects made for the Ecole

des Beaux-Arts Rome Prize competition than its diploma project.[44]

In contrast, the second, neo-avant-garde strain was open to so many influences that any clear disciplinary border became harder and harder to define. An avant-garde work is defined here as one that questions the very institutional status of what architecture is, typically by recontextualizing an otherwise recognizable idea or thing.[45] This meant that ideas and operations from ecology, urbanism, gestalt psychology, philosophy, linguistics, semiotics, literature, film, and computation were all grist for the design mill. In this scenario, thesis students were responsible for inventing all aspects of a project—often devising them in a pre-thesis seminar before proceeding to the design phase. All parameters and limits were subject to a student's own imagination. Students had to develop not only a site and a program but also a non-architectural model or theory to use as well as an institution to critique. In this context, the role of design was to translate non-architectural phenomenon into unique architectural forms. The results were more like a traditional scholarly thesis where what was proposed was less a comprehensive building design than an argument that could sustain itself against attack.[46] Not surprisingly, the

combination of multiple external influences and total control often led to flights of individual fancy with little connection to conventional architectural issues.

In short, the first model emphasized form to the exclusion of other factors, while the latter emphasized external ideas to the exclusion of intra-disciplinary concerns. Seen in this way, both Koolhaas's call for research and the Boyer report's call to order were direct responses to the ideologies underlying the hyper-formal and hyper-personal theses—albeit with quite different agendas and solutions.

Exhibit C: UCLA—Research for Design
This was also the context in which the Research Studio Project at UCLA was conceived. The first research studio at UCLA was the LA Now project, a multi-institutional endeavor, the UCLA portion of which was led by Thom Mayne. Echoing the Project on the City, the first two-thirds of the year was spent documenting contemporary Los Angeles using a variety of qualitative and quantitative methods. The final third was dedicated to developing design proposals inspired by and grounded by these findings. Unlike the Project on the City, the students who conducted the initial investigations

3. Deborah Bird, ''Timeshare,'' Timeshare Research Studio, UCLA, 2005, Kevin Daly advisor. [Source: *Thought Matters (Los Angeles: UCLA Department of Architecture, 2005), 74–75.* © 2005 The Regents of the University of California, Los Angeles. This material was granted permission to reprint by the UCLA Department of Architecture and Urban Design 2011.]

went on to design projects based on the body of information amassed by the group. If the first half is recognizable as directed research, the latter can be understood as applied research. Both parts were ultimately published in separate books.[47]

Subsequent research studios were ''boosted'' with ''either material/technical additives or intellectual/theoretical enhancements,'' occasionally combining both.[48] Studios led by Greg Lynn, Neil Denari, R.E. Somol, Kevin Daly, and Dagmar Richter examined issues of display, networks, economics, lifestyle, and informal urban development. Richter and Daly's studios studied the real estate strategy of timesharing—ownership without occupation—to generate a variety of strategies for reprogramming and re-territorializing sites and programs in Los Angeles (Figures 3 and 4). Proposals included methods for reclaiming disused land; new policies and typologies for distributing housing along the lines of healthcare insurance; high-density housing typologies; and an urban concierge service. Other products from the studios ranged from Somol's Project on the City-like book of diagrams and images of a Tijuana, to Lee's plans, sections, and models for housing schemes at hyper-developing border locations, to Denari's and Lynn's intricately rendered skyscrapers, museums, and resorts, to Mayne and Richter's dense housing developments in Madrid.[49]

History of Thesis V: Research Studio, 1990s—present

As witnessed in UCLA's project, not everything changed in the shift from the individual thesis to the research studio. As with the neo-avant-garde model, the design phase is carried out only after a broader set of non-architectural issues are examined. While the sequence is the same, the specifics were not. For one, both the pre-design and design state were organized such that multiple people were working on closely related, if not identical, projects. Further, the initial framing of the project was in the hands of a faculty member and was often directly related to issues pertinent to that member's own research and practice.

time-share/cohousing=shared ownership + high service = a new proposition for a neighborhood

