Composition Matters

It is the hypothesis of this essay that as long as architectural practice and education are conceived of as either a problem solving technique or an autonomous art form, its academic and professional relevance will be limited. Rather, it must be treated as a specific form and technique for producing knowledge. Medicine, as a discipline, is not only the treatment of maladies, nor the abstract analysis of bodies and human behaviors. Rather, it is the systematic investigation into the relationship between these elements, towards the general goal of improving health and wellbeing. The same might be said of the relationship between buildings, aesthetics and social bodies in architecture.

DAVID SALOMON

Ithaca College

INTRODUCTION

Drawing on the work of Alan Colquhoun, Gilles Deleuze and Felix Guattari, and Bruno Latour, it will be argued that architecture can be reframed as a specific epistemology through the speculative yet surprisingly plausible combination of composition and research. Composition and research: the former seems so outdated, formalist and subjective; the latter so contemporary, scientific and objective. What makes them compatible and complimentary is their longstanding and shared commitment to experimentation and invention. In other words, they are methods that search for questions that don't necessarily have specific answers and for problems that do not yet exist.[1] They do not look for immediately useful solutions but instead search for insights and potentials to be found and made out of what currently exists. In architecture, composition addresses the disciplines internal operations regarding the manipulation of surfaces, shapes and spaces, while research solicits the external material, or noise, that this potentially closed system needs to make it a relevant social institution.[2] While clearly distinct, they are never separate; each having to adjust and adapt its modes and methods to account for the others logics and effects.

It is the aim of this paper to outline how these concepts – composition and research – can be re-though and reinvented to generate architectural knowledge.

RESEARCH TAKES COMMAND

In the wake of WWII, the demands on universities to produce practical information increased exponentially.[3] The emphasis on generating immediately useful

data meant moving away from individual explorations and towards the collective, scientific search for knowledge. In the context of architecture schools this meant a shift from aesthetics to performance; or, in the terms laid out for this panel, from a position of autonomy to engagement.[4]

Such a conclusion conforms to the stereotypical ideal that design is subjective and research objective; with the former understood as being unable to produce an accurate or generalizable findings. The distinction between design and research highlights the longstanding tension between the seemingly conflicting goals of design innovation and advances in the building sciences, which has haunted architectural education since it entered the American university in the 19th century.[5] However, these are not the only ways of understanding design or research.

Might this split between aesthetics and knowledge, between design and research, between problem solving and form finding, be a false and dangerous choice? Is it not another example of the increasingly intolerable and ineffective dualism (aka modernism) that separates the body from the mind; culture from nature?[6] With its longstanding belief in its ability to bridge this gap, might not architecture be well suited to provide evidence that knowledge about the properties of the Earth, and the social and cultural practices that modify them, can be achieved via aesthetic practices? If so, how might a renewed version of composition, as distinct from design, help it to do so?

MODERNIST COMPOSITION

Throughout the 19th century composition was the dominant means for finding form.[7] In contrast, Modern Architecture's emphasis on function and new materials seemed to signal the end of composition. However, while it may have disappeared, it didn't go away. As Alan Colquhoun notes, the modern understanding of composition represented a radical shift from the classical tradition without completely abandoning it. Within the older paradigm – exemplified by the Beaux-Arts method - form was understood as a representation of an independent idea. In contrast, the modern concept of composition – most fully developed in 19th century music theory – held that form was an independent way of knowing the world. In this newly conceived position,

> "*Composition came to mean a creative procedure in which the artist created 'out of nothing' and arranged his material according to laws generated within the work itself … Form was no longer thought of as a means of expressing a certain idea, but as indissoluble from, and coextensive with, the idea. Composition therefore was able to stand for an aesthetic of immanence in which art became an independent kind of knowledge of the world …"[8]*

In other words, any knowledge it contained was embodied within the work itself and could thus be produced in a seemingly infinite number of ways and forms. What remained of the older notion of composition was that aesthetic objects were still to be created out of a limited set of a priori elements, for example, the notes of the twelve tone scale, or modular construction elements.

