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The Way We Think about the Way We Think

Architecture is a Paradigm for Reconsidering Research

Today's scholar is evaluated primarily through the metric of research narrowly defined under a scientific rubric. This idea of research has become naturalized, and its ubiquity cuts across most disciplines. Research as such has become overvalued as the only arbiter of success and has led to increasingly difficult hurdles for the architecture professoriate in tenure and promotion. Instead of trying to argue that architecture is a valid exception to the rule of research, the discipline should seek to become a leader in changing and broadening how research is understood in academe.

The Scholar at Work

In the cinema, the scholar at work is most often portrayed alone in the bowels of a library or archives, surrounded by a multitude of dusty tomes, disheveled, and unaware of the time of day, other people, and the outside world. Her/his work is solitary both in terms of process and product. This archetype reinforces assumptions made within the academy. Despite the emphasis on the oft-repeated trinity upon hire, today's scholar is evaluated not on teaching or service but primarily through the metric of research—typically defined as a systematic inquiry leading to verifiable (and highly vetted) conclusions. This idea of research is ubiquitous in colleges and universities within virtually all disciplines. The academy has forgotten that this has not always been the case.

Ernest Boyer describes the current state of academia as the third phase in a varied trajectory.[1] The first stage has also been captured on the silver screen, mostly in the venue of all-boys prep schools (often set in the 1950s or 1960s) with the professor as heroic mentor who holistically enriches his students' lives; here, teaching is the primary mission of the professor as protagonist.[2] Based on a British paradigm, this first stage in the mission of the professoriate—associated with the colonial college—focused primarily on building character, with education understood less under the rubric of science and more under morality. Boyer associates

the second chapter in the development of academia with the establishment of the land grant institutions.[3] Land grant universities, with their concentration on promoting technological innovation in agriculture, shifted the emphasis to service, applied knowledge, and promoted the ''idea of education as a democratic function to serve the common good.''[4] In this case, service was understood broadly as not only the serving of society but also the reshaping of it. Today's professoriate has inherited the final phase from the influence of German universities and their pursuit of research—introduced in the United States at the turn of the twentieth century and firmly taking hold after World War II.[5] Here, the primary mission of the academy is research, with research being circumscribed within a scientific paradigm which values gathering observable, empirical, measurable evidence, subject to principles of quantification and objective rationality with the intent of reducing biased interpretation.

Research is Artifice

The *Oxford English Dictionary*'s (*OED*) definition of research, while incorporating some notions of creative work, ultimately demarcates its description within a scientific rubric. This is not surprising since the *OED* is a culturally situated document arising out of a rapidly industrializing mid- to late-nineteenth-century Great Britain.[6] As a research project

in and of itself, the *OED* sought to regularize and systemize the use of language: ''The aim of this Dictionary is to present in alphabetical series the words that have formed the English vocabulary from the time of the earliest records down to the present day, with all the relevant facts concerning their form, sense-history, pronunciation, and etymology.''[7] Situated between Charles Darwin's development of a taxonometric approach to biology (in establishing his theory of natural selection) and Henry Ford's implementation of standardized mass production, the *OED*—whose initial development and publication ran between 1857 and 1928—was clearly a significant player in the rise of scientific modernism.

The constrictions of research within a scientific paradigm follow alongside a discussion of the convergence of a set of words: modern, modernity, modernism, and modernization.[8] The ambivalence of modernity to a concrete definition is evident in its earliest substantive formulation that is given by the poet Charles Baudelaire.[9] In his seminal articulation, Baudelaire describes modernity as embodying the ''ephemeral,'' the ''fugitive,'' the ''contingent'' as well as the ''eternal'' and the ''immutable.'' Baudelaire reaffirms the Latin root of the word, *modo* or ''just now.'' The implication of Baudelaire's definition is not that modernity is a specific time period but that every period is modern. Time and ''history'' are made up of a

succession of just nows, and the periodization of history as a Hegelian progression is fallacious. There is no Antiquity, Medieval, Renaissance, or Romantic period, only a succession of modernities. However, as influential and recurrent as Baudelaire's seminal definition is for scholars throughout the twentieth century, none seem to concur with his notion of time, history, and periodization as a succession of just nows. In fact, as often as his definition is reiterated as a benchmark, modernity in the twentieth century has been defined more narrowly than the open ambiguities of Baudelaire.

Whereas Baudelaire provides an open-ended conception of the examination of the modern, subsequent authors narrow their field of inquiry and place the different forms of the word(s) into discreet disciplinary realms with disparate origins that include the scientific revolution of the seventeenth century, the Industrial Revolution of the eighteenth century, the French Revolution of the nineteenth, and/or in turn of the twentieth-century literary Hispanic America. Instead of being interchangeable, modernity comes to stand for a way of life (be it the aesthetics of Friedrich Nietzsche or the politics of Antonio Gramsci). Modernism reified into a Style of Art and Architecture, and modernization as a scientific, technological, and/or economic condition.[10] Even this compartmentalization is not so neatly drawn; for example, some use the same word with a modifier for indicating different realms (e.g., the differentiation between aesthetic modernity and economic modernity in historian David Harvey's work). The point here is that a holistic notion of modernity (even if this notion is plural and heterogeneous) fragments into multiple modernities. Historian Marshall Berman notes part of this dialectic is the nineteenth-century confrontation of the past by the present in the context of a landscape of factories, railroads, cities, corporations, etc. For example, Karl Marx heralds the bourgeois for making a heroic break with the feudal past and bringing society into modernity and then attacks them as an impediment to the ultimate

pinnacle of modernity, i.e., communism. While Berman believes that nineteenth-century thinkers were simultaneously protagonists and antagonists of modern life wresting with the ambiguities as expressed by Baudelaire, he asserts that in the twentieth century modernity became uncritical and polarized, embracing a totalizing concept that was not fraught with contradiction.

The form of modernity that has most strongly prescribed the formulation and practice of research in American universities is scientific modernism. Used to describe the industrial and economic forces at work in the nineteenth- and early-twentieth-century United States, characteristics of scientific modernism include positivism, the rational, a belief in linear progress, absolute truths, ideal social orders, standardization, and the idealization of technology. While scientific modernism is an idea nascent during the Enlightenment (a period in history marked by certain intellectual attitudes), it continues today under the guise of the Enlightenment Project. The Enlightenment Project is a set of ideas advanced by the discourse of modernity in the eighteenth, nineteenth, and twentieth centuries which seeks to promote the values of the Enlightenment—equality, liberty, faith in human knowledge, universal reason, freedom, and democracy—in order to establish a universal culture which is secular, rational, humanitarian, and progressive.[11] The Enlightenment Project follows along the axiom that for any given inquiry there is only one possible right answer.[12] From this, it follows that a controlled and rational picture of the world can be represented.

