

Irrational Operations

AMIR ALRUBAIY

University of Colorado Denver

This paper challenges a pervading ethic of rationality in architectural education, derived in response to intense economic, social, and environmental pressures, and reinforced by an uncritical dominance of diagrammatic and performative visualization. I will argue, through projects from an advanced undergraduate drawing class, as well as work done in a graduate level immersion studio that by creating space for the production unconstrained, undirected, and unresolved images, architectural education can reassert the necessity of wandering speculation in the production of an energetic and inspiring world.

Architecture is a serious discipline. The health, safety, and welfare mandates exert formative pressure on the enterprise of conceiving and producing the built environment. This condition is clearly necessary to the maintenance of a functional and productive world. Buildings can't leak, shouldn't be confusing, and they certainly shouldn't fall down.

Additionally, the act of placing a building on or in the land requires a practically irreversible cutting, displacing, and scarring. To the degree that foundations are dug, sites leveled, and conditions cleared, the act of constructing a building exerts intense and effectively permanent change. Further out of site, the production and transport of concrete, steel, rubber, plastic, and wood, embody colossal energy expenditures. Finally, as we are well aware, buildings consume the significant majority of the precious energy we produce.

Architecture also gathers to itself massive levels of capital. To the cost of land, labor, material and imagination, flow staggering outlays of time and money. Not only do buildings serve functions that incur costs to fulfill, they also generate revenue as speculative and attractive commodities. As such, they must perform to the financial parameters from which they emerge.

In order to meet these performance demands, architects adopt ever more powerfully predictive means of producing the images that direct the construction and operation of buildings. This state of affairs is described clearly in David Ross Scheer's book, *The Death of Drawing* (2014)¹.

None of this is new and has, in fact, been part of the architectural enterprise since at least the formulation of the firmness, commodity, and delight triumvirate. Over the centuries, drawing and documentation practices have trended steadily

toward ever more descriptive and predictive modes. This condition cascades toward the middle twentieth century with the gradual adoption of professional licensure in architecture and the associated liabilities of professional service. This, in parallel with the rise of speculative and developmental real estate as a share of the US and global economies, generate a condition where the ability to minimize risk and maximize performance in the building project becomes ever more important.

As the profession adopts these means, the academy has certainly followed suit. However, if the agendas that drive these production means are not critically examined, those agendas quickly infiltrate our schools.

As Scheer notes, all representation methods privilege certain types of information and diminish others². For example, as a tool to describe the layout, distribution and dimensions of discrete spaces, orthographic drawings necessarily emphasize the proportions, relative scale, and organization of borders between elements, while diminishing the first person embodied experience of a space. Isometric drawings provide a coolly analytic and operative vantage point while obscuring the human scale of an object.

So, it is not surprising that two forces maneuver to minimize the role of the imaginative, exploratory, and irrational in architecture.

The first is the progressive reliance on, and abdication of imagination to, predictive modes of architectural production. This is acutely true of the use of GIS and big data in the project identification and development phases. It is also the primary driver behind a near universal adoption of BIM as the default production and documentation tool of the profession. However, more traditional documentation methods, when allowed to uncritically infiltrate the space of the imaginative and developmental process, operate to kneecap the unforeseen and unresolved. In other words, when there is an uncritical turn to the plan, section, or elevation...at any phase really...the design process can transform from being an exploratory/expressive undertaking, to a representative and enumerative exercise. We fall into the habit of seeing design as a systematic description of an already existing, fully formed scheme. This is not to say that the dusty, inky ruminations that occur over layers of graphic thinking cannot birth the unforeseen and unknowable. This is certainly true for

those with the skill and inclination to see this way. We often forget though that what we see in a wobbly accidental line is often a product of our experience and temperament...and something we certainly learned to see.

The second force is the all too common error on the part of students and educators, is of mistaking professional descriptions of high profile buildings, by high profile architects as narratives of their process. This error may be more pervasive and potentially more damaging than the first. Firms like BIG, REX, and OMA have a rare talent (and expressed agenda, in some cases) to present their work in a highly analytical and rational way. They use diagrammatic descriptions of their observations and process strategically as a way to generate buy in for their adventurous and often experimental work.