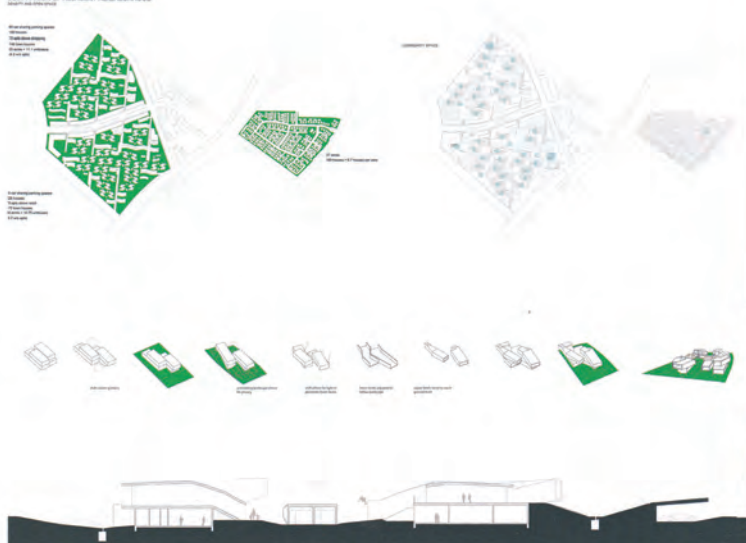## ADDRESSING CHANGING LIFESTYLES / Sarah Maanpaa

COHOUSING ADDRESSES CURRENT LIFESTYLES
- Coop housing helps women and parents balance career and children
- Children have playmates rather than being isolated in individual back yards
- People live far from family and friends so there is no support structure for parents (traditionally child care was informally taken care of by extended fam...
- Houses are single parent or dual income; thus juggling work and housework is difficult
- Families are smaller than before
- More elderly and single people living alone in society
- More women are working outside the home
- Rising housing costs place greater demand on households
- Society is more transient
- Current single family home is isolated / no sense of community
- Those working in the home feel isolated from community

(McCamant, Durrett)

Numerous studies of people over 50 have shown that the single greatest fear among the elderly is being sent to a nursing home.

4. Sarah Maanpaa, ''Addressing Changing Lifestyles,'' Timeshare Research Studio, UCLA, 2005, Kevin Daly advisor. [Source: Thought Matters (Los Angeles: UCLA Department of Architecture, 2005), 76–77. © 2005 The Regents of the University of California, Los Angeles. This material was granted permission to reprint by the UCLA Department of Architecture and Urban Design 2011.]

As with earlier models the studios sought to include information from outside the discipline. However, the nature of this information was grounded in a broader spectrum of everyday phenomenon—material, social, and technical—than either the Project on the City or the Rural Studio. The empirical (but by no means scientific) research generated statistical, discursive, and physical facts about cities, economic practices, legal codes, ad hoc aesthetic activities, etc.[50] In other words, the facts were located in the multiple realities of contemporary culture. This grounding, along with direct faculty guidance and group work, served as a defense against the individualism of the previous generation of theses, while still encouraging subjective interpretations and solutions.

In contrast to the defined goals of Project on the City, research was not understood in the UCLA studios as a precursor to design, nor was design an illustration of the research. Rather, the research is immanent in the final forms; it is literally a part of the design. Likewise, it differs from the Rural Studio in that it is not tied to a specific location, context, or socioeconomic group. What it loses in specificity (the City) or depth (Hale County) it gains in the breadth of topics the UCLA studios engaged over time. What is generalizable from the UCLA framework is not the product of any one studio, but the potential for a diverse faculty to rigorously perpetuate a line of academic and design inquiry that engages a variety of topics and forms within one school. The significance of this pluralistic

approach is cultivated and tested by actively publicizing the results—both to a myriad of outside reviewers and in the subsequent dissemination of the work in publications.[51]

In comparison with independent design theses, the research studio as currently formulated and practiced at UCLA is less personal but still pluralistic; more realist but still risky; less expressionistic but still experimental. And, like any experiment—scientific or artistic—the research studio relies on the specific skills, insights, and intuitions of the individuals who organize and supervise the work. It also means that these design experiments will not always produce what one expects or desires. In short, this model of a research studio as a substitute for the individual

design thesis represents a definitive move away from independent explorations and toward the collective production of disciplinary knowledge.