The Enlightenment Project has not gone without its detractors in intellectual circles. Three of the initial primary rejecters of the Project included philosophers Theodor Adorno, Max Horkheimer, and Jean-Francois Lyotard. Adorno and Horkheimer, in their effort to dethrone the Project, accuse the Enlightenment as myth wearing the mask of science, that this promise of emancipation, in fact, will deliver universal oppression.[13] The

delineation of history they provide is of humanity's *cyclical* movement from myth to religion to science to myth (in opposition to the linear historical progression of the Project). Ironically, they reject the Enlightenment Project on the same platform: in the name of human liberation. They, along with Lyotard, accuse the Enlightenment Project of setting up meta-narratives in which reason and rationality oppress and homogenize instead of liberate.[14]

It is an overstatement to claim that the American academy has oppressed the professoriate, but the circumscription of research continues to embrace the precepts of the Enlightenment Project to the detriment of both individual scholars and scholarship as whole. When historian Raymond Williams critiques the *OED* as a sociocultural invention and reminds us that words are not just defined by their philological and etymological past but also by their cultural history, he makes transparent the notion that research is a construct. The limitation of unquestioningly relying upon a source like the *OED* is that the user is limited to meaning based only on the origin of words that, while providing range and variation, sacrifices connection and interaction; it does not render the context legible.[15] Research practices, likewise, are culturally conditioned. In the university system of the twentieth and twenty-first centuries, it is the cultural memory of the Enlightenment Project that still holds fast in describing what the work of the scholar should be.

John O'Toole makes a similar argument noting that the academy validates its mandate based on scholarship derived from the intellectual constructs of Logos ("the passing on of the laws through the word of the masters") and Logic ("the process of systematically establishing and validating fixed objective truths about natural laws").[16] He argues that the fixation on Logos and Logic pushes the arts outside of the academy, necessitating the plea to be (re)considered as equals to their academic peers. This entreaty by the arts disciplines to be regarded as an exception to the (scientific) rule of research

should not be necessary. Because research is artifice, it can be reconstructed. The argument is not to abandon scientific methods of research but to make them one of many ways of pursuing knowledge so that scholarship does not sacrifice connection and interaction at the altar of rationality.

The Generalist is a Specialist

The modernization of the United States through the implementation of scientific principles was not limited to technological advancement; it included the professionalization of working and thinking. All aspects of the American worker were increasingly encouraged toward specialization as the means to the end: The Myth of Progress.[17] The valorization of the specialist became and is especially prized in academia. The inculcation begins in graduate school, is reinforced during job searches, and is rewarded with tenure. Professors are encouraged to be as narrow and deep as possible. While this work is vital in the production of knowledge, it leaves gaping holes in such production and/or what we mean by knowledge. Knowledge should not be confined to a narrow dictionary or scientific definition that delimits the province of knowing to "the facts, information and skills acquired by a person" or to "what is known in a particular field."[18] Knowledge should remain under the auspices of philosophy. In his dialogues, Aristotle defined three types of knowledge: the theoretical, the poetical, and the practical.[19] For him, these modes of knowledge were all necessary constituents to *praxis* related to human activities that were the means to the ends of truth, production in action. In other words, the concept of knowledge was writ larger than a reliance upon verifiable facts. As Ivan Illich asserts, "[. . .] the nature of knowledge, whether scientific or ontological, consists in reconciling *meaning* and *being*."[20] This less narrow view of "knowledge," therefore, includes the open-ended, the unprovable, the speculative,

not limited to scientific knowledge also discussed by Aristotle:

> We suppose ourselves to possess unqualified scientific knowledge of a thing, as opposed to knowing it in the accidental way in which the sophist knows, when we think that we know the cause on which the fact depends, as the cause of that fact and of no other, and further that the fact could not be other than it is.[21]

Scientific knowledge and methods, while transformed from Aristotle's delineation by the Enlightenment and again by modernization, continue to dominate contemporary academic discourse. The incorporation of technology beyond a narrow use as a tool for specific tasks and/or the content of discreet inquiries had expanded in the United States to serve as a societal frame for almost all human activity.[22] In spite of the technologically determined shape of research expectations, anthropologist Clifford Geertz notes that tight disciplinary circumscriptions have begun to loosen over the past century:

> Something is happening to the way we think about the way we think. . . . [P]hilosophical inquiries looking like literary criticism (think of Stanley Cavell on Beckett or Thoreau, Sartre on Flaubert [. . .] baroque fantasies presented as deadpan empirical observations (Borges, Barthelme), [. . .] documentaries that read like true confessions (Mailer), parables posing as ethnographies (Castaneda), theoretical treatises set out as travelogues (Levi-Strauss), ideological arguments cast as historiographical inquiries (Edward Said) [. . .][23]

The unnecessary nature of this disciplinary boundary crossing is precisely why it should be necessary, and not deemed subsidiary, within the academy (Figures 1 and 2). Knowledge production depends on the transdisciplinary, on identifying

larger patterns, and on hermeneutics as much as it does on facts, hypotheses and reproducible results.[24] This means moving speculative and inventive inquiry from the margins to the center of what is deemed significant work.

All disciplinary inquiry can benefit from exploration into the meaning and import of phenomena observed as well as things imagined. Martin Heidegger endorsed this broadening of hermeneutics from discreet interpretation to existential understanding, so that *being* in the world is just as important as knowing about the world. Advocates of this unrestrained approach claim that not everything can be studied or understood via scientific methods and that hermeneutics does not have to come after knowledge but can produce knowledge.[25]

Thus, in an architectural schema, it is not just the product that is of consequence. The process itself, the search, the inquiry, can be as substantial, if not more so, than the rendering of conclusions. What is revelatory about Walter Hood's work in the mini parks in Oakland, California, is not necessarily a final design scheme but the methodology employed in his search for the revitalization of these public spaces.[26] Hood's *Urban Diaries* are illuminating as an inquiry into how to acquire knowledge about the relationship between people and space before one (re)makes it into another place. His diaries record textually and visually how both individuals and groups (particularly those at the margins of society and thus rendered invisible in places) enact space. His ethnographic approach advocates that lived space should not be the outcome of design but should, in fact, inform design decisions.

