

Ownership and Media: The Architectural Case Study as an Articulation of Theoretical Stance

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Introduction

Remote works of painting, sculpture, or architecture enter into discourse through experience and memory of mediating artifacts such as photographs, drawings, and texts. Such artifacts always embody the capability to trigger specific conceptual relationships. Andrzej Piotrowski (1) argues that the mediating artifacts produced by architects – e. g., sketches, models, diagrams, drawings, spreadsheets, and verbal explanations – define a continual process of *conceptual negotiation* between and among symbolic meaning and the spatial and material aspects of architecture. And Michael Graves (2) proposes that as successful mediating artifacts operate on perception, they *speculate tangibly* about something partly known by provoking iterative artifactual response. More generally, constructed artifacts of any kind, made to reflect on existing designed or constructed works, always hold out the possibility of establishing specific ways of seeing, or *theoretical stances*. Thus, it is understood that artifacts have the potential to simultaneously concretize ideas, to make intangible aspects of understanding specific, and to structure possibilities for constructive discourse, meaning that kind of discussion which both depends on and results in the construction of new work.

Design education is strongly supported by discourse relating to remote works of design. Architectural educators have long recognized the need to introduce students to the study of existing architecture as a component of studio-based instruction. Architecture students are often asked to conduct analytical studies of existing

works as a means of establishing either specific problem-solving approaches, synthetic solutions to new problems, or formally expressed justifications for new work. Less often, such studies are defined in pedagogical terms as opportunities for students to establish theoretical stances, or productive ways of seeing.

As opportunities to access information relating to remote works of design via the Internet have expanded, students' reliance on the use of mediating artifacts produced by others has intensified (3). This intensification suggests that students are increasingly reluctant, unwilling, or unable to take ownership of the tangible speculation present in successful mediating artifacts, as instead, they appropriate someone else's theoretical stance as their own. This appropriation is evidenced every time a photograph or drawing is inherited from an Internet source into an analytical study. Nevertheless, it is not true that an increased accessibility of information must result in intellectually weaker analytical studies. The specific problem I consider here is the tendency in architectural design education to frame analytical studies as opportunities for students to gather and communicate ideas conclusively instead of as opportunities for students to provocatively develop those ideas informing the production of new work. Indeed, students often eagerly await the conclusion of a studio project's "analysis phase" in order that a "design phase" can begin, *without appreciating that the act of making ideas visible in an analytical study is itself an act of design*. Thus, I propose a pedagogical approach and practical strategies for the construction of architectural knowledge through analytical studies which are explicitly designed to require students to take ownership of the theoretical stance inherent in the artifacts they select and produce to make

their ideas visible. Strategies discussed here include *projection shifts* (the use of software to translate image content between orthographic and perspectival projections); *image-field construction* (forceful and systematic juxtaposition of deliberately cropped images); *archaeological profiling* (production of profiled section models as a means of making uncertainty specific); and *iterative blurring* (superimposition and stratification of iteratively produced graphic responses to original images). Each strategy is outlined and illustrated in a manner intended to serve as a pedagogical model for other educators confronting similar issues of ownership and media in their own students' work. The paper concludes with specific suggestions for application of these strategies.

On the ability of mediating artifacts to establish theoretical stance

It is widely agreed that mediating artifacts have the capability to establish *theoretical stance* or to focus specific ways of seeing and knowing. Michael Graves, in a widely-referenced essay (4), argues for the iterative function embedded in mediating artifacts: that a mediating artifact is always fragmentary and is successful with regard to the construction of knowledge when it provokes a designer's response in the form of a new artifact. Indeed, it is the "tension" among and between artifacts which sustains the possibility of critical dialogue. The generalization of Graves's argument to media other than drawing is effectively accomplished by Julio Bermudez and Kevin King (5), who propose that "[m]edia and design process methods associated with media have a direct and essential impact in the way architecture is conceived, developed, and communicated." David Leatherbarrow (6) similarly defines mediating artifacts as "representations meant to direct the development of

something conceived into something constructed." And although Leatherbarrow focuses attention on the processes required to bring new architecture about, his observations are equally valid with respect to existing architecture, which in analytical studies, are also represented in order to direct conception toward action. Patricia Boge and Jim Sullivan (7) add that "[a]rchitectural representation ... suggests a visible demonstration of the 'architecture' of a student's thinking as well as the architecture about which a student thinks."

