Verbal literacy in the design process: Enthusiasm and reservation

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Abstract: This paper inquires into the role of verbal literacy in design processes and the teaching of design.

During the Renaissance, Alberti identified literacy as the point of distinction separating an architect from a builder or craftsperson. From the Renaissance through the nineteenth century, the idea of the architect as a liberally educated professional prevailed until Modernism in the twentieth century developed as an avant-garde movement, consciously seeking to negate the past. Experimental methods of teaching at the Bauhaus school in Germany emphasized visual thinking and encouraged disdain for traditional academic practices and values. Instructors from the Bauhaus eventually brought these ideas to the United States where they became firmly rooted during the post-World War II era.

Gradually from the 1950s onward, Bauhaus methods were in turn perceived as stagnant, precipitating a search for new theories. Heuristic methodologies became a popular focus in the effort to re-establish design as a rigorous academic discipline. Around the same time or shortly afterward, an interest developed in the relevance of phenomenology to design, along with associated hermeneutic approaches.

Heuristic and hermeneutic methods depend on verbal literacy, a shared requirement that should unite rather than divide them, but whether the two processes are complementary or opposed is far from clear. Critics of heuristic strategy disparage its techniques as reductive problem-solving, whereas hermeneutics is impugned for being arcane and cultish. Proponents of both sides can be found on most faculties of architecture, but may not be willing to speak to one another.

The arguments of this paper rely on analysis to bring criticism into the open rather than assert a conclusion. My intention is to establish a common ground for discussion based on a better understanding of how design pedagogy relates to verbal literacy.

1. The Discovery and Loss of Literacy: From Alberti to the Bauhaus

Writing around 1450, the Renaissance architect Leon Battista Alberti was anxious to distance his profession from the social ranks of builders and crafts-people. In order to achieve this goal, he invoked the criterion of literacy:

> The architect should follow the example of those who study letters. For in this field no one will think he has done enough until he has read and studied all the authors; and not just the best ones, but all those who have written anything on the subject (Borsi 1986, 10).[i]

Beyond ambition, Alberti's emphasis on the ability to read was motivated by his recognition of the need to infuse a practical art with formal knowledge. Over the course of the next 500 years, the conviction that literacy would ensure an architect's professional expertise did not survive unaltered, or unchallenged.

The growth of the Industrial Revolution from 1750 onward precipitated the demand for a new kind of professional, educated primarily in mathematics and the physical sciences. This was a development that threatened the architect's authority. Engineers and architects now stood together on contested territory. As the nineteenth century progressed, the architectural profession, seeking to maintain superiority, hardened around the fine arts and accepted a French institution, the École des Beaux Arts, as the custodian of architectural education. The continuing encroachments of science exacerbated an intrinsically unstable position prior to the

eruption of modern movements at the turn of the twentieth century. While a seemingly ubiquitous – although not necessarily unified – avant-garde gathered momentum, opposition to traditional education represented by the École coalesced around the *Bauhaus*, a German school that had evolved through efforts to unite industrial design and fine art. Walter Gropius, who had been chosen as the founder and director of the new school at the end of World War I, publicly stated his belief that "There is no essential difference between the artist and the craftsman" (Whitman 1993, 38).[ii] Gropius thus distinguished the Bauhaus from the École des Beaux Arts while retaining the Bauhaus' identity as a school of art and, not incidentally, rejecting Alberti's notion of the architect's superiority over the artisan-laborer based on a traditional understanding of literacy and education.

Gropius served as director of the Bauhaus until 1928. He left Germany in 1934, a year after Hitler's National Socialist (Nazi) Party forced the school's closing. Traveling to the United States in 1937, Gropius was invited to teach at Harvard University, where he eventually became the head of architecture and succeeded in installing an American version of Bauhaus methods and philosophy.

Gropius' new agenda challenged the established hegemony of architecture schools in the United States. Most had been founded during the late nineteenth and early twentieth centuries and were modeled on the École des Beaux Arts. The leadership from Harvard was considered innovative and advanced despite emerging defects. Success in Germany had hinged on energy materializing across a coalition of activities focused on industrial design, but these conditions were not replicated at Harvard. Bauhaus methodologies in isolation could not generate scholarship, inquiry, or development. In essence an art school without an academic connection to the fine arts, the Bauhaus had always been intrinsically anti-intellectual.