Hood's work is not an isolated example. The design work produced by the firm RBGC, Architecture, Research and Urbanism under the leadership of Maurice Cox in Bayview, Virginia, is another such model of architectural speculation as research. What is significant about this example is that it asserts that important research can be initiated
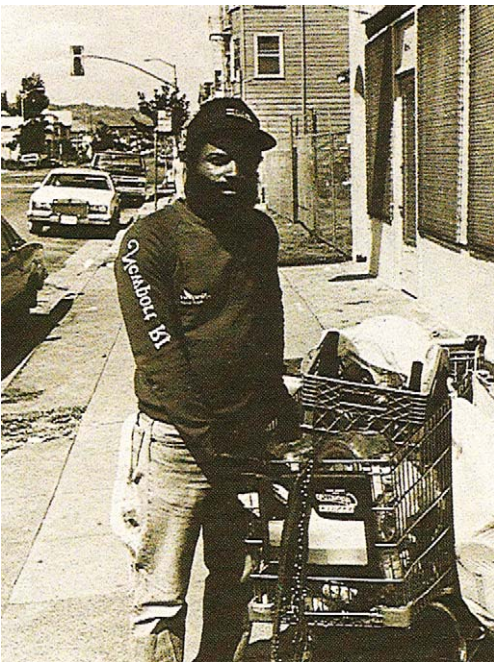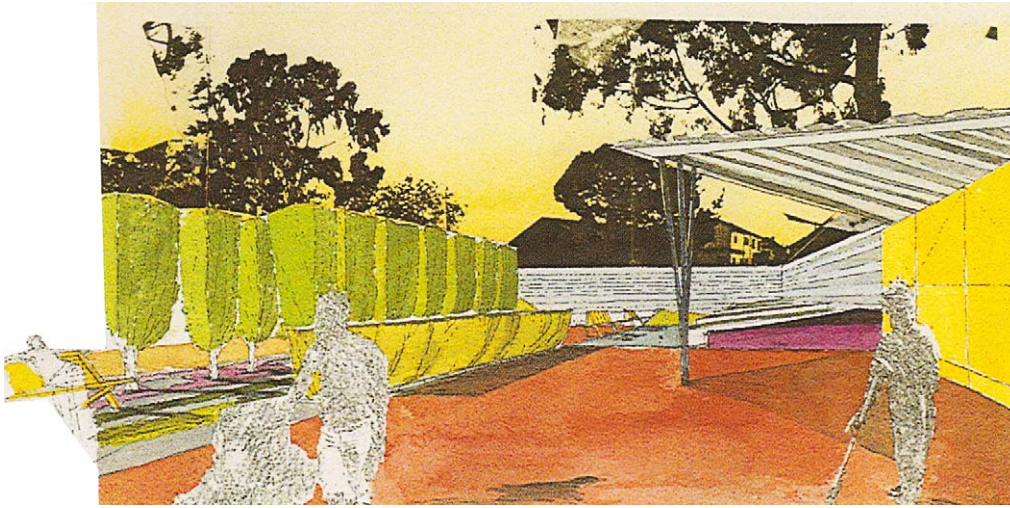
1. Walter Hood speculates about a mini park in Oakland, California, in his *Urban Diaries*. (Image courtesy of Walter Hood.)

2. Both images are from his study of the homeless and their recycling activities. (Image courtesy of Walter Hood.)

outside of the academy by laypeople.[27] The research in Bayview began not with an architect but with a grassroots community organization, Bayview Citizens for Social Justice (BCSJ). After successfully defeating the state's prison plans during a three-year battle, the newly formed BCSJ partnered with the Nature Conservancy (the Conservancy runs a 45,000-acre preserve along the peninsula's shore) and applied for an $20,000 grant from the Environmental Protection Agency to create a plan for eradicating the near Third World living conditions in Bayview. The BCSJ saw their collaboration with the influential land conservation organization as a statement of political defiance—that the improving of the quality of life was really an issue of environmental urgency (Figure 3). The grant allowed the BCSJ to bring in an interdisciplinary coalition of experts, led by Maurice Cox and his firm. For over a year, the ''experts'' met with Bayview residents in both formal design workshops and informal community events such as picnics, concerts, and fish fries. At Bayview, an integration of storytelling, oral history, design workshops, community events, and other low-tech approaches helped the residents collaborate on their environmental and housing problems, not only with each other but also with the professional team. In other

words, the research process was not linear and from the top down but cyclical and engaged both sides (residents and professionals) for their expertise as they worked together to provide more than just a band-aid on the housing and water dilemmas but collectively produced a long-term plan to holistically rebuild the village.

The physical and socioeconomic resurrection of Bayview (via an equal partnership which illuminated the particulars of life into what anthropologist Ruth Benedict called the ''patterns of culture'') demonstrates that the conscious development of methodology is fundamental to architectural research. [28] Research in architecture is (or should be) synonymous with praxis, and architectural praxis in its highest forms does not bifurcate the thinking about architecture with the making of architecture.[29] When Aristotle invoked praxis as one of the three categories descriptive of human activity (*theoria*, *poiesis*, and *praxis*), he correlated these activities to his aforementioned types of knowledge: theoretical, poetical and practical. Aristotle's definitions imply that it is human action that produces knowledge. In other words, methods are not a mere means to the end of the research product, methods are a research in itself. How to go about making the world is just as critical a discussion as talking about how the world was made. Architecture, then, is not necessarily about proving a hypothesis; it is more of an if-then proposition. It is about the discovery of the various results given the same parameters (of site, program, and even material). The investigation does not lead to something revealed; the investigation is the revelation.

