Intuition in the Design Process

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INTUITION IN THE DESIGN PROCESS

by Tyson Fiscus

A Design Thesis
Presented to the Faculty of
The College of Architecture at the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Master of Architecture
Major: Architecture
Under the Supervision of Chris Ford
Lincoln, Nebraska
May 2012
ABSTRACT

Intuition in the design process

The vast spectrum of unique outcomes and innovative solutions found within the realm of architectural design suggests the field of architecture to be stirring with creative potential. When one first looks at these creative outcomes, it would appear that the designer arrived at a creative solution instinctively or intuitively. The designer often explains the process as intuitive or derived from a natural, unintentional sequence. The intention of this design thesis is to explicitly research intuition, understand intuition's role in creativity, and critically apply these findings to an architectural design process.

In order to research the seemingly inexplicable realm of intuition, a wide range of subjects and fields of study are to be considered critically. The fields of study to be analyzed include psychology, philosophy, and design in general. This widespread search for insight and gathering of information will lead to a more full understanding and appreciation for the powers of intuition and its connection to creativity.

After fully understanding the relationship between intuition and creativity, one can move on to applying this knowledge toward an architectural process. In order to arrive at precedents for using intuition in a design process, several architects’ processes will be scrutinized for their use of intuition, whether intuition is used intentionally or not.

A personal stance and theory will then be taken, in order to move forward and make use of the research material. This theory will be clearly demonstrated during the design process of an architectural project. To conclude the thesis, critical analysis of the project will be undergone to ultimately determine how intuition should be used in an architectural design process.
INTUITION in a creative process

Users of intuition in creative realms outside of architecture

When one recognizes the formation of architecture to be a highly creative endeavor, it is easy to acknowledge similarities between architecture and other creative disciplines. Music, athletics, art, acting, and writing are a few selected disciplines that demonstrate a high level of creative and holistic thinking and require a specific skill set that has been acquired through a high level of expertise through experience. This expertise allows the individuals in these selected disciplines to improvise, work in the moment, and follow intuitive impulses. These professionals become mentally trained to recognize larger scenarios rather than analyzing particular details in situation, therefore the professionals think more holistically. The images at right depict examples of creative individuals within selected disciplines that have displayed a high level of intuitive mental activity. Included is the individuals’ statements on the creative process.
MUSIC
“Inspiration and work ethic, they ride right next to each other… Sometimes you just get in there and force yourself to work and maybe something good will come out of it.”
- Jack White, The White Stripes

ATHLETICS
“The final component for me is the feel: to know the nuances of the situation, whether it be psychology or strategy. The feel for the game is the one thing that people underrate.”
- Steve Nash, Phoenix Suns

WRITING
“Now after doing it for 9 years we’ve got [the creation process] down to an art form. The show airs on Wednesday. The Thursday before that Matt and I go to work early in the morning with the writers and we go, “Ok, what do we do this week?” We start over every week. We don’t plan at all.”
- Trey Parker, South Park

ART
“The painting is not thought and pre-set in advance. While you create it, it follows your thought processes. Once finished, it changes even more, according to the observer’s state-of-mind. A painting lives its life like a living being, experiencing changes everyday life imposes.”
- Pablo Picasso

ACTING
“The thing about comedy, which is true of allot of fields, is you learn even science isn’t a science. Most of it is people just figuring things out and stumbling upon the good ideas. A lot of the best stuff comes on an intuitive level… Listen to that voice and just go for it. That’s what happened for me. When the door opens, you’ve got to just jump right in.”
- Conan O’Brien
How is intuition related to creativity?