On the relevance of existing architecture to design

Roger Clark and Michael Pause (8) establish the relevance of existing architecture in support of design through the use of a taxonomically organized collecting of selected architectural works. The importance of their work is that it focuses a specific way of constructing knowledge of existing work which requires the creation of new mediating artifacts, such as plans, sections, and diagrams. However, their establishment *a priori* of artifactual categories denies that a given work could institute definition of a mode of inquiry unique to itself. As a counterpoint, Norman Crowe and Steven Hurtt (9) acknowledge that "visual notations and analytical sketches [i. e., mediating artifacts constructed to make sense of existing architecture] are very much like the kinds of drawings that one makes in the design process itself." The authors recognize the parallels between constructing knowledge of existing architecture and of imagined architecture. It is not, however, that the one is simply practice for the other; each one constitutes a specific instance of a larger cyclical process: that is, precisely what Graves acknowledges as the iterative function present in all successful mediating artifacts, or what Leatherbarrow

establishes as the possibility of artifacts to direct conception into construction.

On ownership, iterative action, and theoretical stance

If students are to develop ownership of the theoretical stance present in their analytical work, they must attempt to overcome two false *assumptions of neutrality*: first, those related to object-based information-organization media, and second, those inherent in commonly accepted frameworks for supposedly discipline-neutral academic writing. The struggle in architectural analysis to produce mediating artifacts which open the possibility of conceptual negotiation (10) is intensified whenever the structure of a mode of inquiry is designed to compartmentalize thought. Online software applications such as Flickr or Google Image, when considered as information-organization media, are transparently structured as frameworks for the distribution and consumption of downloadable files: that is, of discrete, format-specific items. This implies that as students rely on these websites, the results of their work will exist as collections of individual objects – an approach perpetuated by the use of page-layout software to package analytical study reports for publication. A consequence of this approach is that images present themselves as neutral registers of architectural content, suggesting in turn that the value of an inherited image exists in *how much* content it reveals. Traditionally held assumptions about academic writing have an equally disturbing though somewhat contradictory effect on the possibility of entering existing architecture into discourse. The expectations that hypotheses should be clearly stated and conclusive results reported demand of images a degree of *persuasive capability*, i. e., that images become highly-charged counterpoints to

conclusive narratives. These assumptions have permanence precisely because they are understood to be neutral with regard to discipline. However, images in such a framework do not act as triggers to conceptual negotiation, presenting themselves instead as conclusive. The consequence for the construction of architectural knowledge is the establishment of a persistent and difficult-to-dislodge boundary on the ability of existing architecture to inform the establishment of theoretical stance. I propose that students must therefore develop abilities to displace inherited images from either of two obvious positions as supposedly neutral registers of content or as idiosyncratic and value-laden constituents of consistent and complete arguments. Following Graves, I argue that productive reliance on images in support of analytical work must be informed through executing iterative actions on image content and by observing results. The strategies described in the following sections are intended to highlight the possibilities of “speculating tangibly” (11) and of continuing “the transformation and crystallization of concepts of lived reality beyond the design phase” (12).

Projection shifts and elevational depth

To examine the degree to which photographic images are not epistemologically neutral requires identification and restructuring of their inherent biases, among the most obvious of which are (a) the photographer’s choice of subject matter; (b) the photographer’s choice with regard to the extent of framing; and (c) the photographer’s choice for a specific point and direction of view. A straightforward way to initiate restructuring of an image is to *rectify* it, or graphically distort its perspective content into an oblique projection. Photoshop’s



Fig. 1. Crown Hall, IIT, Chicago, Illinois.