As Hood's and Cox's work demonstrates, the generalist is a needed complement to the specialist. The generalist is able to move between disciplines with a facility that allows for knowledges to overlap and produce unexpected discoveries. By virtue of her/his training in architecture, the designer must be a generalist moving between the art and the science of building and among the social, cultural,
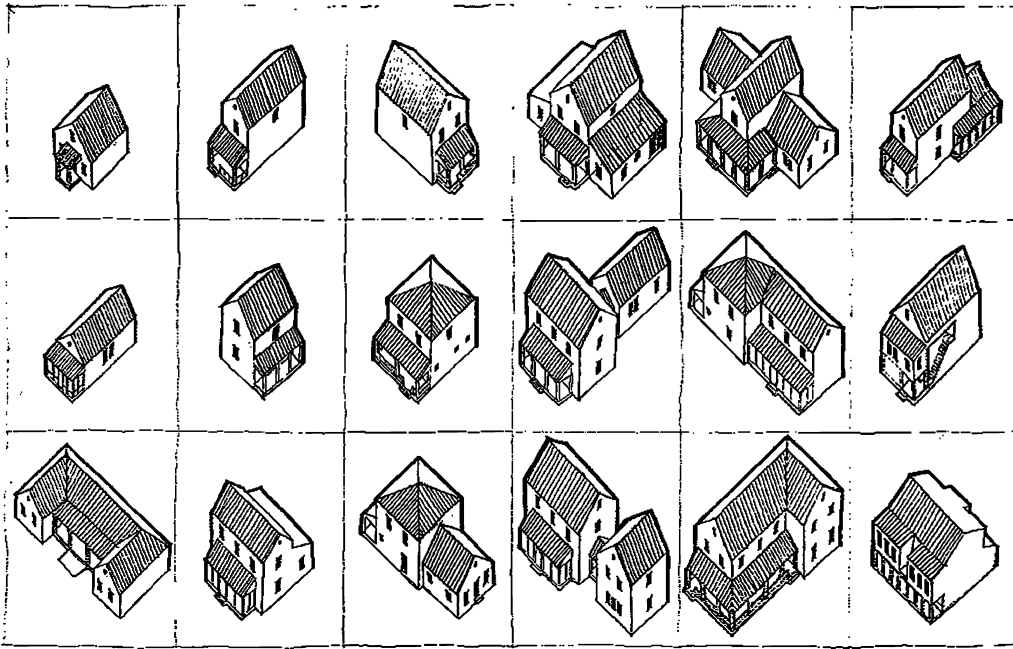
3. Housing studies by RBGC for Bayview reflect a variety of family compositions in an Eastern Shore vernacular. (Images courtesy of Maurice Cox.)

political, and economic milieu that surrounds this discipline. Thus, architecture serves as a successful model for the accomplishments of the generalist who is able to take those valuable, yet often isolated, threads of knowledge and weave them together in a manner that invokes expansive questions, evaluations, and meanings. For true advancement in scholarship, the academy must support both the work of the specialist and the generalist symbiotically.[30]

Process is a Product
In basing its definition on the scientific method, the *OED* reminds us that research is defined not only as the search for knowledge but also as a repeated search.[31] It is the searching part of scholarship that

could also benefit from a design methodology. At their best, design methods are not linear but circle back upon issues, principles, and information multiple times, often utilizing different methods during the (re)search. For example, Bryan Bell's direction of Design Corps could be considered research that begins with a moral proposition: that the underserved should benefit from good design.[32] From that proposition, Design Corps then engages a myriad of social, aesthetic, and scientific disciplines (often simultaneously) as they make cultural inquiries and surveys, conferences, texts, and designs and construct buildings.[33] The processes of Design Corps are varied both across their research as a whole and within specific projects. In their work, knowledge is produced from a moral stance about dwelling rather than an interpretation being applied after the acquisition of facts (or in the case of architecture the construction of the building).

In a different manner than Design Corps, Carlo Scarpa's design processes in general, and his work at the Museo di Castelvecchio in particular, is also an exemplar of dynamic design methodology (Figure 4). In order to adapt the existing, historic fortress and museum in Verona, Scarpa's drawings included the inscriptions of the contemporary intervention on top of the existing building design.[34] The drawings mapped and conflated these multiple temporal realities of the building not only in attempt to provide a blueprint for the construction of the new within the old but more significantly as a mode of unfolding a coexisting relationship between the past, present, and future. In doing so, Scarpa was exploring a nonlinear notion of time as it affected the making of *architecture*. In fact, Scarpa's research project was mirrored in his nonlinear methodology. His work in Verona began in 1958 and continued on and off until 1975 as he investigated the design of the site long after the ''initial'' drawings were completed. His design methods did not move neatly from concept drawing to construction drawing to construction site to finished product. At every point in the development of Castelvecchio, he was repeatedly imagining, designing, drawing, and making architecture in a complex system. In other words, the process was as much the architecture, the research, as the completed site. Scarpa's architectural speculation converged process and product instead of splitting them into research methods and presentation of research.

Scarpa provides the archetypal model for the kind of designer who recognizes the expansiveness of design as inquiry: a person who engages in something more than constructing buildings, committing to the research project of architectural speculation.[35] Thus, the generator for architectural design might come from an abstract concept, symbol, or from the physical act of making (whether the making is of a drawing, a model, a material, or a tectonic connection), but the common dominator in architecture is that it begins

by building ideas. In building ideas, however, the starting point is never the same and the middle and end, therefore, are an elastic response to this variability with the designer not needing to literally repeat her/his process like a scientist needs to replicate an experiment.
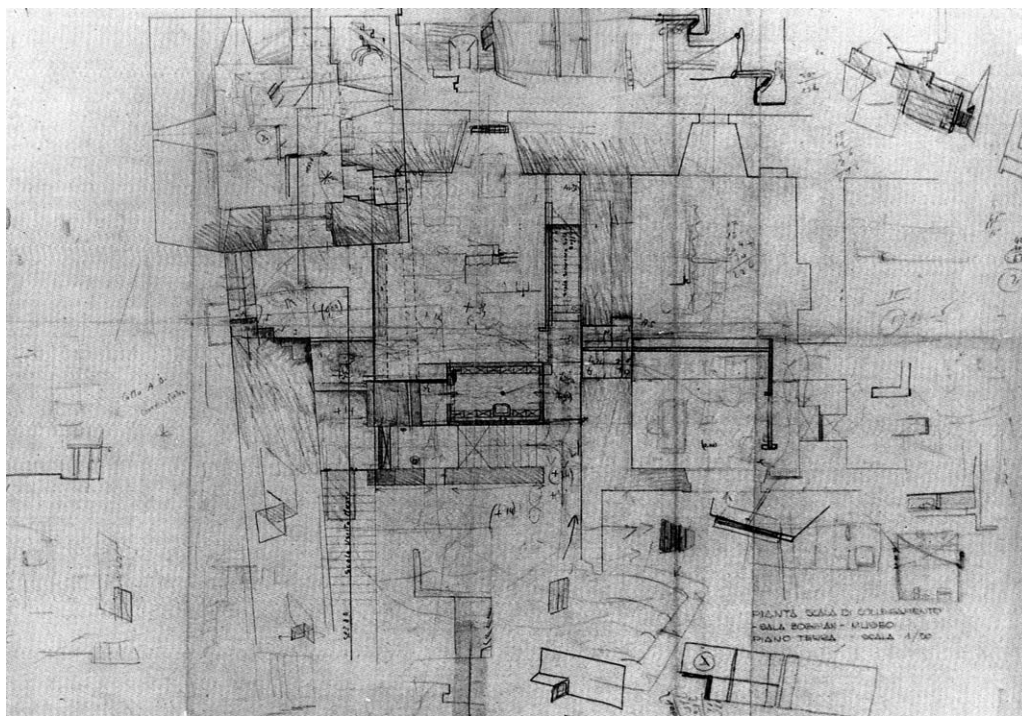
Studio Teaching Can be Research