In order to research the seemingly inexplicable topic of intuition, a wide variety of sources was examined. The major intellectual subjects for research were psychology, philosophy, and design. By examining what professionals and scholars had to say about intuition, an individual could be equipped with a wide-reaching breadth of knowledge.
RESEARCH

PSYCHOLOGY

PHILOSOPHY

DESIGN
**INTUITION** in a creative process

Methods of Research

As a way of gathering as much information as possible from a large variety of sources, a unique tactic of information collecting was utilized. While reading and analyzing text from books, magazines, and digital journals, notes were taken of certain information found to be particularly appropriate or pertinent to the selected topic of intuition. This information was jotted onto 4”x 6” physical note cards; each card had a singular bit of information. After acquiring a good stock of informational cards, the process of mapping the information began. The details of the actual mapping process are explained in further detail on pages 12-13.
Creativity is not a strictly logical process, it draws from many different aspects of our intelligence and personality. A critical factor is intuition and a feel for the materials and processes involved.

- Ken Robinson

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INTUITION in a creative process

Methods of Research: *Mind Mapping*

As a method of synthesizing a great deal of information, the exercise of mind mapping was utilized. The actual process of mind mapping began with the notion of intuition in the creative process. While riffing through the cards, when pertinent information was recognized, that card would be pinned up onto a tack board. There would then be a return to the stack of cards to flip through the deck and find more correlated information. Using yarn, a path was traced of connections. The yarn also connected new cards to cards already pinned up. This was a way to physically display how subjects across multiple text sources could relate and be synthesized. While making the physical connections between the cards, there would also be a mental dialogue with the information on the cards and personal positions, questions and perspectives would formulate based on the information. After the cognitive map was complete, a critical analysis of the connections was made; as well as a deep consideration of what new information had become apparent through the process.
"This is less a case of mapping to assert authority, stability and control, and more one of searching, disclosing, and engendering new sets of possibility. Like a nomadic grazier, the exploratory mapper detours around the obvious so as to engage what remains hidden."

- JAMES CORNER
INTUITION in a creative process

Reseaching the field of Psychology

Psychology is the scientific field of study that analyzes the human brain and mental processes; therefore it is a discipline that should be utilized in the research for how designers cognitively approach the creative process. As a general observation, psychologists tend to interpret the creative process as a rational, logical, and rather systematic process. Psychologists apply the scientific method and look for observable and experiment-worthy factors in the design process. Analysis involving brain waves, brain traits, and personality traits are common areas of interest for the psychologist.
**LEFT BRAIN**
- CONTROLS RIGHT SIDE OF PHYSICAL BODY
- SPEECH/VERBAL REASONING
- LOGICAL REASONING
- MATHEMATICS/WRITING

**RIGHT BRAIN**
- CONTROLS LEFT SIDE OF PHYSICAL BODY
- EMOTIONAL CONTROL
- AESTHETIC CONSIDERATIONS
- FACIAL/SPATIAL RECOGNITION

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**PERSONALITY TRAITS OF CREATIVE INDIVIDUALS**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Description</th>
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<tbody>
<tr>
<td>EXPERTISE</td>
<td>“Chance favors the prepared mind”</td>
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<tr>
<td>IMAGINATIVE THINKING</td>
<td>The ability to make new connections</td>
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<td>VENTUREsOME PERSONALITY</td>
<td>Tolerates ambiguity, risk, and uncertainty</td>
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<td>INTRINSIC MOTIVATION</td>
<td>Self-motivated commitment</td>
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<td>CREATIVE ENVIRONMENT</td>
<td>Positive reinforcement of creativity</td>
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**EEG SCANS / BRAIN STATES**

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<tr>
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<tr>
<td>Delta</td>
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<td>Theta</td>
<td>Between Dreaming and Waking</td>
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<tr>
<td>Alpha</td>
<td>Relaxed Wakefulness</td>
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<tr>
<td>Beta</td>
<td>Focused Attention</td>
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Studies show that those individuals that could easily enter the Alpha brain wave state were more creative, thus linking creative thinking to the Alpha brain wave state.
INTUITION in a creative process

Reseaching the field of Psychology

While researching the realm of psychology, a great deal of pertinent quotations and statements regarding the creative process were acknowledged. These statements ranged to praise and support of subconscious, intuitive-type thinking, to negative opinions of intuitions and statements of skepticism. The selection of most relevant quotes are displayed on the opposite page.
ON CONSTRAINTS

“The defining characteristics of what I call the creativity problem are three. First and obviously, it is ill-structured. Second, its solution depends on strategic specification of paired constraints. The specification is strategic because it is determined by the goal criterion. Third, the selected constraints structure the problem space to preclude familiar, reliable responses and promote novel, surprising ones.”