The immediate apparent effect of projection-shifting from perspective into elevation is to deny the relevance of the physical point of view of the photographer. However, inspection of rectified images shows this is not the case. A consequence of projection-shifting is to highlight the subject architecture's *depth of elevation*, or its modeled departure from an idealized plane. This effect, which in the rectified image is simultaneously a flattening and a spreading of photographed depth, occurs for example at recessed or projected portions of the elevation. Thus, when a perspective image of a work of "deep" architecture is rectified, visible effects of its depth not only remain present, but are emphasized through visible distortion. It follows that as software apparently de-emphasizes the effect of a specific photographer's point of view, those characteristics of a work of architecture the visibility of which are most dependent on a specific point of view are highlighted. Consequently, by entering an inherited image into a realm of suggestivity or incompleteness, projection-shifting initiates constructive discourse on an attribute of architecture – its depth of elevation – which is not obvious if attention is limited to unmodified images. In summary, projection-shifting opens opportunities for speculation about the degree to which understanding of architecture is conditioned by a specific

point of view through the medium of photography.

Image fields and thresholds of atomization.

An *image field* is defined as a Photoshop-readable image subjected to a specific type of atomization and rearrangement. *Atomization* means an iterative process of dividing an inherited image into increasingly smaller fragments, of which the pixel constitutes a fundamental, though not indivisible, unit. To constitute an image field from a specific image, then, is to begin by atomizing it to a predetermined level of stratification, and then to rearrange the constituent parts, for example by randomizing their order. This process recalls Tristan Tzara's 1920 offering:

"TO MAKE A DADAIST POEM: / Take a newspaper. / Take a pair of scissors. / Choose an article in the newspaper of the length you wish to give to your poem. / Cut out the article. / Then cut out carefully all of the words that make up the article and put them in a bag. / Shake gently. / Then remove each cutting one after the other in the order in which they emerge from the bag. / Copy conscientiously. / The poem will be like you. / You have now become 'an infinitely original writer with a charming sensitivity, although still misunderstood by the common people' " (13).
 Inherited images can operate as texts

susceptible to Tzara's procedure, provided a method is defined to atomize them and rearrange the constituent parts. If images are Photoshop-readable, the software (or Adobe Illustrator or Adobe InDesign) can support manual execution of the procedure; a simple application or macro could accomplish the same work automatically. The epistemological function of the strategy of image-field construction upon architectural knowledge relates to the dependence of *understanding* upon *naming*. Specifically, for any image subjected to the process of image-field construction, there exists a *threshold of atomization* beyond which the image becomes irresolvable into nameable components or discrete surfaces. *Are certain works of architecture, or certain types of images, subject to different thresholds of atomization?* Consider, for example, elevation images as distinct from perspective images; the former tend to retain a degree of resolvability even when atomized to a high degree:



Fig. 2. Downtown Chicago, Illinois.

Or, consider an architecture emphasizing elevational composition as distinct from one emphasizing sculptural solids. Again, the former tend to exhibit a

higher threshold of atomization; that is, its components remain identifiable at comparatively smaller "atom sizes":

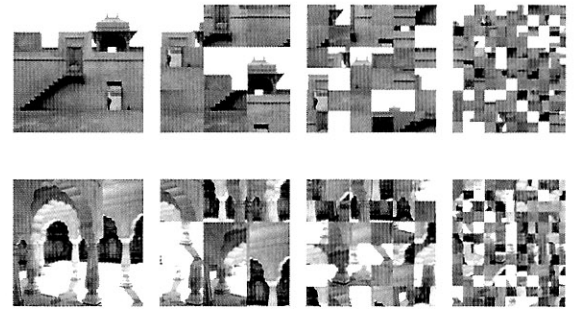


Figure 3. Fatehpur Sikri, India (top); Amber Fort, Jaipur, India (bottom).

The strategy of image-field construction attempts to address biases inherent in framing as a characteristic of photographs, and how framing implicitly defines the relevance of context as distinct from building-object to the construction of architectural knowledge. The construction of an image-field encourages the visible disclosure of connections and commonalities where none are otherwise

apparent; in short, it shifts images into a realm where they cease to function as conclusive evidence and can begin to stimulate new ideas. I intentionally

distinguish this strategy from *structured photography*, which I describe elsewhere (14). Specifically, structured photography is a strategy involving collaging original (not inherited) photographs of a site.

Archaeological profiling and speculative superimposition.