One of the paradoxes of modern architecture, Colquhoun argues, is that while it rejected the set of traditional architectural elements (columns, arches etc.) and the rules for aggregating them (axiality, symmetry, etc.), it wholeheartedly accepted the notion of formal immanence. While every project did demand its own unique answer or form – what was immanent, and what needed to be

made manifest, was the program to be housed and the nature of materials used. Despite its denials, modern architecture was reliant on "compositional procedures precisely to the extent that the architecture avoided repetition of previous formal solutions and the meanings - embedded in them."[9]

For the modern architect, the task of design remained to combine the ever multiplying programs and materials into a complex whole. However, with no real canon or a prescribed design method, more than ever architects were asked to rely on their imaginations to make something "out of nothing." This meant that architects not only had to develop a solution to a given problem, they had to justify it, on aesthetic, social and technical grounds. Before producing a design solution, architects had to first study and understand (i.e. research) the contemporary conditions that defined the problem at hand. Le Corbusier's statistic filled tomes and Walter Gropius' essays on the sociology and technology of housing being only the most famous of these attempts.

FROM THE INSTRUMENTAL TO THE CRITICAL
Challenges to modernist methods and forms - with its emphasis on efficiency and progress, and on developing and mastering techniques relevant to an industrialized and commercialized building industry - came early and often. To counteract this will towards instrumentality architects and educators increasingly imported ideas and methods from outside the discipline –or from previously discredited portions from within it such as historical techniques and forms - into their processes. By the 1960s ideas from ecology, urbanism, gestalt psychology, philosophy, linguistics, semiotics, film, etc became grist for the architectural design mill. These became the generators for new formal and programmatic experiments. This era has been called "critical" or "neo-avant garde," as it rejected architecture's close alignment with the (capitalist) status quo, and challenged the very definition of what architecture was and did.[10] Thus, there was a shift away from solving (social, political, spatial, technical) problems and towards exposing the nature of existing ones, and suggesting speculative alternatives to them.[11]

For architects like Bernard Tschumi and Peter Eisenman, this meant devising experiments intent on revealing or inventing heretofore unseen or not yet imagined structures and worlds. "Critical" architects had to supply a theory to use, an institution to critique and a new design methodology to deploy. In this scenario one needed to research ideas and institutions, as well as iterate forms. In this climate of resistance, the 'nothing' design was asked to make something out of was as discursive as it was material. And, what was to be designed was as much an argument as it was an object.

Despite these radical changes, design was still understood as a means of integration. The problems it solved were less about a literal construction, than it was the construction of a position. In questioning modern architecture's emphasis on instrumentality, it challenged what, if anything, was immanent in architectural form. The function of form resorted back to its classical status as something that represented something external to it – e.g. the contradictions of capitalist culture.[12]

DESIGN DISCIPLINED
Despite the many challenges to modernism's instrumental ideology, the practice of "design" was becoming more and more disciplined. Pushed by advances in computer science and cybernetics, the means-ends relationship of design

processes and products in many fields became the object of optimization models.[13] The will to rationalize the means for "producing solutions for problems with more than one answer"[14] was consistent with general trends in university education and research. In the post-WWII era the role of the university – both as a producer of research and an educator of citizens - was less about finding "truth" and more about increasing "performance." This meant not just generating facts, but combining them in new ways. If the goal of education was to

> *"not only provide for the reproduction of skills, but also for their progress, then it follows that the transmission of knowledge should not be limited to the transmission of information, but should include training in all of the procedures that can increase one's ability to connect the fields jealously guarded from one another by the traditional organization of knowledge."[15]*

Teaching and research did not simply need to generate information, but also had to find ways of "arranging the data in a new way … This new arrangement is usually achieved by connecting together series of data that were previously held to be independent."[16] This integrative function is what is known as "imagination," and speed, or efficiency, is its major advantage.[17] Of course, establishing, connecting and operationalizing disparate sets of information was precisely what design, and the design thesis, had always been asked to do. What had been the end of an architectural education, had become the means for all disciplines.