2. Recovering Literacy: Three Models

2.1 Slutsky, Rowe, Hoesli, Hejduk – Developing an Argument

By the time Gropius' tenure at Harvard ended in 1952, architectural education throughout the United States had evolved into an amalgamation of "modern" Bauhaus teachings, traditional Beaux-Arts beliefs, and regional loyalties.[iii] The Bauhaus' suspicion of the past led to a relentless demand for innovation, rendering novelty an end in itself. Absent a theoretical foundation, the emphasis on creativity could not be sustained, and the focus shifted to appearance (Herdeg 1983). Ideas about substituting visual thinking for language spoken in words supported this trend, and the Bauhaus-inspired curriculum became correspondingly word-free. Dissatisfaction with this state of affairs surfaced unexpectedly within a group of newly hired faculty members who arrived at the University of Texas in Austin during the mid-1950s. The main participants – Bernhard Hoesli, Colin Rowe, John Hedjuk, and Robert Slutsky – targeted the École and the Bauhaus simultaneously with a plan for resistance and change, but contracts were terminated, and their plan failed.[iv]

During 1955-56, the year before they left Texas, Robert Slutsky and Colin Rowe had worked together on an argument about the relationship between painting and architecture. John Hedjuk and Bernhard Hoesli were also involved on a more casual, collegial basis. Slutsky and Rowe transcribed a summary of their conversations but did not publish a written account until several years later, when the essay appeared under the title "Transparency: Literal and Phenomenal" (Rowe-Slutsky 1963). A number of factors relative to this endeavor are worth noting – among them, the diversity of the participants. Slutsky was a painter, hired to teach representational techniques at UT Austin. His interest in the theory underlying transformations in painting during the early twentieth century led him to engage Rowe. An art historian, Rowe was skillful in developing arguments and relating words to visual references. Hoesli and Hejduk, as architects and design teachers, were knowledgeable interlocutors. The use of words and theoretical analysis that drew the participants together was alien to the Bauhaus approach. In the process of attacking Gropius and the Bauhaus, Slutsky and Rowe discovered a European architect whose work demonstrated theoretical principles that could serve as a foil to Gropius' shortcomings, and they proceeded to recommend Le Corbusier to American educators and students as an alternative model, worthy of study.

All four men eventually found academic work in other, dispersed venues where they remained dedicated to the idea of transforming architectural education – Slutsky and Hedjuk at Cooper

Union, Rowe at Cornell, Hoesli at ETH Zurich (Carragone 1995). In addition to its intrinsic value, the "Transparency" essay served to document the original work and identity of the group. The essay modeled a methodology for architectural study that was simultaneously traditional and new. The underlying structure of the argument revealed that artistic theory in painting was compatible with an avant-garde position and suggested that the same might be possible for architecture. Principally analytical, the entire operation foregrounded the advantages of re-investing in scholarship and re-established the potential relevance of literacy in architectural education.

2.2 Heuristic Reasoning

In retrospect, the publication date of the Rowe-Slutsky essay in Yale University's student-edited journal *Perspecta* appears to mark a turning point: written works tapping into the notion of architectural theory in relationship to historical analysis began to proliferate from the mid-1960s onward. Christian Norberg-Schulz completed his first book in English, *Intentions in Architecture*, in 1965. The following year, Aldo Rossi published *L'architettura della città* in Italy, and Robert Venturi produced *Complexity and Contradiction* in *Architecture* in the United States. Edmund Bacon's *Design of Cities* first appeared in 1967. These authors had all been educated as architects and were practicing designers or design teachers.

Although awareness of architectural theory increased during the late 1960s throughout the 1970s, and the teaching of design shifted along with it, academic culture was slow to reflect on this transformation. Analytic studies could yield a certain kind of knowledge, which was deemed valuable, but design is a creative process, and theoretical study related to creative aspects of design proved more challenging. An effort to explain the process of design and its methodology materialized in 1982 with an article by Peter G. Rowe in the *Journal of Architectural Education*, "*A Priori* Knowledge and Heuristic Reasoning in Architectural Design" (Peter Rowe 1982). At the time, Rowe was Director of the School of Architecture at Rice University in Houston. He subsequently transitioned from Rice to Harvard where his initial formulations expanded into a book, *Design Thinking* (Peter Rowe 1987). Rowe became Dean of Harvard's Faculty of Design in 1992.