Conclusion

For some, the channeling of students' creativity and intuition toward faculty, institutional, or disciplinary agendas is tantamount to limiting artistic and intellectual freedom. Students could be at risk of losing an opportunity to develop their own theories of architecture or to challenge, rather than reinforce, their curriculum. Similarly, the need to develop and exhibit technical competence will remain central in an educational system and profession that demands ever more of it. These are both legitimate issues, ones that will keep the individual design thesis (and comprehensive design) alive for some time to come.

Alternatively, these concerns could be incorporated into the research studio model or any other thesis substitute. As the episodic history of the design thesis shows, it can and will change in the face of new realities. Of course, research studios may just as likely run their course. For example, research in general could be removed from thesis and all other pedagogical devices. The field may decide that the end of a design education is not the proper place for such activities to take place. It could determine that professional degree students should not be, nor are they sufficiently prepared to be, responsible for producing good research. Research could be limited to the domain of individual faculty, or it could be confined to post-professional programs such as the burgeoning M. Arch II, M. DeS, D-Des programs, and PhD degree programs.

The research studio does not automatically produce good research, and it is not immune to the historical problems of the independent theses. It too can be prone to (collective) acts of narcissism, to vague methodologies, to blindly following fashions, to focusing on expression rather than experimentation, to overemphasizing

non-disciplinary issues, or letting its results languish unpublished. Badly taught research studios are also at risk of exploiting students for institutional or personal advantage.[52] What must be in place to combat these dangers are the principles of good research—i.e., the research studio must be committed to and practice rigorous, sustained, systemic, and self-conscious methods, and be able to produce results that are recognized as being original and significant beyond the immediate context. While an independent thesis could satisfy these criteria, the advantage of the research studio is that, as a part of an ongoing personal and/or institutional investigation, it can refine its techniques and build up a more robust body of knowledge over time. And, as a studio, it can take advantage of the simultaneous and multiple iterations and insights from multiple perspectives.

One might conclude that the move away from individual theses toward teacher-led, group research projects found in many research studios represents a diminished role for intuition in the design process. However, this analysis depends on the cliché that design is subjective and wild, while research is objective and predictable. It is this false choice that the diversity of work and ideologies present in the Project on the City, in the Rural Studio, and in the UCLA research studios begins to undermine.[53] In every case, both design and research are understood as personal, creative acts that simultaneously produce aesthetic artifacts, directly engage extra-disciplinary issues, and are guided by personal and political considerations.

In these programs design and research do not seek eternal truths, nor are they simply deployed to produce ad hoc solutions to specific problems. Despite their radically different pedagogical, professional, and social aims, in each example design and research are

> not used to inform (or rationalize) a single best solution, but rather to prompt multiple

design solutions. This future-oriented approach signals a shift from an architecture of problem solving to an architecture of intelligent speculation. Here, research is pursued for the sake of innovation and invention—valued insofar as it contributes to new patterns and possibilities.[54]

In other words, they are experimental. Whether embodied in a research studio, or any other pedagogical setting, it is this experimental process of making and testing risky propositions with recursive trials and errors, that has the potential to move architectural thought and action beyond the dual mythologies of objective reason and individual genius. In their place it argues for the collective investigation of diverse material issues—urban, economic, social, political, and technological—via a specifically architectural combination of creative design and good research. In other words, it suggests an experimental architecture culture that pursues the original goal of the scholarly thesis—to combine extant knowledge with new information and methods to generate new forms and new forms of knowledge—via contemporary means. ''Here, courage has not yet lost its right!''

Notes

1. On Nietzsche's philosophy of experimentation and testing, see Avital Ronell, ''Proving Grounds: On Nietzsche and the Test Drive,'' *Modern Language Notes* 118, No. 3 (April 2003): 653–69.

2. See Bruno Latour, *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge, MA: Harvard University Press, 1999), 266–92; and Bruno Latour, *On the Modern Cult of the Factish Gods* (Durham, NC: Duke University Press, 2010).