While creative solutions may or may not rely on individual insights, the subjectivity of imagination did not prevent it from being integrated into larger, less personal, systems. In the age of "performance" and desire for "full information," the function of imagination was not about style, aesthetics or resistance.[18] Rather, its task was to provide the dominant mode of production with raw materials to use.[19] In other words, imagination, like design, was a form of problem solving, not problem setting.[20]

In architecture, this meant dealing with measuring building performance: both physically and psychologically.

PRODUCTIVE RESEARCH

Within a context that privileged maximizing the input-output ratio of educational resources, personal explorations seemed superfluous, if not wasteful. While such practices have by no means disappeared from architecture and architectural education, the recent emphasis on "design research," "design labs" and the "research studio" found in professional schools of architecture suggests a further capitulation to "performance" driven educational goals. That this emphasis has co-evolved with the penetration of computational devices into every aspect of the design process, fuels expectations that a more quantifiable and verifiably "better" results are possible. For some, this has the potential to liberate architecture from the nihilism and purposefully counter-productive logic of the critical project. The interest in research that can produce "operative intelligence" for the culture it exists in is not seen as "selling out," but as an opportunity to "buy into" and be more relevant to that culture. In other words, an architecture that uses research to generate disciplinary specific expertise that also is relevant to larger economic, social and political issues can only serve to make the discipline and profession more influential. If doing so requires incorporating techniques and concepts from areas which are currently dominant - information management, marketing and manufacturing – so be it.[21]

This pragmatic emphasis is the now normative role of (funded) university research. The task of academic research – and of the university in general – has increasingly been to understood as providing information and skills that can in turn be used by multiple individuals, institutions, corporations, governments, etc. In other words, it is about developing technologies, not knowledge. That research is often evaluated on a return on investment model is a testament to the degree to which the "performance" based model has come to dominate the discourse on education and knowledge production. Given this shift, the rise of research studios and labs can be understood as an attempt to preempt the discipline from being further marginalize than it already is. Research is relevance.[22]

RESEARCH REBOOTED

For some, the computer oriented research labs like the Architectural Association's Design Research Lab (DRL) focus too much on design. For others, the urban/anthropological model exemplified by Rem Kookhaas' Project on the City project at Harvard doesn't generate enough design. In both cases "design" is not defined as a pragmatic activity but is instead synonymous with form. In other words, "design" has gone from being challenged for being too instrumental, to being too personal, and now for either being too formal or not formal enough. Given this paradoxical state it seems appropriate to try and develop a concept that can augment, if not replace, the architectural processes and products that currently go by the name of "design" For example, what if its responsibilities were divided between composition and a different understanding of research?

In comparing the differences between research and science, Bruno Latour also helps to establish the affinity between research, composition and art.

> "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."[23]

While this definition is anathema to the understanding of (university) research presented above, it should be noted that none of the qualities attributed to it by Latour contradict the normative requirements for "good" research to be rigorous, its methods explicit, and its findings originality and significance. Where it does differ is in its recognition of the subjective forces present in any research enterprise – even the most empirical and objective ones.

Such a definition of research has many affinities with art, specifically avant-garde art, that is, art that questions the very status of what art "is." Both are experimental – both procedurally and conceptually - in that they use new tools, tropes, techniques and sensibilities for constructing new compositions.

COMPOSITION REVISITED

> "Composition, composition is the sole definition of art. Composition is aesthetic, and what is not composed is not a work of art."[24]

According to the philosophers Gilles Deleuze and Felix Guattari art has a very specific task: to produce sensations. Sensations are not to be confused with individual perceptions or feelings, but are a compound of percepts and affects which are independent of those who encounter them. In other words, sensation

The Expanding Periphery and the Migrating Center

is immanent (their term) in the work. They do not allude to or depend on something else –e.g. ideas, meanings, or subjective perception – for their being. Works of art are not signs, they are things.[25] Things that are composed, not designed.