- Patricia Stokes (Creativity from Constraints)

MULTICONTEXTUAL THOUGHTS

“Creativity in the sciences, arts, and other areas involves the integration of previously unrelated contexts. This process is sometimes called metaphorical thinking, but this phrase is not favored by psychologists because of its artistic connotations, particularly with the art of poetry.”

- George Swede (Creativity: A New Psychology)

RECOGNIZING POTENTIAL

“Another reason people are quiet about intuition is that it is hard to pin down. Researchers prefer phenomena that can be directly observed and measured, so we have only a small body of knowledge, mostly anecdotal, about ephemeral intuition, with a few brave attempts at experimentation. It has been considered a chance phenomenon, something that either happens or doesn’t.”

- Philip Goldberg (The Intuitive Edge)

“We are led to believe that the finished product depicts the actual process. Then we are advised to emulate it in our thinking. Hence our schooling centers on recalling facts and following standardized methods for solving problems whose beginning and end points are clearly defined. Imagination and the vague intuitive notions that prefigure discovery are devalued or ignored.”

- Philip Goldberg (The Intuitive Edge)

SKEPTICISM

“The phenomenon of creativity cannot be comprehensibly explained by dividing it into separate, distinct stages. Creativity can neither be considered as a decontextualized mental process, nor as the unrestricted expression of psychological health. Neither is it based on a single, flash-like event, but can be conceptualized as a growth process that enables the individual to adjust to an ever changing reality.”

- Ingrid Schoon (Creative Achievement in Architecture)

“Our brains are constantly trying to make sense of the cacophony around us… We arrange things into recognizable arrays of meaning and fit unknowns into previously categorized groupings. This is a survival mechanism from way back in our existence, and we have become very good at ‘reading’ our surroundings. Indeed we are so good at this, that we will persist in seeing meaning where there is none.”

- Karl Aspelund (The Design Process)

“Are memories intuitions? Are they direct, immediate apprehensions without rational analysis? They often seem so. Regardless, our hunches about our memories surely are intuitions, and they too, demonstrably err.”

- David Myers (Intuition)
In a creative process

Reseaching the field of Philosophy

The field of philosophy is also worthy of researching for insight into how intuition works and what role it plays in the act of being creative. An advantage pure philosophy has over psychology is that it does not hold itself to scientific experimentation and can thus posit further speculation into the nature of the mind. The researched texts champion human experience and alternative forms of intelligence over the medical, observable, brain states position held by many psychologists.
ON EXACT SCIENCES

“On the testimony of those original thinkers who have taken the trouble to record their methods of work… their virtually unanimous emphasis on spontaneous intuitions and hunches of unconscious origin, which they are at a loss to explain, suggests that the role of strictly rational and verbal processes in scientific discovery has been vastly over-estimated… There are always large chunks of irrationality embedded in the creative process, not only in art (where we are ready to accept it) but in the exact sciences as well.”

- Author Koestler (The Ghost in the Machine)

MULTICONTEXTUAL THOUGHTS

“One might call them ‘games of the underground’ because if not kept under restraint, they would play havoc with the routines of disciplined thinking… Underground games may suddenly produce a solution — some far-fetched reckless combinations of ideas, which would be beyond the reach of, or seem to be unacceptable to, the sober, rational mind.”

- Author Koestler (The Ghost in the Machine)

“Creative thinking is a break with habitual patterns of thought. Creative insights often occur by making unusual connections, seeing analogies between ideas that have not previously been related. All of our existing ideas have creative possibilities. Creative insights occur when they are combined in unexpected ways or applied to question or issues with which they are not normally associated.”