3. On the difficulty of architecture's compatibility with the conventional, but not universal, notion of research as being synonymous with the scientific method, see David Wang and Ali O. Ilhan, ''Holding Creativity Together: A Sociological Theory of the Design Professions,'' *Design Issues* 25, no. 1 (Winter 2009): 5–21. For alternative research models and methods of inquiry, both qualitative and quantitative, see Linda Groat and David Wang, *Architectural Research Methods* (New York: Wiley, 2002), esp. 21–24; David Wang, ''Categories of ACSA Conference Papers: A Critical Evaluation of Architectural Research in Light of Social Science Methodological Frameworks,'' *Journal of Architectural Education* 56,

no. 4 (May 2003): 50–55; Michael Joroff and Stanley Morse, "A Proposed Framework for the Emerging Field of Architectural Research," in *Architectural Research,* ed. J. Snyder (New York: Van Nostrand, 1984), pp. 15–28; and the special issue of the *Journal of Architectural Education* 61, no. 1 (September 2007).

4. *ReBoot: Rethinking the Design Thesis,* https://www.courses.psu.edu/arch/arch491_clg15/intro.html, last accessed on June 27, 2011. See also Christine Gorby, "Evaluative Results: REBOOT: Rethinking the Design Thesis CD-Rom and Web Site," in *Proceedings of the Association of Collegiate Schools of Architecture: Finishing School* (Washington, DC: ACSA, 2003).

5. For an earlier account for the proportion of schools requiring a thesis and the nature of them, see Arthur Clason Weatherhead, *The History of Collegiate Education in Architecture in the United States* (Los Angeles, CA, 1941), pp. 154, 221. For an overview of recent design research and design labs, see Helene Furjan, "Design∕Research," *Journal of Architectural Education* 61 (September 2007): 62–68.

6. See Sylvia Lavin, "Introduction," *Thought Matters* (Los Angeles: UCLA Department of Architecture and Urban Design, 2005), pp. 6–7; Mark Wigley, "Anthony Vidler and Mark Wigley," *Architectural Design* 74, no. 5 (September–October 2004): 13–23; Brett Steel, "Brett Steele," *Architectural Design* 74, no. 5 (September–October 2004): 67–71.

7. On the general trend on operationalizing university research, see Roger Geiger, *Knowledge and Money* (Stanford, CA: Stanford University Press, 2004) and Roger Geiger and Creso M. Sá, *Tapping the Riches of Science* (Cambridge, MA: Harvard University Press, 2008). For Speaks's position, see Michael Speaks, "Design Intelligence, Part I: Introduction," *Architecture + Urbanism* 387 (December 2002): 10–18. For Schumacher, see Patrik Schumacher, " Style as Research Programme, in *AADRL Documents 2, DRL TEN: A Design Research Compendium* (London: Architectural Association, 2008), accessed at http://www.patrikschumacher.com/Texts/Style%20as%20Research%20Programme.htm, most recently on July 7, 2011. For an architectural perspective on funded research in the design studio, see Dawn Finlay and Mark Wamble, "Relationships Supercede Dimensions," *Perspecta* 38 (2006): 92–99.

8. *Journal of Architectural Education* 1 (Spring, 1947). In addition to this first issue, there have been five additional issues of the *JAE* dedicated to architectural research: Winter-Spring, 1971; May 1979; November 1990; May 2001; and September 2007. In addition, the 75th jubilee edition (Winter, 1987) also focused on research. For succinct overviews of architecture's research methodologies, see Joroff and Morse, "Proposed Framework," and Groat and Wang, *Methods*.

9. Herbert Simon, "The Science of Design: Creating the Artificial," *Design Issues* 4, no. 1/2 (1988): 67–82. See also Herbert Simon, "Problem Forming, Problem Finding, and Problem Solving in Design," in *Design & Systems: General Applications of Methodology*, ed. Arne Collen and Wojciech Gasparski (New Brunswick, NJ: Transaction Publishers, 1995).

10. Wang and Groat, p. 101.

11. See note 3 above for sources related to this issue.

12. Joroff and Morse, "Proposed Framework."

13. Jeremy Till, "What Is Architectural Research? Architectural Research: Three Myths and One Model." Discussion Paper. RIBA, London, 2005; http://www.architecture.com/Files/RIBAProfessionalServices/ResearchAndDevelopment/WhatisArchitecturalResearch.pdf, last accessed on June 27, 2011.

14. Latour, *Pandora's Hope* and *On the Modern Cult of Factish Gods*; and Bruno Latour, *We Have Never Been Modern (*Cambridge, MA: Harvard University Press, 1993.