Such things and sensations, they argue, are essential for producing alternative visions of the world, and for supplying additional sensibilities for generating and occupying them.[26] Composition, art, and sensation are not pleasurable distractions, nor do they reveal existential truths. Rather, they produce the "unforeseen" out of the all too real. Underlying this concept of art as a point of connection between the specificity of the present and the infinite set of possible futures is that the relationships between the known and the unknown, the self and the stranger, the generic and specific, etc., cannot be established through linear or rational means and mediums. Rather, they can only be examined and communicated through sensorial experience and aesthetic skill.[27]

In a recent essay, Latour also takes up the concept of composition. He too defines it as a means of joining the particular with the general.

> *"From universalism [composition] takes up the task of building a common world; from relativism, the certainty that this common world has to be built from utterly heterogeneous parts that will never make a whole, but at best a fragile, revisable and diverse composite material."[28]*

Latour recognizes the affinity of this heuristic mode of production with aesthetic practices; both being constructive rather than critical ones. "For compositionism, there is no world of beyond. It is all about immanence."[29] [emphasis in the original.]

Immanence. Three times this term has arisen in relation to composition. For Delezue & Guattari and for Colquhoun, it is an essential, internal quality of works of art. For Latour, it is central to generating different types of aggregations – social, technological, political etc. What is the relationship between art and these other realms? Is it that composition– with its emphasis on constructing and making connections, sensations and affects directly through the manipulation of the matter(s) at hand, and without relying on any transcendent idea, belief or subject (i.e. nationality, profit) – is an effective method for assembling disparate elements into an infinite variety of "diverse composite materials;" a set of composites that includes paintings, political parties, buildings and businesses. Such a mode of assembly is aesthetic and immanent because it requires one to manipulate, produce and communicate surprisingly plausible scenarios and sensations "out of the nothing" that is right in front of us. Rather than having to imagine and represent things that were never there, it uses what is present to envision what might yet be possible.

For architecture, what might such compositions be made from? While painters use color, poets words, music sound, and filmmakers moving images to produce sensations, what is the stuff out of which architecture, and architectural sensations, are composed? In beaux-arts composition it was the combination of traditional motifs and building materials distributed according to axial, symmetrical and proportional systems to generate familiar effects. For modernism, it was new materials and programs arranged according to Cubist, DeStijl, Constructivist techniques in order to produce new ones. In both cases the elements one designs with are given a priori. All the architect has to do is find the "best" arrangement of them. In other words, they are designing, not composing.

In order to turn architectural elements (which include not only walls, doors, floors, rooms, columns, typologies, etc. but also programs, sites, bodies; bricks, glass, steel; mechanical and information technologies; geometry, plans, sections, elevations, models, etc.) into compositions and sensations, these elements cannot be understood as givens, nor can they be conceived as materials. Instead they must be thought of as "matter."[30] In other words, they must be understood as having their own internal and immanent logics. These logics must be understood before they are manipulated; in other words, they must be researched and then composed.

COMPOSITIONAL PRACTICES

Not every project, or practice, need concern itself with every architectural "matter." There are many things and many ways to do research and compose. OMA's process for creating the Seattle Public Library focused on program, space and enclosure to generate its precepts and affects. MVRDV turns statistics into sensations via color and shape. The Rural Studio combines found and donated objects, student labor and poverty to produce intense affects. Sanaa's merges white surfaces with conventional programs to create unexpectedly powerful compositions. Herzog de Meuron continually find new materials and shapes to confound expectations and generate new sensibilities and percepts. Diller, Scafidio + Renfro combine sensing and monitoring devices with spaces and programs to create uncanny affects. Philip Rahm's runs experiments on temperatures and light waves to produce unnerving percepts.