– Ken Robinson (Out of Our Minds)

“In the case of a task for which a solution is not forthcoming, intuition appears as the sudden emergence of such a solution - or of a new path toward it – without any conscious awareness of the processes involved. In other instances the intuitive process is characterized by the unexpected shift in the associational chain.”

- Vincenzo R. Sanguineti (The Rosetta Stone of the Human Mind)

TACIT KNOWLEDGE

“Tacit knowledge is implicit knowledge, learned by experience but without intention. Tacit knowledge is not ordinarily accessible to consciousness, it is intuitive. Tacit knowledge is procedural. Unlike explicit knowledge – ‘knows that’ – tacit knowledge ‘knows how.’”

- David Meyers (Intuition)

“This paradoxical simultaneity of forgetting and knowing, learning and unlearning, is conceivable when we understand the fundamental unconscious and collaborative nature of any artistic or creative endeavor. The true artist and maker collaborates with the silent tradition of the craft and deploys the tacit knowledge that has accumulated in the tradition of the craft in question.”

- Juhani Pallasmaa (The Thinking Hand)

“The category of existential wisdom is also much more difficult to teach, if not outright impossible. Yet, it is the irreplaceable condition for creative work. It is thought-provoking, indeed, to recognize that in most countries there is hardly any formal academic education for poets and novelists; their work is so strongly based on existential knowledge that these artists are expected to emerge and grow without explicit pedagogically formalized education.”

- Juhani Pallasmaa (The Thinking Hand)
**INTUITION** in a creative process

Reseaching the field of Design

While researching the creative process and the cognitive activity involved, an abundant stock of information regarding design and the design process was discovered. Psychologists, Philosophers, and designers themselves have all used the design process as a foothold into studying intuition and other features of creative cognitive procedures. In order to break the process into more understandable parts, researchers often create or modify previous diagrams or models to represent the actions in the process.
CONSCIOUSNESS IN THE CREATIVE PROCESS

The psychologist, Graham Wallas, suggested a popular method of modeling the creative process which involved a combination of conscious and subconscious mental activities. The model was very primitive and has been modified by several other psychologists and design analysts. The major scrutiny of the model is the lack of a feedback loop and the fact that the model suggests a linear process.

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<th>PREPARATION</th>
<th>INCUBATION</th>
<th>ILLUMINATION</th>
<th>VERIFICATION</th>
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<tr>
<td>CONSCIOUS</td>
<td>SUBCONSCIOUS</td>
<td>CONSCIOUS</td>
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CONSCIOUSNESS IN THE DESIGN PROCESS

Le Corbusier, a renown architect, had a model of his own design process which was similar to the Wallas model. It was similar in that it was linear and accredited a high portion of the process to an intangible subconscious discovery, intuition.

IDENTIFY with the site. This includes site research and intensive information gathering.

SPONTANEOUS BIRTH This could be considered a moment of intuitive clarity, where, all of a sudden, a burst of ideas comes forth. This can only be achieved after the subconscious has taken over.

EXECUTION The slow, deliberate, and conscious activity of drawings and construction of the ideas.

TYPES OF DESIGN THINKING

CONVENTION-BASED
A form of design thinking in which the designer approaches the design challenge using a set of conventions and “rules of thumb” that are tried and true. The application of personal styles becomes a convention-based approach since style is a developed convention for framing the problem.

STRATEGY-BASED
A form of designing in which the designer recognizes the design problem and can estimate a process and plan of attack that will suit the problem most effectively. This form of design thinking is typically found in designers with more experience.