Of course they do this. Proposals like the one for the Seattle Public Library must rest on an unassailably rational foundation in order to avoid the critiques and dismissals of more overtly whimsical projects. However, if there is any bad faith here, it is in the active dismissal of any openly aesthetic or compositional agendas or desires.

Where this becomes problematic is when inexperienced students and uncritical faculty treat these public presentations as a description of an actual design process instead of what they are; which is a tightly constructed and highly polished show. Students may be forgiven this. We tell them over and over to narrate and describe the processes they undertake to arrive at whatever they're presenting at a review. "Take us through the process" we say, and then we level critique as to where the process is incoherent or inconsistent. The implication being that an absolutely coherent and consistent process will yield an unassailably successful (conspicuously not "good" or "bad") project.

This mistake drives the overuse of the diagram as a generative rather than descriptive tool. Diagrams are an essential means of communicating the formal and organizational premises from which a project is derived. Their clarity and simplicity allow us to get to the point without getting snagged in the specifics of a given proposal. They are particularly effective in generating buy in from project stakeholders and helping an audience understand how a proposal responds to a set of criteria. In experienced hands, they can also serve as powerful guides for a project as it moves into reality.

However, too often, an uncritical diagrammatic approach can result in misleadingly successful results. Particularly in foundational studios, the diagram functions as a justification for a particular formal arrangement. The fallacy here is that if the diagrammatic process is sound, the resulting building must be good. This is the deductive process rendered in annotated boxes. If all conditions are appropriately identified, the constraints are reasonable, and a system of formal manipulation

is followed, then the resulting proposal is unassailably good.

This can lead students into three traps. The first is believing that design must be a pre-rationalized process of moving in a linear progression from first principals to final design. The second is that a sound process equates to a sound design. And the third is that diagrammatic manipulation is synonymous with design process.

It's no wonder this happens. Scripted, linear processes are easy to teach and easy to control. Students can be evaluated based on how well they understand and follow a given set of steps. And the results tend to be pretty uniform. There are very few failures and students who struggle can lean on "the process" to get them to a result that is more or less workable and rarely catastrophically bad. And again, the talented, imaginative, and creative student tend to rise, not because of the strength of the process, but because of the intuitive and exploratory leaps they make outside of the process. You end up with a few highs, a large middle, and very few lows. In many ways, in the process I've outlined above, wandering creativity is actively eliminated.

As a studio level coordinator and Associate Chair of Architecture at UCD CAP, I perceived a lack of conviction and confidence in our middle and upper level students. While proficient with the common technology and techniques associated with their levels, there was a degree of timidity in their proposals and uncertainty in their processes. After countless conversations and critiques where students would frustratedly express their desire to explore a particular idea or direction but simply "not have a reason for it", it appeared that these students were over-constrained by what they thought should be a completely rational and linear process. To them, they needed fully formed intentions and completely consistent rational in order to take the next steps in their designs.

Examining the curriculum students were going through in their foundational levels, it became clear that they were being taken through a process that relied almost exclusively on a rational, diagrammatic analysis of a given site or program followed by an apparently linear process of if/then morphology to generate their design responses. It was a process where the unspoken goal was the production of a sort of derivative design algorithm that would not only guide their decision making, but in many ways supplant it.

Creative leaps and associative discoveries were rarely discussed and often tamped down as willful or unjustified. Creativity and imagination were things that happened outside of the studio curriculum and on the students' own time. If a student explored an idea because it reminded them of something or just seemed to feel right, that was their prerogative, but those thoughts had better not find their way



Figure 1: Student work from Aspen Summer 2017

into the presentations or discussion. Keep it to yourself. Keep it over there.

Much of the thinking around these issues took shape in the Aspen Summer Design program I teach for three weeks each Maymester for selected upper level graduate students. The program consists of three one week charrette projects organized by local architects in the Roaring Fork Valley. Students are usually constrained to analog media and during the first week they are bound to their drawing books. The pace is fast, and the production demands are high.