In all of these practices one finds not only composition, but design as well. They each solve problems and integrate the competing requirements posed by the projects they take on. They are non un-professional. But this is not how the work is produced, nor can it account for the unique and significant "blocs of sensations" they produce. These new sensations are made possible by the sustained research done by these practices on programs, statistics, garbage, poverty, whiteness, culture, information technology, atmospheres, bodies, etc. – and by their skill at translating these things into wood, air, color, plans, surfaces, shapes, etc.

While composition and research typically employ iterative and recursive (i.e. empirical) processes, they are not searching for perfect or even multiple correct answers. Far from demanding proof, as reconceived here, both research and art ask "What if" questions, rather than making "If … then …" statements. They are activities one employs when the outcome, and even the reason for doing something, is fuzzy or unknown. One might have a hunch what will happen or what one wants to happen, but one only does research, or composes a work of art, when they don't know something and no source exists to tell them about it. In other words, they are techniques on informed invention. In a word, they are experiments; experiments committed to generating alternative scenarios and sensibilities to the ones that currently exist.

The research and compositional strategies that the aforementioned practices engage in are sustained, thorough, original and significant. They are also recursive; feeding back findings into their next round of experimentation. Further, their processes are stochastic, they are open to the unexpected noise that research solicits, and which is "the only source of new patterns," new messages and new sensations.[31] In traditional notions about design and composition, the only noise allowed was to come from the author. Whether in a design studio, a

ENDNOTES

1. See Donald A. Schön, "Toward a Marriage of Artistry & Applied Science in the Architectural Design Studio," Journal of Architectural Education 41 (No. 4, Summer, 1988): 4-10.

2. The definition of noise used here is from Gregory Bateson's "ecological cybernetics," see Gregory Bateson, "Cybernetic Explanation," In Steps Toward an Ecology of Mind (New York: Ballantine, 1972).

3. See Roger Geiger, To Advance Knowledge: The Growth of American Research Universities, 1900-1940 (New York: Oxford University Press, 1986); Roger Geiger, Research and Relevant Knowledge: American Research Universities Since World War II (New York: Oxford University Press, 1993).

4. See Avigail Sachs, "The Postwar Legacy of Architectural Research," Journal of Architectural Education 62 (No. 3, Feb. 2009): 53-64; and Sean Keller, "Fenland Tech: Architectural Science in Postwar Cambridge," Grey Room 23 (Spring, 2006): 40-65. For an overview of the field, see Architectural Research, J. Snyder ed. (New York: Van Nostrand, 1984).

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

6. See Bruno Latour, We Have Never Been Modern (Cambridge, MA: Harvard University Press, 1993), for an explication of the problems associated with this dualism.

7. David Van Zanten , "Architectural Composition at the Ecole des Beaux-Arts from Charles Percier to Charles Garnier," The Architecture of the Ecole des Beaux Arts, Arthur Drexler,ed. (New York: Museum of Modern Art with MIT Press, 1977), 111-290.

8. Alan Colquhoun, "Composition versus the Project," Modernity and the Classical Tradition (Cambridge, MA: MIT Press, 1989), 33-34.

research studio, or in a professional practice, this type of information cannot be underrated or eradicated (or optimized). It can, however, be integrated to produce something new.

CONCLUSION

The history of architectural practice and education can be understood in terms of how much and what kinds of noise are let into the process. The beaux-arts era thesis excluded almost all external information (industrial, stylistic, conceptual). The modernist model opened itself up to contemporary ideas, materials, functions and modes of distribution. The neo-avant-garde was even more liberal in its solicitation of intellectual and cultural sources. Today's solicitation of computational and/or socio-political issues into the research studio suggests a more "realist," if not pragmatic, turn. Despite significant differences between them, in every case design has been the technique for integrating the external material with the internal machinations of the discipline.