15. Bruno Latour, "From the World of Science to the World of Research," *Science* 280, no. 5361 (April 1998): 208–09.

16. Latour, *Pandora's Hope* and *On the Modern Cult of the Factish Gods.*

17. See Mark Wigley, "Prosthetic Theory: The Disciplining of Architecture," *Assemblage* 15 (August, 1991): 6–29, for a succinct history of how architecture entered the university and its paradoxical relationship to it.

18. Of course, it was design, or more specifically, *disegno* that had helped architecture establish itself as a liberal art during the Renaissance. For a brief history of the ramifications of this, see Sylvia Lavin, "What Color Is It Now?" *Perspecta* 35 (2004): 98–111.

19. See Geoffrey Broadbent and Anthony Ward, eds., *Design Methods in Architecture* (London: Lund Humphries, 1969); and D. P. Grant, "Aims and Potentials of Design Methodology in Resonse to Social Change," *Design Methods and Theories* 20, no. 1 (1986).

20. Wigley, "Prosthetic Theory," p. 9.

21. Ernest Boyer and L. D. Mitgang, *Building Community: A New Future for Architecture Education and Practice: A Special Report* (Princeton, NJ: Carnegie Foundation for the Advancement of Teaching, 1996).

22. Ibid., pp. 53–57.

23. On the relationship between studio and research, see Richard Plunz, *Journal of Architectural Education* 40, no. 2 (Winter 1987): 64, and the special issue of the *JAE* on "Design Research," *Journal of Architectural Education* 61, no. 1 (September 2007). This position is strongly implied by Mark Wigley's discussion of architectural education at Columbia under his tenure; Wigley, "Anthony Vidler and Mark Wigley."

24. Boyer and Mitgang, *Building Community*, p. 87.

25. Kathryn H. Anthony, "Private Reactions to Public Criticism: Students, Faculty, and Practicing Architects State Their Views on Design Juries in Architectural Education," *Journal of Architectural Education* 40, no. 3 (Spring 1987): 2–11.

26. Weatherhead, *History of Collegiate Education,* p. 154.

27. Ibid, 76–81; Turpin C. Bannister, ed., *The Architect at Mid-Century: Evolution and Achievement* (New York: Reinhold, 1954), pp. 99–102.

28. For Koolhaas' public statement on the goals of the project, see Ken Gewertz, "GSD's Koolhaas Heads 'Project on the City'," *Harvard Gazette* (June 6, 1996), last accessed at: http://news.harvard.edu/gazette/1996/06.06/GSDsKoolhaasHea.html on June 27, 2011. See also Bart Lootsma, "Reality Bytes: The Meaning of Research in the Second Modern Age," *Daidalos*, no. 69–70 (December 1998–January 1999): 8–21.

29. Ibid.

30. Weatherhead, *History of Collegiate Education*, pp. 175–245, esp. 221–213.

31. Weatherhead, *History of Collegiate Education*, pp. 217, 221–2.

32. See Peter Carter, *Mies van der Rohe at Work* (New York: Praeger, 1974), pp. 159–169.; *Myron Goldsmith: Buildings and Concepts*, ed.

Werner Blaser (New York: Rizzoli, 1987), pp. 138–183; *Mies van der Rohe: Architect as Educator,* ed. Rolf Achilles, Kevin Harrington and Charlotte Myhrum (Chicago: University of Chicago Press, 1986), esp. pp. 130–145; and M. J. Neveu & E. P. Saliklis, "Myron Goldsmith and the Development of the Diagonally Braced Tube," in Paulo Cruz, ed., *Structures & Architecture: ICSA 2010* (Boca Raton, FL: CRC Press, 2010), also accessible at: http://works.bepress.com/mneveu/15.

33. For an overview of the various positions and practices associated with this moment, see the *Journal of Architectural Education* 25, no. 1/2 (Winter/Spring, 1971).

34. These goals were codified in a previous report on the state of architectural education: Robert L. Geddes and Bernard P. Spring, *A Study of Education for Environmental Design: The Princeton Report* (Washington, DC: American Institute of Architects, 1967), p. 4.