SITUATION-BASED
A form of designing in which the designer studies the situation and responds to fit that particular design environment. This form of designing is closely related to the act of improvisation in which the designer is in a scrambling state and design activities are performed quickly and collapsed together.
INTUITION in a creative process

Reseaching the field of Design

“Designers produce novel unexpected solutions, tolerate uncertainty, work with incomplete information, apply imagination and constructive forethought to practical problems, and use drawings and other modeling media as a means of problem solving”

-Nigel Cross
A move is a feature of the solution that is placed into the group of activities. It is a speculation and an attempt to solve the problem. Not all moves are novel to the particular process. Some moves may reappear after evaluation.

Formulating is separated into two actions: Identifying and Framing. Identifying organizes wicked problems and grasps characteristics. Framing is a selective focus from a vast pool of information.

Managing is a reflection or analysis of the process at a given point. This can be a split-second activity and usually involves removing one’s self to analyze the problem from outside the process.

Designers make judgements on when to stop the process and what qualities should be judged.

Designers externalize ideas via representation. Drawings, sketches, and models are all forms of short-term memory and mental imagery.

“The creative event in design then may not be so much a ‘creative leap’ from problem to solution as the building of a ‘bridge’ between the problem and the solution by an idea. A creative event occurs as the moment of insight at which a problem-solution pair comes together.”

- Design Expertise, Bryan Lawson & Kees Dorst
INTUITION in a creative process

Recognizing key terms

While immersed in the research of the illusive topic of intuition, a host of recurring terms and phrases became apparent. These key terms were used broadly and defined slightly different amongst the professional and scholarly texts. In order to take a personal and critical stance on these terms, a glossary of key terms was generated. The key terms are often a synthesis of previous declarations; however, some terms begin to show signs of personal philosophical speculation.
EXPERIENCE is the interaction with the environment through our senses.

EXPERIENCE is physical when interacting with the environment, which is coordinated with a mental EXPERIENCE which can be conscious or subconscious.

SUBCONSCIOUS mental EXPERIENCE is more trustworthy since it is not affected by subjective analysis.

Mental EXPERIENCE can also be referred to as intelligence.

Gathering a high level of experience into a particular repetitious situation offers EXPERTISE.

Subconscious mental EXPERIENCE generates INSTINCT.

INSTINCT avoids pain. INCLINATION gravitates toward comfort.

INTUITION is mental activity in response to INSTINCT or INCLINATION.

INTUITION searches for solution, it tries to find connections for action.

When the connection is recognized it is called INSIGHT.

If physical actions are occurring to manifest the intuitive “seeking” process it is called IMPROVISATION.
INTUITION in an architectural process - RESEARCH

How can intuition be used in an architectural process?

After explicitly researching intuition’s role in the creative process through the disciplines of psychology, philosophy, and general design, one could draw conclusions that intuitive thinking and creativity are strongly correlated. Intuition breaks with conscious and over-rational thoughts to forge new connections amongst old knowledge, thus recognized as creativity. In order to push the research forward into a realm related to the initial investigation, one begs the question, “How is intuition used in an architectural process?”
MEDIA STUDIES

Researching various representation techniques in the design process

As a foothold into investigating how intuition is used in an architectural process, it was clear one should critically analyze the full extents of an architect's process. Architects with a more transparent, clearly represented, process were of particular interest. This led to an appreciation for various methods and utilization of different types of media. Strong correlations between media, process clarity, intuition, and creativity were made. A selected number of these correlations are displayed on the next 4 pages.

MAKING
DILLER SCOFIDIO + RENFRO

Diller Scofidio + Renfro is a New York-based architecture firm that has produced several multi-dimensional, social, artistic installations that provide the firm with intellectual insight into issues.
COLLAGE
ANTOINE PREDOCK
The reknown architect, Antoine Predock, often begins the design process with a creation of a physical collage. The collage process allows Predock to capture the essence of the particular site and design problem he is focused on. The selection and placement of seemingly dissimilar elements is highly intuitive and offers generative possibilities for the forthcoming architectural realization.