On the one hand, the argument for substituting composition and research for design continues the trend of opening the field to external influences. What separates this strategy from these previous positions is that it explicitly suppresses (but does not reject) the function of design as a problem solving technique. Instead, it maintains that architecture is better served when they attempt to identify and invent new sensations and scenarios via the aesthetic manipulation of existing matter. Doing so does not mean retreating into utopianism, nihilism or pragmatism. As long as architectural compositions are fed with "risky" and "uncertain" research from a variety of sources it can be original and grounded, significant and speculative, thorough and experimental.

The history of architectural practice and education can be understood in terms of how much and what kind of noise are let into the process. The beaux-arts era thesis excluded almost all external information (industrial, stylistic, conceptual). The modernist model opened itself up to contemporary ideas, materials, functions and modes of distribution. The neo-avant-garde was even more liberal in its solicitation of intellectual and cultural sources. Today's solicitation of computational and/or socio-political issues into the research studio suggests a more "realist," if not pragmatic, turn. Despite significant differences between them, in every case design has been the technique for integrating the external material with the internal machinations of the discipline.

On the one hand, the argument for substituting composition and research for design continues the trend of opening the field to external influences. What separates this strategy from these previous positions is that it explicitly suppresses (but does not reject) the function of design as a problem solving technique. Instead, it maintains that architecture is better served when they attempt to identify and invent new sensations and scenarios via the aesthetic manipulation of existing matter. Doing so does not mean retreating into utopianism, nihilism or pragmatism. As long as architectural compositions are fed with "risky" and "uncertain" research from a variety of sources it can be original and grounded, significant and speculative, thorough and experimental.

9. Ibid, 34.

10. On the difference between "modernist" art, which is defined by media specificity, and avant-garde art, which challenged the definition of art, see Peter Burger, Theory of the Avant-Garde (Minneapolis: University of Minnesota Press, 1984.)

11. For a review of the different Neo-Avant-Garde positions see R.E. Somol, In form falls fiction: Misreading the avantgarde in contemporary architecture, Ph.D Dissertation, The University of Chicago, 1997.

12. For an overview of architectural education during this period, see Dana Cuff, Architecture: The Story of Practice (Cambridge, MA: MIT Press, 1991); and Dana Cuff, "Epilogue: Still Practicing," in The Architect : Chapters in the History of the Profession, Spiro Kostof and Dana Cuff ed. (Berkeley : University of California Press, 2000). For an historical account of the profession, see Mary Woods, From Craft to Profession: The Practice of Architecture in Nineteenth-Century America (Berkeley: University of California Press, 1999). For a more polemical view on the relationship between architectural education and practice, see Garry Stevens, Favored Circle: The Social Foundations of Architectural Distinction (Cambridge, MA: MIT Press, 1998). On the myths and dangers of professionalism in general, see Bruce Robbins, Secular Vocations: Intellectuals, Professionalism, Culture (New York: Verso, 1993).

13. 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, Arne Collen, Wojciech Gasparski (New Brunswick, NJ: Transaction Publishers, 1995).

14. Simon, "The Science of Design: Creating the Artificial," op cit.

15. Jean-Francois Lyotard, The Post-Modern Condition: A Report on Knowledge (Minneapolis: University of Minnesota Press), 51.

16. Ibid., 51-52.

17. Ibid., 52.

18. For a compelling argument for creativity as a form of resistance, see Verna Andermatt Conley, "Artists or 'Little Soldiers?' Felix Guattari's Ecological Paradigms," in Deleuze|Guattari & Ecology, Bernd Herzogenrath ed. (Basingstoke, UK: Palgrave Macmillan, 2009), 119.

19. Stanly Fish's "Race to the Top of What? Obama On Education," New York Times, January 31, 2011, accessed on line on 2/16/11, http://opinionator.blogs.nytimes.com/2011/01/31/race-to-the-top-of-what-obama-on-education/?scp=2&sq=stanley%20fish&st=cse, is typical of a number of recent laments regarding the seemingly dim future of the humanities, given the emphasis on instrumentality within the university.