The intellectual work of an academic should not be to publish and then teach what has been published. Theory should lead to practice as practice to theory; teaching should lead to theory, as theory can lead to teaching. Hence, early-twentieth-century discussions of the skyscraper in America were prompted by a variety of catalysts from the aforementioned International Style exhibition, to the Chicago Tribune Tower competition, to Hugh Ferriss' rendering explorations of, then, newly implemented zoning and building regulations, to the paper explorations of Mies van der Rohe and Frank Lloyd Wright, to the built work of Daniel Burnham, William Holabird, and John Wellborn Root, and Louis Sullivan and Dankmar Adler, et al in the remaking of a postfire Chicago (Figures 5 and 6). These same catalysts could also be viewed as prompts for debates on how to make urban Ameri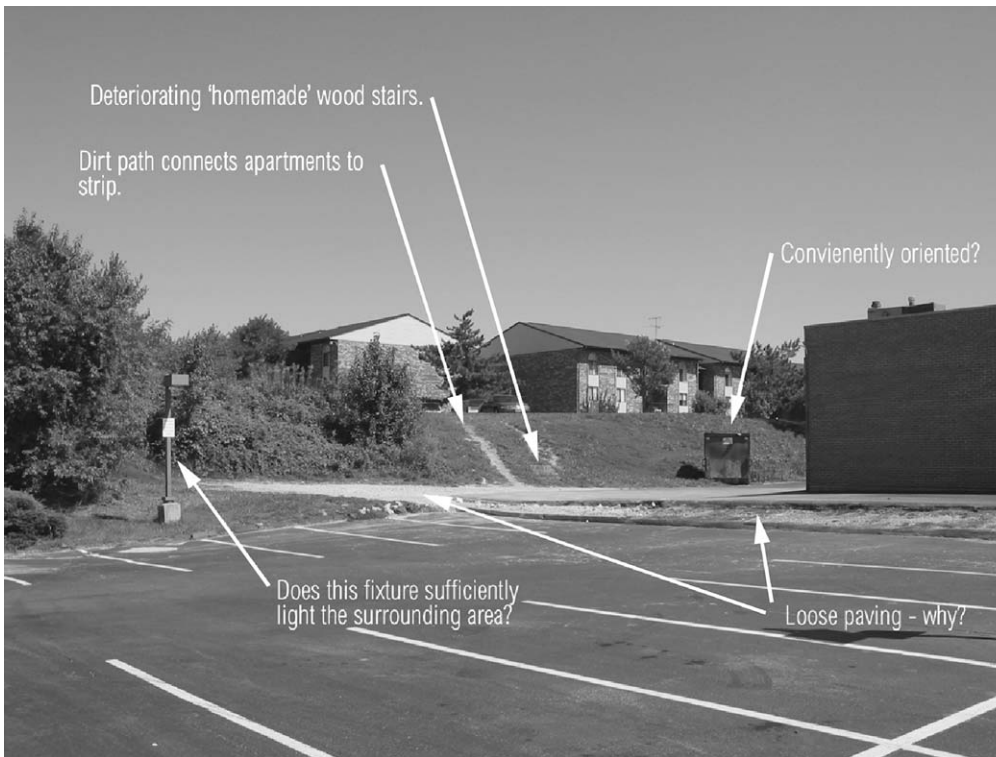ca in a rapidly modernizing society or, instead, to facilitate knowledge in the technical advancement of the use steel and glass construction (a.k.a. the curtain wall). The capaciousness of architecture illustrates that practice, theory, and teaching should not be held in a hierarchal relationship but as equal elements that at any moment can serve as the generator for the others.

The studio system in architecture offers an almost unique pedagogical approach among its academic brethren. As a physical space, studio engages students in a public learning process. Because work is presented and discussed collectively—in view for anyone and everyone who happens to walk by—knowledge is made public. This is counter to most other university experiences: where students produce work individually and privately; it is then evaluated by the professor individually and privately and finally returned to the student whose reflection upon the evaluation is also independent and solitary. By contrast, studio work is exposed at all phases of development to critique by the professor and by classmates, other faculty, community members, and professionals. The final work is similarly discussed and evaluated. The public nature of these investigations allows knowledge to be disseminated, challenged, and developed in a collective and comprehensive way. Studio, then, is an opportunity for architectural faculty to engage in public and collective research—an opportunity that unfortunately some neglect when they use the pedagogies of other disciplines and focus on pure mimicry, rote learning, and/or building projects instead of architectural principles.

Robert Venturi, Denise Scott Brown, and Steven Izenour typified an exemplary studio research experience when they took a group of Yale students out West to study Las Vegas.[36] As a result of that classroom experience (which did not just work on problems but focused on speculations and principles), a seminal tract in architectural discourse was produced (Figure 7). The collective work (of faculty and students) notably added to

4. Carlo Scarpa's drawings for Museo di Castelvecchio reflect a layered process conflating the existing building and the intervention. (Courtesy of the Museo di Castelvecchio.)

Deteriorating 'homemade' wood stairs.

Dirt path connects apartments to strip.

Conveniently oriented?

Does this fixture sufficiently light the surrounding area?