In every incarnation of the course, I've observed the same pattern. The students begin their process with a diagrammatic catalog of contextual conditions and start pushing boxes around to pump out a building. The initial results are flat and uninspiring. Then they'll get an assignment that sends them sideways and begins to unlock their perception. In the first week, they're told to go draw trees for the evening and to stop looking at the thing. Instead, they're told to look at how the thing effects its environment; how it interrupts light, how it blocks wind, how it holds moisture. For the students who engage this (all of them do), the projects take an experiential and personal turn.

Interestingly, this process had to occur each week. Students would wholeheartedly embrace the wandering discovery in one week, and then snap back to their habits of catalog/analyze/manipulate/execute when the next project was introduced. In the second week, the unstuck moment comes when they're asked to render the invisible forces shaping the site, and in the third week it's when we stick them in a room with some charcoal and a nude model.

Eventually though, students became much more comfortable with describing their how their personal curiosities drove parts of their process and became much more comfortable stepping out from behind the veneers of rhino, revit, photo-shop, and v-ray.

The lessons from this summer program became the impetus for the formulation of an Advanced Drawing class. The work of the course attempts to extend and combine the thinking

of Bernard Tschumi and James Corner in an effort to strategically move away from these tendencies

In his book *Architecture and Disjunction*³, Bernard Tschumi describes the adoption of a process of disjunction as a challenge to what he sees as closed and exclusive approaches to design. In describing the process of conceiving and building the Parc du la Villette, he outlines a way to borrow from concepts of cutting splicing and montage in film, as well as more psychological concepts like disjunction and disassociation. He defines the disjunctive as rejecting notions of synthesis and the traditional opposition between architectural form and function. He replaces these assumptions with a practice of graphic, programmatic, and formal superimposition and combination as a way to "trigger dynamic forces that expand into the whole architectural system, exploding its limits while suggesting a new definition."⁴

For Tschumi, "the concept of disjunction is incompatible with a static, autonomous view of architecture." It is an operative framework that can be used to expand and animate the practice of producing the world.⁵

In his essay *Eidetic Operations*⁶, James Corner calls into question the perceived neutrality of architectural visualization. In his exhortations to move beyond the scenic and scenographic in Landscape Architecture, he suggests that designers, "need to revise, enhance, and invent forms of representational technique that might engender more engaging landscapes."⁷ This assertion is grounded in his case that while indispensable to the construction of the built environment, traditional documentation tools often obscure and overwrite the multi-sensory and experiential qualities of a place. He reserves particular critique for the overuse of plan drawing as a definitively myopic and reductive means to develop a proposal. For him the plan engenders an overarching and exclusive ethic to the design process which casts the designer as form giver and master of a particular scheme. The plan places the designer "outside" of the design in a way that keeps the contradictory and elusive qualities of a place always at arms' length. The designer never becomes an inhabitant of the design, and remains, at best, an interested tourist.

As a way to move past this disintegrated way of engaging and producing the world, Corner evokes the concept of the eidetic. He defines this as the multi-sensory and trans-temporal experience of the lived landscape. This concept rests heavily on the notion that the rational and quantifiable aspects of a place or object count for only a fraction of the experience of that object.

Corner's argument rests on the premise that by developing more open ended "eidetic" means of drawing and visualizing, designers can produce objects and environments that resist the reductive expediency of mere problem solving.

By drawing exclusively and compartmentally in the common representational regimes, architects pre-constrain their thinking to only what may be said with those types of images. When we consciously and critically, or in this case playfully, resist the ends that the Plan/Section/Elevation/Diagram family directs us toward, we begin to obey different organizational strategies, such as narrative and associative, that are not merely spatial, and are certainly not singular.