20. Architectural education's complex, if not tortured relationship to the research culture of the university can be seen in the diverse ways in which it has been conceptualized by the field. For a succinct overview see, Michael L. Joroff and Stanley J. Morse, "A Proposed Framework for the Emerging Field of Architectural Research," in Architectural Research, J. Snyder ed. (New York: Van Nostrand, 1984), 15-28. See also Nancy Groat and David Wang, Architectural Research Methods, (New York: J. Wiley, 2002). There have been five themed issues in the Journal of Architectural Education dedicated to "Architectural Research," including the very first one in 1947. Journal of Architectural Education 1, (Spring, 1947); Journal of Architectural Education 32 (No. 4, May, 1979); Journal of Architectural Education 44, (No. 1, Nov., 1990); Journal of Architectural Education 54 (n. 4, May2001); Journal of Architectural Education, Sep2007, Vol. 61 Issue 1.

21. Michael Speaks as been the most outspoken regarding the need for architecture to focus more on innovations than theory; see Michael Speaks, "Theory Was Interesting … But Now We Have Work," Architectural Research Quarterly 8 (No. 3 2002): 209-212; Speaks, Michael, "Design Intelligence, Part I: Introduction," Architecture and Urbanism 387 (December 2002): 10-18.For a plea for architects to become more like information managers and less like designers, see Kieran, Stephen and James Timberlake (2003) Refabricating Architecture. New York: McGraw Hill, 2003. On the dangers of this, and other optimistic accounts of the effect of information technologies and computation on architecture, see D. Willis & T. Woodward, "Diminishing Difficulty: Mass Customization and the Digital Production of Architecture, Harvard Design Magazine 23 (2005-2006): 70-83.

22. See Joroff and Morse, for the implications and difficulties of defining architectural research.

23. Bruno Latour, From the World of Science to the World of Research" Science 280 n. 5361, April 1998): 208-209.

24. Ibid, 191.

25. Gilles Deleuze and Felix Guattari, "Precept, Affect and Concept," in What is Philosophy? (New York: Columbia University Press, 1994).

26. Felix Guattari, Felix Guattari, "The Object of Ecosophy," Chaosmosis (Bloomington, IN: University of Indiana Press, 1995).

27. See Gregory Bateson, "Style, Grace, and Information in Primitive Art," in Steps Toward an Ecology of Mind (New York: Ballantine, 1972), 128-152, for the relationship between skill and the function of art as a "corrective" to cognitive purposefulness.

28. Bruno Latour, "An Attempt at a 'Compositionist Manifesto," New Literary History 41 (2010): 474.

29. Ibid, 474.

30. See Reiser & Umemoto, "Matter," in Atlas of Novel Tectonics (New York: Princeton Architectural Press, 2006).

31. Gregory Bateson, "Cybernetic Explanation," 410.

The history of architectural practice and education can be understood in terms of how much and what kinds of noise are let into the process. The beaux-arts era thesis excluded almost all external information (industrial, stylistic, conceptual). The modernist model opened itself up to contemporary ideas, materials, functions and modes of distribution. The neo-avant-garde was even more liberal in its solicitation of intellectual and cultural sources. Today's solicitation of computational and/or socio-political issues into the research studio suggests a more "realist," if not pragmatic, turn. Despite significant differences between them, in every case design has been the technique for integrating the external material with the internal machinations of the discipline.

On the one hand, the argument for substituting composition and research for design continues the trend of opening the field to external influences. What separates this strategy from these previous positions is that it explicitly suppresses (but does not reject) the function of design as a problem solving technique. Instead, it maintains that architecture is better served when they attempt to identify and invent new sensations and scenarios via the aesthetic manipulation of existing matter. Doing so does not mean retreating into utopianism, nihilism or pragmatism. As long as architectural compositions are fed with "risky" and "uncertain" research from a variety of sources it can be original and grounded, significant and speculative, thorough and experimental.