MODELS
EDGE DESIGN INSTITUTE
The Hong Kong based architecture firm, EDGE Design Institute, led by Gary Chang, emphasizes a focus in the quick generation of ideas and concepts. Sometimes unconventional tools and materials, such as LEGOS, are used to explore the ideas efficiently.
MIXED + DIGITAL

BRYAN CANTLEY

Bryan Cantley of Formu:LA utilizes a mixture of hand-drawings, physical models, digital models, digital drawings, and digital collage to evoke a particular intuitive investigation into a design process. He often removes himself from a particular project by working simultaneously on several projects at once. This process allows him to see multiple possibilities at once.

WATERCOLOR

RAFAEL VINOLY

Rafael Vinoly creates large watercolor paintings in association with each project. These watercolors are vague and artistic, yet capture the idea of a project and then leads the creative direction of the architectural design.
INK + DIGITAL
NEIL SPILLER
Neil Spiller primarily uses ink as a way to speculate into his imagination and into the creation of virtual realms. In his process, Spiller combines several drawings digitally to manipulate the drawings further. Spiller often neglects the drawing in its raw state and considers the drawing as a photograph of a mental image that can be adjusted in a computer.

INK
JOHN RONAN
As many architects do, John Ronan sketches out concepts and ideas quickly using pen and ink drawings. Ronan uses crude line drawings as a way to quickly examine multiple options. He references these drawings as an generative tool for the future of an architectural project.
**INTUITION** in an architectural process

Elements of intuition are used in *every* architectural process

Intuition is a mental activity that is utilized in *every* design process. When a designer encounters particular situations in the process, the designer can use intuition in the form of experiential knowledge to create a plan to move forward. This can result in stereotypes or typing based on schema. However, in certain scenarios when one relies on intuition, that individual can create a unique guess or novel speculation because information not previously related can become related to the problem.
DESIGN SITUATION

INTUITION

DESIGN SPECIFICS ARE KNOWN
(EXPERT DESIGNER)

- RETREAT
  RETREATS TOWARD Tried-and-True METHODS

- EXPLORE
  LEADS TO CREATIVE AND INNOVATIVE DESIGNS

DESIGN SPECIFICS ARE UNKNOWN
(NOVICE DESIGNER)

- BLIND GUESS
  LEADS TO POORLY CONSIDERED DESIGNS

- INFORMED SPECULATION
  LEADS TO CREATIVE AND INNOVATIVE DESIGNS
INTUITION in an architectural process

Creating an analytical matrix

After recognizing several architectural projects that incorporated intuitive-type thinking, an analytical matrix was generated in order to provide an unbiased framework for studying intuition in individual architectural projects. The criteria of what aspects of the design to research are listed below. The columns frame a full range of an architectural project, from conception to finalized product represented as a photograph. The last column was designated for personal critique. This critique column was a critical analysis of the project and an assessment of the role intuition played in the design process.

PROJECT INFORMATION
STATEMENTS
CONCEPTION
PROCESS
PLAN
SECTION
PHOTO/RENDERING
CRITIQUE
<table>
<thead>
<tr>
<th>PROJECT</th>
<th>STATEMENTS/DEFINITION</th>
<th>CONCEPTION/DECISION-MAKING</th>
<th>PROCESS/DEVELOPMENT</th>
<th>PLAN/ABSTRACTION</th>
<th>ELEVATION/SECTION</th>
<th>PHOTO/IMAGERY</th>
<th>CRITIQUE/REVIEW</th>
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<tr>
<td>EMMY VON TRACHT</td>
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Most of my buildings look like the original sketch. This is quality revealed in his buildings. You feel this deep on Frank Lloyd Wright 

"...the most memorable thing is the comes a moment when the marks of the sketch utter the It's the act of drawing and painting that allows the hand to form. The initial sketch is always an emotion, not a concept."

I see the creative process as one that seeks an overlay, making judgments obviously an intuitive method of catching intuition and conceptual models."

"I trust the gut feeling, the intuitive hand, the intuition."