Loose paving - why?

trade journals with larger audiences (like *Dwell, Metropolis,* and *Architectural Record*) but also include less formally vetted but nevertheless important outlets such as web sites, blogs, public meetings, speeches, exhibitions, letters to the editor, newspaper articles, and community interactions. Studio is research that makes multiple contributions—to the academy, to education, and to the serving and reshaping of society—and, therefore, it requires an array of forums for development and distribution. Publication should focus on the root work of making the work public and not on having its legitimacy rely upon being vetted through obscure and hard to find refereed journals (that often sit neglected in the bowels of the university library).[37] While this type of publication is irreplaceable, it should not be exclusive. If alternative research processes and products are valued in promotion and tenure, they will be engaged in by the professoriate in increasing numbers and as primary research (not as ancillary volunteerism, morally applauded but professionally overlooked).

As more studios engage in real investigations in real communities, they are both producing local social capital as well as global intellectual capital. One needs to look no further than the rural studio started by the late Sam Mockbee at Auburn University for an architectural model of holistic research involving students, faculty, and community members occupied in a plethora of speculations including dwelling, sustainability, cultural landscapes, and technique. The rural studio exemplifies (architectural) research at its finest—that (architectural) research is action, that it can affect change both within the academy and within society, that it operates at many scales, and that its significance is both in terms of its process and product (Figure 8). Those within the professoriate should be encouraged to engage in such models of research whether under the aegis of the university or through partnerships with outside organizations.
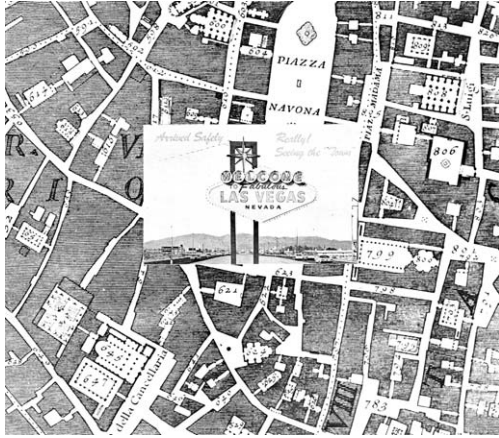
architecture's body of knowledge. The significance of the research project, however, was not just in the publication of *Learning from Las Vegas*. It was in utilizing studio as a forum for research. The dissemination of this architectural research should not only include books, refereed journals like *JAE,* or

7. Robert Venturi, Denise Scott Brown, Steven Izenour, and their studio mapped Las Vegas using the Nolli technique as one of their many studies for *Learning from Las Vegas*. (Courtesy of Robert Venturi et al.)

Research as the Call to Action

"There goes in the world a notion, that the scholar should be a recluse [...] Action is with the scholar [...] essential. [...] Without it, thought can never ripen into truth. [...] The preamble of thought, the transition through which it passes from the unconscious to the conscious, is action. [...] But the final value of action, like that of books, and better than books, is, that it is a resource."[38]

Paraphrasing, in part, Aristotle's definition of *praxis*, Ralph Waldo Emerson uttered these words prior to the development of the land grant universities, when service was elevated as the primary objective of the professoriate.[39] Emerson's speech asserted that the scholar's pursuits should be threefold: (1) the investigation and understanding of nature, not only external but inclusive of the scholar's own mind and person; (2) to study "the mind of the Past" to gain alternative perspectives and to attempt to "get at the truth"; (3) and to

take action.[40] As Emerson exhorted 170 years ago, research should not remain in the realm of facts and observations but include experience. The competitions and design/build work initiated by the non-profit organization Architecture for Humanity are also exemplars of research and knowledge as action.[41] The calls for the design of mobile health clinics to combat HIV/AIDS in Sub-Saharan Africa, transitional housing for Kosovo's returning refugees, and the reconstruction of India, Indonesia, and Sri Lanka following the tsunami in the Indian Ocean are not about producing the next superstar architect or fad in building but in investigating the relationship between design and humanitarian crises.

The discipline of architecture demonstrates that declaring the work of the specialist as providing the most valued contributions to the academy, while the generalist's work is deemed less substantial, is erroneous. A reliance only upon specialization assumes that the audience for research is that of other experts. When the

8. Under the direction of B.D. Wortham, University of Maryland students turn their first investigation into a public exhibit. (Photo by B.D. Wortham.)

researcher can be a generalist, the assumptions widen to include both other academics and society as a whole as the potential audience. Philip Johnson

demonstrated this principle when he brought the work of early-twentieth-century European and American architects, via the Museum of Modern Art in New York, to the public through the exhibition and publication of work that would be coined The International Style.[42] Johnson's facility at moving between the roles of designer, curator, and author (to name just a few) meant that the making of the modern could be concurrently explored by a variety of audiences from the expert to the layperson. Research must become relevant for those outside of the academy for education to become a more integral part of the social fabric.

Based on its disciplinary requirements, architecture is positioned to lead in the redefinition of research as action. Architecture as scholarship necessitates an integral relationship between research, teaching, and service. Designers make and shape space that is real, imaginary, and lived.[43] Architecture as research means the making of real buildings and places; it also means the speculation as to how to make buildings and places, and finally, it also deals with how people enact buildings and places. This work is simultaneous and in conflict as rich and vital research should be. Architecture is a paradigm for inquiry, and its results are revealed in publications, in the shaping of policies, the promoting of social programs, in advocacy for real people in real situations, and yes, in the literal making of the built environment (Figures 9 and 10). Therefore, the value of it as research is not about the hegemony of the independent researcher but about an ideology of transdisciplinary cooperation that is integrative of quantitative, qualitative, and participatory processes. The import of individual, scientifically influenced research cannot and should not be denied or undervalued. In many cases, however, it is overvalued as the only arbiter of the successful production of scholarship that led to increasingly difficult hurdles for the architecture professoriate regarding tenure and promotion in the university at large. Rather than arguing that architecture is an exception to the rule, researchers

9. University of Maryland students, faculty, and professionals from multiple disciplines work on LEAFHouse for the 2007 Solar Decathlon. (Photo courtesy of Brian Kelly.)

10. University of Maryland graduate students collaborated on an exhibition with the Fifth Grade class of Hyattsville elementary and the nonprofit Urban Dialogues in studying how place matters in this Washington, D.C. suburb. (Photo by B.D. Wortham.)

within the discipline are uniquely poised to become leaders in changing how research is understood within the academy, thereby reconsidering the nature of discipline-based research. As academics, we measure the success and import of our research based on scales which we devise. Instead of trying to conform an architectural praxis to a scientific paradigm, architecture should provide a new model for research practice in all disciplines that carries

academic and social mandates, that is intellectually coherent, capacious and integrative, that acknowledges that often it is the questions one asks that matter as much as, and occasionally more than, the answers one produces.