Students of architecture construct digital three-dimensional architectural models precisely because the works of architecture to which they refer are assumed to possess meaningful attributes which digital modeling is expected to reveal. And while such attributes need not relate solely or primarily to visual perception, as when an existing building is digitally modeled to study its thermal or acoustical behavior, popular practices suggest that the need to derive from digital models artifacts which simulate visibility – either statically or in motion – is so obvious and conclusive that other modes of entering digital models into discourse are overlooked or negated (15). It follows that if digital models of architecture are caused to enter into discourse by mediating artifacts other than perspectival simulations, the possibility for new lines of speculation about the subject architecture will (re-) expand. Sections in particular are acknowledged to be a principal means of registering those aspects of architecture not registered through perspective simulation. The strategy of *archaeological profiling*, or the production of serialized sections from digital models, is in this sense an attempt to broaden the means by which inherited digital models of a work of architecture can enter into constructive discourse.

Most digital modeling software applications can produce two-dimensional section profiles of inherited digital models. Such profiles constitute a way of seeing the models sectionally. AutoCAD, for example, can easily produce and display multiple superimposed sections of a solid

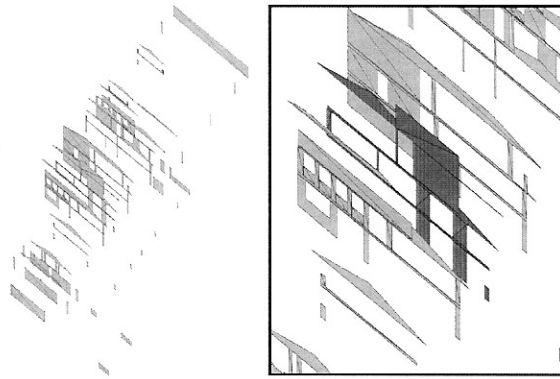


Figure 4. Robie House, Chicago, Illinois.

Or, Autodesk Revit used for the same purpose would ensure that as solid-modeling attributes of a three-dimensional model change, the referring sections will update correspondingly. Critically, changes made to the three-dimensional model could occur which would not visibly affect the generated sections in any way. It follows that a digital model need not encode all measurable attributes of the existing work in order to enter its subject architecture into constructive discourse. The relevance of the strategy to the articulation of a theoretical stance occurs precisely because it introduces a specific and fragmentary understanding of an existing work.

Iterative blurring and contour extraction.

Intentionally blurring an inherited photographic image decreases the possibility that it can be used to support direct, nameable correspondence with its subject site. A blurred image as distinct from a clearly focused one is more likely to initiate speculation because it appears unresolved. However, even a strongly blurred image is conditioned by the composition and content of the original image. Thus, a blurred image constitutes a specific and powerful kind of “tangible speculation” about a remote site: speculation is enabled through its abstract quality, while tangibility remains present because its precise

visual condition derives from a specific photographic source (16).

Photoshop's Gaussian Blur filter, used at a "moderate" pixel radius [e. g., where P is defined as the resolution of the image expressed in pixels per inch, and W is defined as the width of the image measured in inches, a "moderate" radius R is approximately $(P * W)/600$], is an effective means of blurring images to a degree where they can support the kind of speculation discussed here:

or quick transitions between conditions of light or texture. More critically, where extracted contours form discrete islands, just as islands would appear on a map, the corresponding area within the original image is understood to possess a specific kind of rough regularity, neither fully uniform nor highly textured. These kinds of areas are common as "fields" within urban sites although they tend to escape notice relative to those features which capture attention in an immediate way:

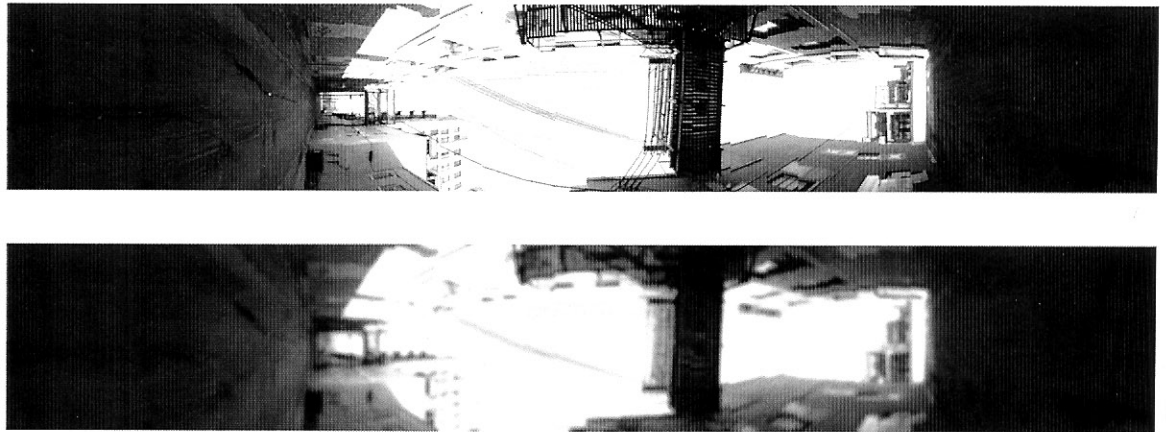


Figure 5. Downtown Fargo, North Dakota: original image (top); blurred image (bottom).

However, simply blurring an image once is insufficient to enter the image into sustained constructive discourse. Successful *iterative blurring*, therefore, requires that the blurring process be repeated and occasionally interrupted by actions like *contour extraction*. Adobe Illustrator's Live Trace command is used to extract edges, or contours, of areas of contiguous color or tone. This procedure can be conducted on any image, though a blurred image tends to provide larger contiguous areas than an unblurred one. Contour extraction has an effect of focusing attention on those aspects of the image which register specific conditions of texture made visible through light. Where the extracted contours are close and parallel, as contours would appear on a map of a steep slope, it is understood that the original image contains sharp edges

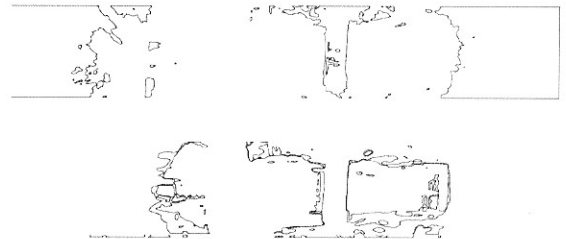


Figure 6. Contour extractions of Figure 5.

By identifying attributes of the image which exist beyond immediate perceptibility, the strategies of iterative blurring and contour extraction forward conditions for speculation.

Conclusions.

The strategies described here have in common the effect of shifting inherited artifacts from realms of resolvability and conclusiveness into those of incompleteness and fragmentation. Fragmentary understandings which emerge then begin to suggest important attributes of architecture, particularly

ones which have escaped immediate notice because subsumed by superficially obvious ones. In the gaps which open between new fragments, opportunities emerge for speculation and generative work. Indeed, *it is precisely because of the fragmentary and incomplete nature of the mediating artifacts on which the process of making architecture known relies, that the process simultaneously excludes, prioritizes and provokes:* it physically and viscerally constructs a particular way of seeing and knowing architecture, articulating theoretical stance. The strategies support several possible exercises in the architectural design studio. Important questions to consider when integrating these strategies are: to what degree does the use of a specific strategy reveal important attributes of architecture? And, to what degree does the use of a strategy enter into a realm of "tangible speculation," serving potentially as generative work?

For example, an obvious and long-practiced use for rectified photographs is the creation of texture maps which can be adhered to surfaces in a digital model and subsequently viewed from arbitrary angles, thus providing a degree of three-dimensional visual simulation of a modeled environment. A possible exercise for students is the production of such a model *which consists only of those parts of the architecture which have been photographed*, maintaining emptiness or transparency for undocumented areas. Such a model could serve as a tool for evaluating the susceptibility of a given work to being photographed. Students might use the exercise to compare two works of architecture, and how these works uniquely forward themselves as photographic subjects.