Corner makes the case that the techniques associated with collage can be analogous to a multi-sensory and layered approach to design. He further asserts that by using these techniques, cutting, splicing, overlaying, designers can accomplish two mutually reinforcing agendas. The first is that by constraining the image making to an opportunistic use of inconvenient images (you never quite have what you have in mind) architects produce unforeseen suggestions for design interventions. Further, because collage works with pre-existing images, the nuance and (sub) liminal connotations embedded in the image open links to combinatory readings unavailable to the producer of the image. You bring what you can to the image, each viewer reads into it what they bring. This quality speaks to the directive power of eidetic collage imagery. The images are suggestions to further investigation rather than a record of exhausted thought.

The intent behind these projects is to take an intentionally post-rational (anti-rational? Ir-rational?) stance toward the design process. To adopt the ideas of a disjunctive process as outlined by Tschumi and the production of eidetic images as described by Corner. Rather than ask students to come up with an articulate agenda from which to build their images, these projects treat the production of image as a way to discover an agenda. The hope was to unstuck students bound to a misguided belief of needing to know why, and to treat the process of developing a design as the clarification of first principals rather than an application of them.

The development of the “Advanced Drawing” course was a reaction to what had become the overly scripted and highly morphological processes our students had encountered. As such the course worked through several projects that sought to actively displace a highly linear and pre-scripted process, aimed at producing formal coherence and conceptual fidelity. Instead we treated “concept” as something that emerges through process and intent as something fluid and elusive. Rather than treat “drawing” as an exercise in description and communication, we treated it as a free-associative practice that could produce unforeseen and unintended directions. The drawing is not a retroactive descriptor. It is a directive suggestion.

In each case, students approach drawing as means of generating questions and providing direction in their process, rather than merely a documentation of their (supposedly) organized

thoughts. Again, we treat the production of architectural drawings (and models to a great degree) as the means by which concepts and intentions come into being, not as the communication of a rationally constricted reasoning exercise. In taking up the ethic of the eidetic, I’m expressing the premise that ALL of our concepts and intentions are necessarily embodied in the media in which they are expressed. When treated this way, the embodiment of concept occurs in drawing, and through the drawings new built environments are further embodied. The ideas I’m presenting here didn’t exist until I wrote them down, and they certainly didn’t crystalize until I spoke them just now.

The first project titled “throughdrawing” mechanically borrows heavily from a project taught by Ann Patterson at the University of Kansas⁸, but differs in its overt use of a superimposed, disjunctive process. Students receive cropped and decontextualized images from Carlos Scarpa projects. Using the freehand drawing skills they’ve developed, they extend the image to fill the sheet. They are asked to latch onto formal and material motifs they identify in the images and extrapolate their extents in space. After a few iterations, students receive the full image and must work to reconcile their imagined spaces with those of the actual context. The guiding principles are those of superimposition and phenomenal transparency. They must opportunistically rotate, skew, erase and overdraw the multiple images to allow elements

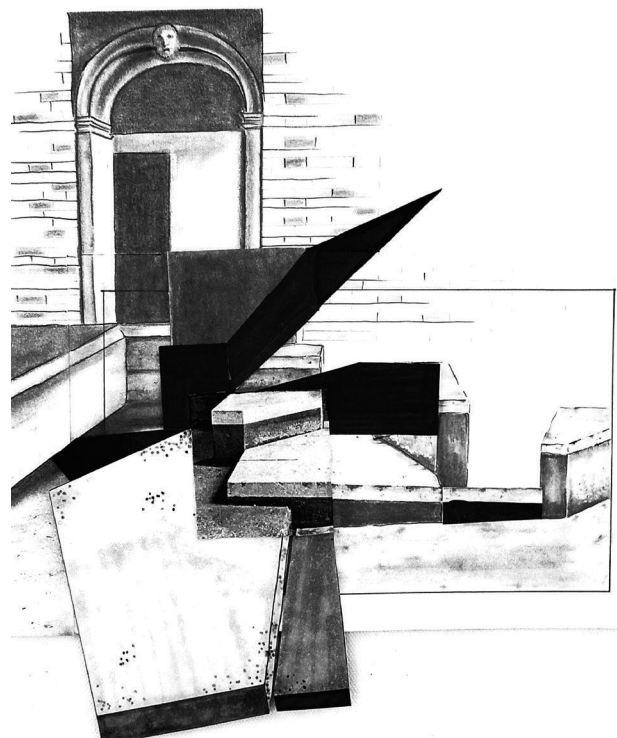


Figure 2: Student Throughdrawing

of each to diminish, come forward, or exist simultaneously across multiple layers.