The term heuristic refers to a concept or rule that can be adopted and used to direct experimental behavior. Contemporary understanding of the phrase "heuristic reasoning" derives from the work of George Polya, a Hungarian mathematician who began teaching at Stanford University in 1940. His study of problem solving was first presented as a mathematical method in *How to Solve It*. Originally published in 1945, the book went into several printings; it has become broadly known and proven influential across a number of disciplines (Polya [1945 and 1957] 1973 and 1985).

Through historical references and by observing students in the design studio, Peter Rowe was able to identify and categorize design strategies and persuasively argue that the logical processes they contain fit Polya's model. The book *Design Thinking* was reviewed by the architect Michael Rubin for the *Journal of Architectural Education* in Spring 1990. Rubin did not stint on enthusiasm or praise for Rowe's study:

> Rowe has presented the architectural community, and hopefully a wider audience, with...a radically alternative way of understanding the activity of design as a mode of inquiry and a re-appreciation of architectural production as a way of human knowing. (Rubin 1990, 45)

In reality, Rowe's argument was largely based on observation and description – and, in that sense, not new. The methodology that Rowe outlined was further contingent on the validity of transposing a method intended to solve mathematical problems into the realm of design.

A heuristic investigation requires a concept or rule to launch the process. Selection depends on the ability to retrieve and analyze prior knowledge (hence, Rowe's use of the term *a priori*) and is axiomatic. Architectural concepts and rules tend to be acquired in one of two ways – through study and analysis of precedent or by applying technical knowledge to the problem. Forming a heuristic proposition necessarily entails a verbal expression, even when visual imagery serves as a vehicle for description and analysis. Examples range broadly but are

familiar to most designers: preserving or enhancing an environmental feature such as a lake or river, projecting the ease or intensity of social interaction, referencing a “pattern language”, experimentation with proportions based on the golden mean, bio-mimicry that translates the shell of a crab into the structure of a roof, and so on (Peter Rowe 1982 and 1987).

After a concept or rule has been selected, it must be tested. For architectural designers, this is the point where verbal expression yields to traditional strategies of visualization and representation. When the testing phase reaches closure, evaluation follows, and words resume their relevance. Evaluation may lead to a reformulation of the original concept or rule. Its abandonment and replacement with an entirely different rule or concept is also possible. In either case, a new cycle begins, further shaping the problem’s solution. The ending point for these iterations is not specified in Rowe’s scheme, but the assumption is that a solution to the problem continues to form up to the point that its evaluation is deemed satisfactory.

Designers who are engaged in a heuristic process must submit the result of their experimentation to evaluation – both intermediate and final. This is often the point at which the validity of the underlying strategy fails: the method is prone to exalt the value of reasoning and logic in a way that leads designers to lose sight of the vulnerability of assumptions embedded in the process. To the extent that logic dominates this model, it can become overbearingly verbal. A persistent criticism is that heuristic techniques detract from the primacy of representational processes – drawing, model-making, and other forms of visual thinking.

The authority of Rowe’s approach to heuristics stems from his own experience as a designer and design teacher. Heuristic routines are common in design teaching, and the techniques he describes are correspondingly familiar to those who share Rowe’s background. The prevalence of heuristic approaches to design suggest the importance of understanding them, along with their deficiencies. Rowe’s particular contribution resides in the way in which he codified these operations, opening them to scrutiny and discussion.