35. Judy Chuihua Chung, and Bernard Chang eds., *Great Leap Forward*. (Köln: Taschen, 2001); Judy Chuihua Chung, Jeffrey Inaba, Rem Koolhaas, Sze Tsung Leong, and Tae-wook Cha eds., *Harvard Design School Guide to Shopping (*Köln: Taschen, 2001).

36. For a general call for more access to student design work as a research resource, see Thomas Fisher, "Towards an Integrated, Searchable Research Resource: Increasing the Accessibility of Disciplinary Knowledge," *Arq* 14, no. 1 (2010): 17–19.

37. Rem Koolhaas, "Junkspace," *October* (Spring, 2002): 175–90, reprinted in Rem Koolhaas, *Content* (Koln: Taschen, 2004).

38. David Moos and Gail Trechsel, eds., *Samuel Mockbee and the Rural Studio* (Birmingham, AL: Birmingham Museum of Art, 2003).

39. On the DRL, see Brett Steele, "Data(E)scape: Design as Research," *Daidalos*, no. 69–70 (December 1998/January 1999): 54–59; Patrik Schumacher, "Business, Research, Architecture: Projects from the Design Research Lab," *Daidalos*, no. 69–70 (December 1998/January 1999): 34–45; and Brett Steele, "The AADRL: Design, Collaboration and Convergence," *Architectural Design* 76, no. 5 (September–October 2006): 58–63.

40. Sylvia Lavin, "Introduction," *Thought Matters*, pp. 6–7.

41. The "nightmare of semantics" is from an interview with Alejandro Zaera-Polo, *El Croquis* 53 (March 1992); for the "new sobriety," see Roberto Gargiani, "The New Sobriety vs. Post-Modernism and Contextualism," in *Rem Koolhaas∕OMA: The Construction of Merveilles* (Oxford: Routledge 2008), pp. 76–142.

42. For first hand accounts and responses to this phenomenon see William T. Cannady, "Architectural Education: The Re-emergence of the Design Thesis," *Architectural Record* (April 1986): 43, 45; and Stanley Tigerman, "Has Theory Displaced History as a Generator of Ideas for Use in the Architectural Studio, or (More Importantly), Why Do Studio Critics Continuously Displace Service Course Specialists?" *Journal of Architectural Education* 46, no. 1 (September 1992): 48–50.

43. On sitelessness and self-referentiality, see Peter Eisenman, "Aspects of Modernism: Maison Domino and the Self-Referential Sign," in *The Oppositions Reader*, ed. K. Michael Hays (New York: Princeton Architectural Press, 1998), pp. 188–98. On Contextualism, see Tom Schumacher, "Contextualism: Urban Ideals & Deformations," *Casabella* 35, no. 359–360 (December 1971): 78–86; and William Ellis, "Type and Context in Urbanism: Colin Rowe's Contextualism," *Oppositions* 18, no. 18 (Fall 1979): 2–27.

44. See Weatherhead, p. 154.

45. Peter Berger, *Theory of the Avant-Garde* (Minneapolis: University of Minnesota Press, 1996.)

46. For an overview of architectural education during this period, see Dana Cuff, ''Epilogue: Still Practicing,'' in *The Architect: Chapters in the History of the Profession*, ed. Spiro Kostof and Dana Cuff (Berkeley: University of California Press, 2000).

47. Richard Koshalek, Dana Hutt, and Thom Mayne, *L.A. Now Vol. 1* (Pasadena, CA: Art Center College of Design, 2001); Thom Mayne, *L.A. Now Vol. 2* (Pasadena, CA: Art Center College of Design, 2002).

48. Lavin, ''Introduction,'' *Thought Matters*, p. 6.

49. *Thought Matters* 2 (Los Angeles: UCLA Department of Architecture and Urban Design, 2008).

50. Lootsma, ''Reality Bytes.''

51. For a list of jurors exposed to the work, and for the documentation of the program, see *Thought Matters* and *Thought Matters* 2.

52. Ursula Emery McClure, ''The Good, The Bad, and The Ugly,'' *Journal of Architectural Education* 61, no. 1 (September 2007): 73–75.

53. In short, it calls into question the reductionist dualist logic at the heart of modern epistemology that Latour's work has sought to expose as a false one.

54. Jon Yoder, ''All That is Solid Melts into Infrastructure …,'' *Thought Matters* 2, p. 88.