Notes

1. Ernest Boyer, *Scholarship Reconsidered. Priorities of the Professorate* (New York: The Carnegie Foundation for the Advancement of Teaching, 1990), pp. 1–14.
2. Exemplars are Robin Williams as John Keating in *Dead Poet's Society* or Kevin Kline as William Hundert in *The Emperor's Club*.
3. The Morrill Act of 1862 led to the development of many institutions that are present today as flagship universities for their states. While their original mission focused on the scientification of agriculture, today these institutions engage a diverse set of disciplines including architecture.
4. Boyer, *Scholarship Reconsidered*, p. 5.
5. Boyer notes that Johns Hopkins University was the first institution founded upon this conception of research as the primary mission of the university. Ibid., p. 9.
6. 1851 is a notable year on this point because it marks the moment (according to Britain's census) that the country becomes official urbanized; in other words, more people lived in urban areas than in rural. This typological change in place will have socioeconomic consequences and prompt the partnership of Friedrich Engels with Karl Marx in discussions of labor and economy.
7. The work of the *OED* first began as a project of the London-based Philogical Society with the organization of the Unregistered Words Committee in 1857 under the leadership of Richard Chenevix Trench, Herbert Coleridge, and Frederick Furnivall. Coleridge published the strategic plan for the work in 1860. About 800 volunteer readers supported the project with the first portion or fascicle, covering words from A to Ant, being published on February 1, 1884. The title *Oxford English Dictionary* was first used with the fascicles published in 1895. The 125th and last fascicle was published on April 19, 1928. See Simon Winchester, *The Meaning of Everything: The Story of the Oxford English Dictionary* (Oxford: Oxford University Press, 2003), p. 94.
8. The following scholars turn to definitions of vocabulary as part of their scholarship. See Marshall Berman, *All That is Solid Melts Into Air: The Experience of Modernity* (New York: Penguin Books, 1982); Hilde Heynen, *Architecture and Modernity: A Critique* (Cambridge, MA: MIT Press, 1999); Raymond Williams, *Keywords: A Vocabulary of Culture and Society* (London: Croom Helm, 1976).
9. Charles Baudelaire, *The Painter of Modern Life and Other Essays*, Jonathan Mayne, ed. and trans. (New York: Da Capo Press, 1964), p. 12.
10. Sources for these discussions include not only the aforementioned Berman book but also: Jonathan Culler, *On Deconstruction: Theory and Criticism After Structuralism* (Ithaca, NY: Cornell University Press, 1982); Antonio Gramsci, *The Modern Prince and Other Writings* (New York: International Publishers, 1957); Jurgen Habermas, ''Modernity: An incomplete project,'' in H. Foster's *The Anti-aesthetic: Essays on Postmodern Culture* (Port Townsend, WA, 1983); David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Cambridge, MA: Blackwell, 1990); Friedrich Nietzsche, *The Use and Abuse of History*, Adrian Collins, trans. (New York: The Liberal Arts Press).
11. The term Enlightenment is most commonly invoked in reference to a period in European (intellectual) history, which is built upon the scientific revolution of the seventeenth century. This ''Age of Reason'' marked the elevation of reason and science over metaphysics and religion. The Enlightenment was not merely a scientific revolution but a social one as well, in which correlations between moral behavior and natural laws (and both supporting the idea of progress) held sway among figures as diverse as Jean-Jacque Rousseau, Jeremy Bentham, Adam Smith, and Auguste Comte. The Enlightenment marked the rise of a secularism which sought to divorce thought and society from mystification and sacrilization, to break with history and tradition, and to embrace the idea of progress in order to liberate humanity. Habermas introduces the term Enlightenment Project in the aforementioned ''Modernity: An incomplete project.''
12. Thomas Jefferson is an archetypal American Enlightenment Project thinker.
13. Theodor Adorno and Max Horkheimer, *The Dialectics of Enlightenment* (New York: Herder & Herder, 1972).
14. Jean-Francois Lyotard, *The Postmodern Condition: A report on Knowledge* (Minneapolis, MN: The University of Minnesota Press, 1984).
15. Williams' critique of the *OED* resulted in the publication of the aforementioned book *Keywords*. His critique of the *OED* can be found in the introduction. The notion of rendering contexts legible is borrowed from Robert Dorgan, director of the Institute for Small Town Studies, who applies the notion to the definition of politics.
16. Tess Brady's work led this author to John O'Toole's discussion of research and the arts. Both discuss the uneasy relationship between the creative and the traditional academic discourses relative to higher education in Australia. Tess Brady, ''A Question of Genre: De-mystifying the Exegesis,'' *TEXT* 4/1 (April 2000): 14. John O'Toole, ''Logos and Logic Under Siege: Performance and Research in the Performing, Visual and Creative Arts,'' *TEXT* 2/1 (April 1998): 56.
17. For a comprehensive description on technologies and industrializations affects on society, see Alan Trachtenberg, *The Incorporation of America: Culture and Society in the Gilded Age* (New York: Hill and Wang, 1982). In addition, Jacques Ellul also writes about the bureaucratization of society that followed from the elevation of technology as the foundation for not just all of science but all disciplines and human activities: Jacques Ellul, *The Technological Society* (New York: Vintage Books, 1964).
18. These definitions represent parts i and iii of the *Oxford English Dictionary*'s definition of knowledge (*http://www.oed.com*).
19. Jonathan Barnes, ed., *The Complete Works of Aristotle* (Princeton, NJ: Princeton University Press, 1984), pp. 1552–1559. For a more detailed discussion of Aristotle's comments on knowledge, see Barnes' introduction.
20. Italics belong to Illich. Ivan Illich, *Tools for Conviviality* (New York: Harper & Row Publishers, 1973): pp. xvi–xvii..
21. Aristotle, *Posterior Analytics* (Book 1, Part 2) in Barnes, *Complete Works*, p. 256.
22. This is, in part, the premise of Illich's *Tools for Conviviality*. In the first chapter, he discusses the transition of the medical profession in the

twentieth century from science as a tool in the advancement of the field to a totalizing constraint on practice (both moments to which he refers as watersheds). Illich believes that this applies to all parts of society, not just the medical profession: ''Other . . . institutions have passed through the same two watersheds. This is certainly true for the major social agencies that have reorganized according to scientific criteria during the last 150 years. Education . . . social work, transportation, and even civil engineering have followed this evolution. At first, new knowledge is applied to the solution of a clearly stated problem and scientific measuring sticks are applied to account for the new efficiency. But at a second point, the progress demonstrated in a previous achievement is used as a rationale for the exploitation of society as a whole in the service of a value which is determined and constantly revised by an element of society, by one of its self-certifying professional elites.'' Ibid., p. 7.