This project requires a process of unseeing preconceptions, as well as generating new conditions out of the accidental collision of elements. The original images are disassociated from their origins, and then recomposed as they collide with the intents and imagination of the student.

The second project, inspiringly titled “collage drawing” is a project that prompts students with a difficult or charged spatial condition and requires them to visualize it. A performance space for an aging punk rock band, a workshop for a blind map maker, etc. Students are required to manually construct each collage. They may minimally alter or filter images in Photoshop, but the composition and assembly of each image must occur manually. Additionally, the images must come directly from print media (magazines, posters, catalogs, etc.). This constrains students to what they can find, and not what they can google. The effect of this constraint is that the “baggage” each component image brings starts to direct both the mood and the space of the scene they’re generating. A particular expression on the face of a character sends the image in an unforeseen direction. The perspectival geometry of a dominant element locks in the scale and direction of a space.

After developing the qualitative elements of the space, students generate a speculative “plan” of the space by again, collaging together elements and pieces of existing building drawings. The intent here is to subvert the tendency to simply depict what they think the space should be, and require them to strategically compose the space out of the pieces available to them. Here we’re treating the plan as an emergent and undecided suggestion for a project rather than a recording of an apparently preconceived space.

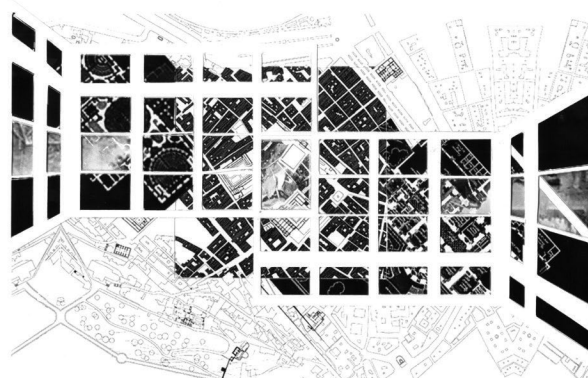


Figure 3: Student Collage

Finally, students combine their scenic images with the collaged orthographics to produce a composite image that suggests both the experiential and spatial characteristics of a space. These final images are where the full extension of the eidetic ethic occurs. Through their compositional techniques, the students produce work that collapses the multiple scales and aspects of the given space. Images produce readings that are multi-layered and multi-referential.

The final project partially reverses the process of the second. Rather than generate a series of images as a way to describe a given spatial condition, they use their accumulated techniques to extend an already rich but condensed description. This project gives students one of the places from Italo Calvino’s book *Invisible Cities*⁹, and has them augment the story through a series of three images. For this project, all techniques are on the table; detail drawing, freehand expression,