"The discussion of divinity is a slippery one because it's to-"
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“At the moment of designing, we want to liberate space, which includes freeing it from material necessities, both economic and technical. This is why we have abbreviated the design process to include only the explosive moment. A sketch, a model: this is the point of departure for the development of a new building.”

-Wolf D. Prix

Coop Himmelblau is known for designing with an explosive, intuitive sketch. The early sketches have a clear expression and gesture that suggests a clear agenda. The rough study models are more of a searching tool. However, the entire time, whether sketching, modeling, or computer modeling, they are in a constant pursuit of creating architectural form; there is no abstraction or conceptual search.
Frank Gehry claims that he sketches intuitively and reacts to his drawings as much as he makes intentional marks. His sketches produce a feeling of loose searching. The search is for a unique architectural form. Although the sketches for architectural figure are abstract, his intentions are forming an abstract architecture that is exactly like his sketch.

“I had to learn the hard way to trust my intuition, my inner child. A very good friend of mine who works as a psychologist encouraged me to listen more to my inner self and not to look on architecture as the powers that be.”

-Frank O. Gehry
“I can explain this as attempting to retain a certain innocence, the kind of innocence that may be present in one’s signature. It is a gesture that goes back to the body in architecture and I can see that gesture frozen in my clay models. My attempt to connect with ‘the divine’ in your terms makes me want to preserve certain instinctive, intuitive responses and to retain their power as the original ‘driving forces’ in my work.”

-Antoine Predock

Without seeing the collage or having any knowledge of its influence in the design, Predock seems to rely heavily on the clay model for this project. Predock claims he intuitively manipulates the clay to fit blocks of program. However, the dynamic forms of clay become a very literal form for the forecasted architecture. It would seem that the clay model is an intuitive exercise for architectural form-finding.
“Through investigations, I hope to arrive at a kind of experiential logic devoid of symbolic operation and theory that is only good on paper. When these processes gradually and favorably coalesce, I become more confident that there is perhaps a departure point for an architectural idea.”

-Sou Fujimoto

Fujimoto has clearly defined theories he defines in writings and in interviews. He represents these theories in clearly defined and easily understood diagrams. He also explores these theories in physical concept models that start to tap into an architectural dialogue. He was equipped with pre-conceived notions and theories coming in to the design problem. The use of clearly defined theory allowed Fujimoto to explore the concept intuitively. He could make intuitive leaps and moves regarding how a self-imposed theory will work into architectural form.
“The recurring theme of our office is transformation. We develop a methodology of fast track design. In terms of speed, Lego blocks are a very good tool to work with. I can do a model in three minutes. If you are brainstorming and you want to explain the idea, you don’t have to focus on the scale so much. They are extremely good for conceptual models.”

-Gary Chang

Gary Chang had a preconceived interest in configurability of space coming into the design problem space. He had a broad concept of compact space that could be manipulated by human involvement. After having an overarching concept, he could freely intuit ways of making that concept manifested. Design elements were done intuitively in regards to making the concept a reality.
When Peter Zumthor approaches a design problem, he immediately considers an experiential or phenomenal quality the designed space can instill upon the user. This can be seen as a way for Zumthor to frame the design problem. The architectural moves are done intuitively because Zumthor is using a lot of introspection to evoke feelings and emotions from the spaces he designs.

"When I’m designing – working – I mainly follow inclination. It’s a process of great naivety where everyone can have a say regardless of how much idea he has of architecture. The important thing is to be able to imagine things as a picture."

“I listen to my inner ear and see what experiences I can call on to tackle a new building job. I often experience that – as writers say – the book writes itself. You make a start then have to let go to find out where the material is taking you. I find it quite surprising how the images come up in my mind – sometimes it's like in the cinema.”

-Peter Zumthor
“By 1979 I was making these drawings every morning. As a method of catching intuition and first thoughts it is a technique which sets the imagination free. In the meditations associated with the initial conception of a building, its first stirring towards form, space, and light, the watercolors played a crucial role: they gave intuition a primary position.”