23. This sentence fragment is quoted from Clifford Geertz, ''Blurred Genres: The Refiguration of Social Thought,'' *The American Scholar* (Spring 1980): 165–66.

24. The word hermeneutics is derived from the Greek word for interpreter and is related to the name of the Greek God Hermes who served as the interpreter of the messages of the Gods. In classical antiquity (see Aristotle's treatise *De Interpretatione*), hermeneutics derived out of the study of literature and the expectation that texts be coherent, consistent in grammar and style. In a contemporary setting, hermeneutics is often narrowly defined as the interpretation of texts or artifacts of the arts and architecture.

25. Sociologist Max Weber advocates the use of hermeneutics as a means for understanding the social context of texts (broadly defined) and for understanding the experiences of the author engaged in the text. This type of knowledge becomes as important as the (factual) knowledge found objectively in the text. Wolfgang J. Mommsen, *The Political and Social Theory of Max Weber* (Chicago, IL: University of Chicago Press, 1992), p. 327.

26. Walter Hood, *Urban Diaries* (Washington, D.C.: Spacemaker Press, 1997).

27. A more comprehensive discussion of the Bayview project can be found in B.D. Wortham, ''Challenging Traditional Practice: A Model Relationship Between Design, Land, and Culture,'' in *Land Culture Practice: Proceedings for the ACSA Southwest Regional Meeting* (November

2002), pp. 265–272. See also ''Gilmore Seeks to Aid Destitute Va. Town,'' *Washington Post* (May 30, 1988): B1; Sylvia Moreno, ''In the Spotlight, A Community's Poverty, Despair: Bayview, VA., Cries Out for Decent Housing and Running Water,'' *Washington Post* (May 10, 1998): A1; Sylvia Moreno, ''Gilmore Pledges to Help Bayview,'' *Washington Post* (August 12, 1998): B1.

28. Ruth Benedict, *Patterns of Culture* (Boston, MA: Houghton Mifflin, 1989), pp. 3–15.

29. Unfortunately, there are divisions between today's architectural academy and practicing professionals that reinforce an artificial schism between theory and practice. These divisions get played out in a variety of forums to include the constant wrestling match during the accreditation of schools of architecture in terms of how much of their pedagogy should focus on professional skill building and how much should focus on liberal education.

30. Either that or accept the ardent fixation on nomenclature and redefine that generalist as another type of specialist that is critical to academia.

31. ''research, v. 2. To search again or repeatedly'' (*http://www.oed.com*).

32. More information about Design Corps can be found at *http://www.designcorp.org*. See also Bryan Bell, ed., *Good Deeds, Good Design: Community Service Through Architecture* (New York: Princeton Architectural Press, 2004), pp. 11–14, 23–30, 175–182.

33. Most notable are the annual Structures for Inclusion conferences and the design/build housing efforts on behalf of migrant workers.

34. Sources for Scarpa's work include Marco Frascari, ''The Body and Architecture in the Drawings of Carlo Scarpa,'' *RES* 14 (Autumn 1987): 123–42; Nicholas Olsberg, et al., *Carlo Scarpa, Architect: Intervening with History* (New York: Monacelli Press, 1999); Francesco Dal Co and Giuseppe Mazzariol, *Carlo Scarpa: The Complete Works* (New York: Rizzoli, 1984). Also contributing to this discussion is the dissertation in progress of Federica Goffi (an Assistant Professor at RISD), which investigates time as a significant element in the design methodology of Scarpa.

35. As George Dodds has noted, the distinction between the nature of architecture and that of construction has been long discussed within the discipline by major figures such as Leon Battista Alberti, John Ruskin, and Le Corbusier. Dodds makes the argument that what these figures specify as being particular to the activity of architecture falls in the realm of

speculation and the unnecessary. George Dodds, ''On the Place of Architectural Speculation,'' *JAE* 46/2 (November 1992): 76–86.

36. Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas* (Cambridge, MA: MIT Press, 1972), pp. ix–xi.

37. University of Maryland's Professor Emeritus Roger Lewis has spent over twenty years writing a column and drawing cartoons for the *Washington Post* in a series entitled *Shaping the City*. This work was (and is) vital in broadening the discussion, both in terms of content and participants, of architecture and yet is seen as work outside of the academy.

38. Ralph Waldo Emerson, ''The American Scholar,'' in Eugene F. Irey, ed., *A Concordance to Five Essays of Ralph Waldo Emerson* (New York: Garland Pub., 1981), p. 33. This essay was originally given as a speech in 1837 to the Phi Beta Kappa Society in Cambridge, Massachusetts. His speech inspired the title of the society's literary quarterly, *The American Scholar*, established in 1932.

39. Thanks to George Dodds for pointing out Emerson's potential reliance on Aristotle's explanation of the term *praxis*.

40. These quotes are from the text of the speech, Emerson, ''The American Scholar.''

41. Cameron Sinclair and Kate Stohr founded the nonprofit Architecture for Humanity in 1999 (*http://www.architectureforhumanity.org*). They also produced a book based on humanitarian design efforts: Architecture for Humanity, ed., *Design Like You Give a Damn: Architectural Responses to Humanitarian Crises* (New York: Metropolis Books, 2006).

42. It should be noted that Johnson did not work alone in describing the International Style; he had collaborators, most notably Henry Russell Hitchcock. Henry Russell Hitchcock and Philip Johnson, *The International Style* (New York: Norton, 1966). The book catalogued the Exhibition held at the Museum of Modern Art in New York in 1932 in an attempt to articulate the principles encapsulating the architecture of the 1920s and 1930s in Europe and America.

43. Edward Soja, *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places* (Cambridge, MA: Blackwell, 1996), 1–23. Soja delineates three types of spaces: the first space being ''real'' space, the second space being ''imaginary'' space, and the third space being ''lived'' space.