Heuristic methodology emulates the history-theory model that precedes it to the extent that both rely on analytic reasoning. The main distinction derives from a concern that retrospective aspects of historical analysis must project forward to accommodate the creative process. Ironically, what makes this possible – the introduction of a framework for problem solving – presents a new set of complications. The mathematical problems that Polya conceptualized were intended to yield a solution that could be identified as correct, but a single correct solution is not possible in design. When applied to creative processes, heuristic techniques are liable to produce results that correspond to a reasoned explanation even though they may be faulty or inadequate, giving rise to the complaint that heuristic strategies are deterministic and potentially reductive. Rowe recognized this difficulty and referred to Horst Rittel’s concept of “ill-defined” problems to adjust his position (Peter Rowe 1987, 40-41). Although interest in developing the concept of “wicked problems” continues to evolve, the topic remains open to debate (Buchanan 1992).

2.3 Reflective Conversation and Interpretation through Hermeneutics

Shortly after Peter Rowe’s original paper on heuristic reasoning appeared in the *Journal of Architectural Education*, Donald Schön published *The Reflective Practitioner: How Professionals Think in Action*. In a pivotal chapter, “Design as a Reflective Conversation with the Situation”, Schön reviews data he has collected in the process of observing an architectural design studio over an extended period of time. Although the locations differ – Rowe was at Rice in Houston and Schön at MIT in Cambridge – similarities between Rowe’s and Schon’s case studies are striking. Schön’s description reveals a relationship between instructor and student in which the instructor directs the student toward preferred rules – and even outcomes – that suggest the two are working within a heuristic universe. But Schön shifts away from the idea of deploying *a priori* knowledge and focuses instead on the behavior of the designer. He is struck by the realization that the designer enters into “a conversation with the materials of a situation”, observing that “the situation ‘talks back’ “ (Schön 1983, 78). Schön concludes, “In a good process of design, this conversation with the situation is reflective” (Schön 1983, 79). Summarizing the case study leads Schön to another insight: “Drawing and talking are parallel ways of designing, and together make up...the *language of designing*“ (Schön 1983, 80).

By the time Rowe succeeded in expanding his seminal ideas in *Design Thinking* (Rowe 1987), Schön's publication of *The Reflective Practitioner* had already reached a wide audience. Although both men had based their investigations on a study of design education in an architectural setting, Schön was the first to draw attention to design as an inclusive discipline, a manner of thought and action, extending beyond the boundaries of architecture. Schön's relative disinterest in design as systemic logic compared to his fascination with the designer as a actor and participant proved timely in another way. Compared to Rowe, Schön was better able to connect to a broader sequence of events unfolding within the reaches of design theory – in particular, an appreciation for the role of hermeneutic methodology in design practice.

Although the origin of hermeneutics dates to Ancient Greek philosophy, our current grasp of the theory and its methods derives from the efforts of German scholars, Friedrich Schleiermacher and Wilhelm Dilthey, working within the climate of Romanticism and Idealism that succeeded the Enlightenment. During the early years of the nineteenth century, hermeneutics focused on the interpretation of difficult or obscure texts, both religious and secular. As the century progressed, the scope expanded to include history and related social sciences. Traditional hermeneutic methodology required the perception or initial projection of a whole, however incomplete, followed by identification of its contributing parts. The parts and the whole were then placed into a reciprocating dialogue with each other, creating a "hermeneutic circle". As the dialogue developed in complexity and depth, a corresponding knowledge of the whole and its parts would simultaneously take shape.

With the arrival of the twentieth century hermeneutics became associated with phenomenology and broadened to encompass works of art, but developments in hermeneutics were slow to reach American audiences due, in part, to the difficulty of obtaining English translations of scholarship formed in other languages. Of particular importance was Hans-George Gadamer's essential text, *Truth and Method*. Although the book was published in Germany in 1960, errors in the first English translation (1989) were not corrected until a new, authoritative English edition was issued in 1994 (Gadamer [1960] 1994).

During the 1990s, architectural scholars and educators were drawn to Gadamer in part because his philosophical arguments provided a context and an explanation for what they were already doing. Gadamer expanded the nineteenth century concept of dialogue, which had always been central to the hermeneutic process, transforming a common understanding of conversation into a theoretical construct that emphasizes elements such as engagement, alternating roles of listening and speaking, flexibility, and openness to change. His pursuit of theoretical studies pertaining to structured play led to the recognition that the dialogic model could extend to include multiple players, not all of whom needed to speak a verbal language (Gadamer 1986 and 1994). This position is strikingly consistent with Schön's conclusion that that drawing and talking in tandem constitute the "language of designing" (Schön 1983, 80).