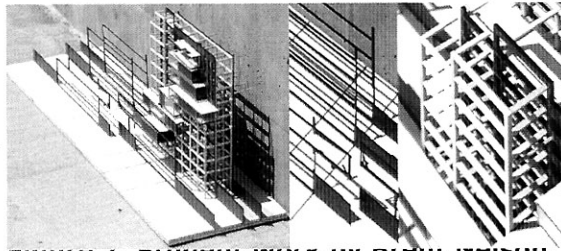


Figure 7. Student work by Brent Nelson, NDSU.

In another example, the construction of superimposed sections supports the production of new architecture. In Brent Nelson's student work, shown above, laser-cut sections of an existing building under study were placed into a physical framework, where they became registers of a highly selective understanding (17). Specifically, the construction of the model highlighted physical and conceptual gaps which became opportunities for Nelson to articulate possibilities for new architecture. Commonalities among and between the building's frame structure and its bearing-wall neighbors became visible and were entered into constructive discourse as Nelson's production and reading of the model informed his "structure of thought" (18). At the end, his proposal for architecture is not easily separable into parts labeled *existing* and *new*, but instead concretizes an unvoiced position between them, revealing each by degrees.

- (1) Andrzej Piotrowski, "On the practices of representing and knowing architecture," in *The Discipline of Architecture*, ed. Andrzej Piotrowski and Julia Robinson (Minneapolis, MN: University of Minnesota Press, 2001).
- (2) Michael Graves, "The necessity of drawing: tangible speculation," *Architectural Design* 47 (1977): 384-394.
- (3) M. Jill Austin and Linda D. Brown, "Internet plagiarism: developing strategies to curb student academic dishonesty," *The Internet and Higher Education* 2.1 (1999): 21-33.
- (4) Graves, "The necessity of drawing."
- (5) Julio Bermudez and Kevin King, "Media interaction and design process: establishing a knowledge base," *Automation in Construction* 9.1 (2000): 37-56.
- (6) David Leatherbarrow, "Showing what otherwise hides itself," *Harvard Design Magazine* 6 (1998): 51-55.
- (7) Patricia Boge and Jim Sullivan, "Hand/hardware: five aphorisms for device-neutral representation," *Journal of the Design Communication Association* (2005-2006): 46-49.
- (8) Roger H. Clark and Michael Pause, *Precedents in Architecture* (New York: Van Nostrand Reinhold, 1995).
- (9) Norman A. Crowe and Steven W. Hurtt, "Visual notes and the acquisition of architectural knowledge," *Journal of Architectural Education* 39.3 (1986): 6-16.
- (10) Piotrowski, "On the practices of representing and knowing architecture."
- (11) Graves, "The necessity of drawing."
- (12) Piotrowski, "On the practices of representing and knowing architecture."
- (13) Tristan Tzara, "To make a Dadaist poem," In *The Dada Reader: A Critical Anthology*, ed. Dawn Ades (Chicago: University of Chicago Press, 2006): 199-200. [Originally in *Littérature* 15 (1920).]
- (14) Mike Christenson, "Confidence in the presence of conflict: digital and analog media in architectural representation," in *Pixel Pencil Progression: Proceedings of the Design Communication Association Biannual Conference, Bozeman, Montana, August 13 - September 3, 2005*, ed. Steven Juroszek (Bozeman: Design Communication Association, 2006), 55-64.
- (15) Mike Christenson, "On the tenuous primacy of visual simulation in the construction of knowledge of digital models," 2007, unpublished (under review).
- (16) See Mike Christenson, "Accident and predictability: an analytical methodology for persistent forces in the American city," in *The Reach of Research: Proceedings of the Architectural Research Centers Consortium National Conference on Architectural Research, Jackson, Mississippi, April 6 - 9, 2005*, ed. James L. West, David J. Perkes, and Anne H. Howell (Mississippi State, Mississippi: Mississippi State University College of Architecture, Art & Design), and Mike Christenson, "Re-representation of urban imagery: strategies for constructing knowledge," 2007, unpublished (under review).
- (17) Student work completed by Brent Nelson, North Dakota State University, 2007, for ARCH 372, undergraduate architectural design studio instructed by Mike Christenson. Used by permission.
- (18) Boge and Sullivan, "Hand/hardware."