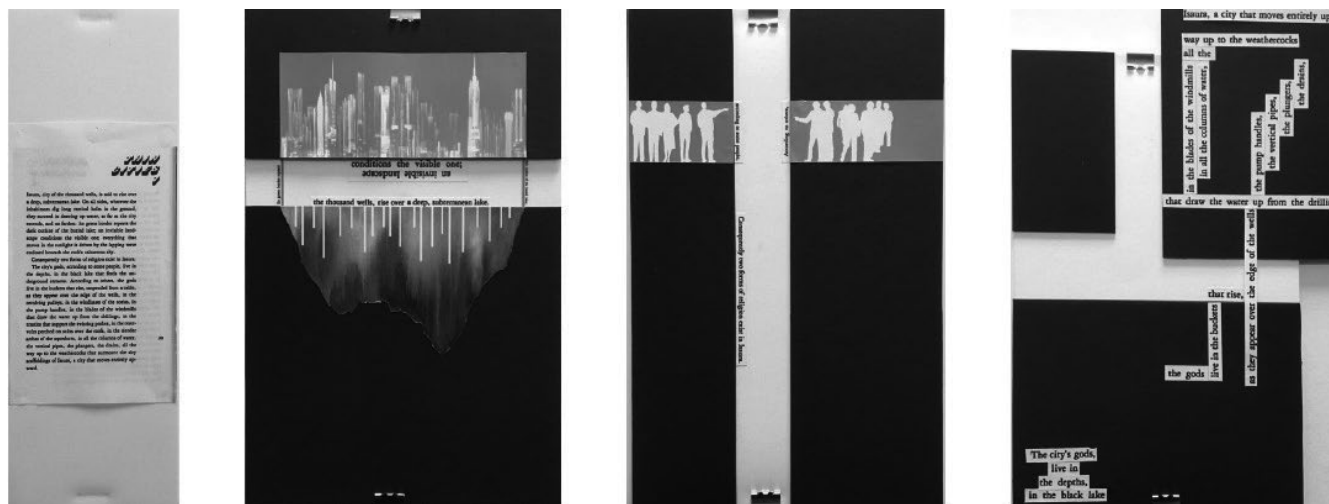


Figure 4: Student Invisible Cities panels

collage, etc. But most students chose to lean on the collage practices they'd developed.

This project operationally combines Tschumi's concepts of disjunction with Corners ideas of the eidetic. Students treat the process of making the images as disjunctive in that it is through the collision of the source text and the illustrative augmentation that an extended reading of each city occurs. By using techniques associated with eidetic imagery, the students bring a layered, multi-sensory extension to the already loaded textual description. The eidetic facilitates a more productive collision of text and image, and through this collision, new and unforeseen aspects are added to the story.

These ideas are admittedly not new. I'm obviously pulling from thinking done in the late '80's and mid-'90's. But I hold that in the face of pressures to increasingly control and manage the undecided, contradictory, and straight up weird in architecture, they do reassert an ethic of playful discovery in the design process. By leaning on these ideas, and bringing students through a drawing process that utilizes them, there is an opportunity to systematically un-think and un-see many of the overly linear habits they have developed. In my estimation, this is done without an overt rejection of rationality and order, but by replacing one kind of logic with another and by repositioning the sequence of traditionally rational thought.

As evidence of this, I put forth the many exit interviews I conducted with students where they expressed a joy and freedom not commonly experienced in their other design projects. The notion that ideas don't always have to drive a design, but may also emerge from the act producing it was consistently described as "liberating." Students who took the leap and applied the production of these types of images to their studio process found particular success. I can also site my observations of students who had, in the past and at the beginning of the class struggled to develop compelling work or generate what they thought of as "concept." As these students progressed, their work became more uninhibited and personal...which is to say, better.

So, while it is essential for architectural education to reinforce rational, systematic and ordered habits of mind, space must remain to foster students' attachment to their whimsical, undirected and emotional imagination. The exploration of non-rational images and the development of oblique graphic techniques facilitates this imaginative wandering. Finally, if architecture is to continue to serve as an embodiment of humanity's most inspiring and aspirational ideas, we must consciously adopt representation and design strategies that allow our mysterious and vague inclinations into its space.

ENDNOTES

1. Scheer, David R. *The Death of Drawing: Architecture in the Age of Simulation*. New York: Routledge, 2014.
2. Ibid, 55.
3. Tschumi, Bernard. *Architecture and Disjunction*. Cambridge: MIT, 1999.
4. Tschumi, 212.
5. Tschumi, 213.
6. Corner, James. "Eidetic Operations." In *Recovering Landscape: Essays in Contemporary Landscape Architecture*, 153-69. New York, NY: Princeton Architectural Press, 1999.
7. Ibid, 162.
8. Patterson, A. (2015). *Deconstructing by Hand, Reconstructing a Digital Reality: Understanding Versatility from Charcoal to Photoshop*. In: NCBDS 31 Engaging Media. Houston: Gerald D. Hines College of Architecture, pp.410-415.
9. Calvino, Italo. *Invisible Cities*. Orlando: Harcourt Brace & Company, 1974.