Writing in 1992, John Hejduk described the manner in which Robert Slutsky and Colin Rowe worked out the complex arguments of "Transparency, Literal and Phenomenal" with assistance from himself and Bernhard Hoesli. Hejduk's account documents the actuality of a hermeneutic dialogue as the source of the essay and supplies persuasive evidence for the effectiveness of hermeneutic methodology:

> ...Bob was the main source and inspiration for the deep understanding of Cubism and its relation to the architectural vision. I sat in many an evening and night in Austin's heat and listened to Colin's and Bob's seminal dialogue. Colin learned more about Cubism through Bob's visions of its profound order and space. Slutsky was the prime mover and generator of thought in that realm. Also it was he who engaged Bernhard on the *Gestalt* ramifications. (Caragonne 1995: 164, n18)[v]

Transitioning from a philosophy of interpretation to the physical production of something designed requires more than trust in the dialogic capacity of words or a conversation between words and images. To the extent that interpretive methods, like analytic strategies, are retrospective, they appear incompatible with the activity of design, which by definition must look forward. Relative to hermeneutics, response to this concern resides within the discipline of

phenomenology. A phenomenological position might, for example, argue that meaningful design reveals the true nature of a situation, which may be uncovered through discourse that is formed by a hermeneutic process. Adrian Snodgrass and Richard Coyne have addressed the issue in *Interpretation in Architecture, Design as a Way of Thinking* (Snodgrass and Coyne 2006). Marcus Jahnke has more recently suggested that the work of Paul Ricoeur sheds light on this topic (Ricoeur 1991; Jahnke 2012).

For Gadamer, a conversation cannot reach closure as understanding unless the voices of the participants are articulated and heard as equals (Gadamer 1994). Schön appears to agree with Gadamer when he identifies design as a "reflective conversation" with a "situation" that is capable of "talking back" (Schön 1983, 78). Both Gadamer and Schön ascribe independence to the thing being designed. The designer, although he or she is the maker, is not in complete control, but must enter into a relationship with the design that allows for autonomy on both sides. This equality may be perceived as inherently faulty, particularly when it translates to educational settings and the relationship between a student and instructor.

3. Verbal Literacy in Relationship to Architectural Processes

Amalgamations can be treacherous and should be approached with care. Each of the models presented in this paper requires further, independent study. A commonality that does emerge is the dependence of the design process on language that is spoken. Literacy, by contrast, is normally defined as the ability to read and write. The consequences of foregrounding language in its spoken, as opposed to written, form are not necessarily obvious and need to be more openly discussed. Emphasis on spoken communication – whether as conversation or presentation – does not release architectural designers from an obligation to read or write, but may affect the way in which those abilities are learned and practiced.

All the models presented in this paper rely on verbal literacy, but they do so in different ways. Even when the final goal may be a written document – as is often the case in the realm of history or theory – arguments develop through the ability to "hear" more than one side of an issue. Heuristic strategies may be prone to soliloquy, but the dominant modality for hermeneutics is conversation. The methodology implicit in conversation serves to reconcile visualization with language and promotes complex understanding. Verbal literacy itself is not a theory, or an encompassing solution, but it is integral to the act of designing.

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ENDNOTES

[i] *De re aedificatoria* was published posthumously (after 1472) although it was most likely completed prior to 1452; Borsi (1986) is quoting from the 1966 Milan edition which combined the Latin text with a new Italian translation, *L'Architettura*, Book IX, chap. X, 854-56.
[ii] Whitman, 38-41, reproduces the *Manifesto and Programme of the Bauhaus*, written by Walter Gropius at Weimar in April 1919, in its entirety.
[iii] Caragonne (1995) makes this claim for the University of Texas at Austin, but a similar situation prevailed in most, if not all, American schools.
[iv] Slutsky, Rowe, and Hejduk left at the end of the 1956 academic year. Hoesli's contract was renewed, and he remained until 1958.
[v] Caragonne (1995) is quoting a letter he received from John Hejduk in May 1992. The quotation appears in a sidenote to the text.