-Steven Holl

From Steven Holl’s book, the design process of this building is very intense and is split up into many pieces. The first, intuitive, reaction to the given site and program of the building suggests that Holl wanted to intertwine two paths, thus creating a concept of a spatial weaving. Mass models were created to emphasize the concept. Then the interior spaces were rendered with watercolor to show how light interacted with the spaces and how humans would experience the space in first-person perspective. The concept and massing appears to be an intuitive reaction to the site and the watercolors and user perspectives seem to be an intuitive interpretation of the building mass.
"...conceive the building in the imagination, not on paper but in the mind, thoroughly – before touching the paper. Let it live there – gradually taking more definite form before committing it to the draughting board. When the thing lives for you – start to plan it with tools. Not before... it is best to cultivate the imagination to construct and complete the building before working on it with T-square and triangle."

-Frank Lloyd Wright

Frank Lloyd Wright was quoted to abdicate having an architectural solution completely worked out in the imagination before committing it to paper. This makes it hard to trace his process, but it does give evidence that the entire process was introspective. The natures of his buildings suggest a deep connection and consideration to site. This suggests that Wright might have made intuitive reactions to site constraints.
“He is interested in the innate layering and multiplicity of poetic images; he seeks to reveal the metaphysical enigma behind commonplace events and objects.”

-Juhani Pallasmaa [on Marlon Blackwell]

Blackwell’s narrative about design process stresses the importance of drawing inspiration from individual sites as well as the greater regional site. Intuitive reactions to views and other site conditions seem to be an influential part of the design process. Sketching could be an intuitive form-finding technique. His sketchy drawing style suggests a searching quality.
Intuition in an architectural process

**ANALYTICAL MATRIX - PROJECTS**

“I would say that my design process is basically intuitive, and while the resulting formal characteristics might be similar from project to project, the design strategy employed is not.”

“These days, when architects talk about process it’s often in a determinist sense or the result of some algorithm. But even in the most extreme examples of this approach, there is obviously an intuitive overlay, making intuitive judgments and so on, and that’s really the part that I find more interesting.”

-John Ronan

**HOUSE ON THE LAKE**

ST. JOSEPH, MICHIGAN

2004

JOHN RONAN

Ronan’s narrative stated that the formal inspiration came from a branch that had washed up on the beach at the site; a branch that Ronan discovered on the initial site visit. This inspiration source seems gimmicky, but the branching concept definitely transitioned into a full blown investigation through several physical study models. When so many models are used, there is definitely an intuitive process of determining which models, or schemes, are more appropriate.
“In the beginning it’s important to allow the imagination to move freely without any hinderance from a pre-conceived form. The initial sketch is always an emotion, not a concept. It’s the act of drawing and painting that allows the hand to come into accord with the heart. When that happens there comes a moment when the marks of the sketch utter the first deeper knowledge of something to come: architecture.”

-Samuel Mockbee

Samuel Mockbee and Coleman Coker had a partnership in which they worked with similar interests in a similar process. They both created abstract explorations prior to making architectural moves. Mockbee would do paintings, murals, drawings, and other artistic expressions before getting into the constrictions of architecture. These art pieces seem to be intuitive reactions that Mockbee would create to flesh out ideas in the presented architectural problem. This is similar to Coker’s material investigations that resulted in sculpture. These sculptures equipped Coker with an understanding of material; as well as a language and respect of making.
“The discussion of divinity is a slippery one because it’s totally personal – these intangibles we may all see differently. I see the creative process as one that seeks an unselfconscious response that is the polar opposite to a highly rational methodology.”

-Antoine Predock

Antoine Predock begins the process of design of each of his buildings with a large collage. The selection of images and the arrangement is done for composition’s sake, but it is ultimately an intuitive endeavor. While doing the collage, and after the collage has been constructed, Predock can look upon the collage and draw relationships and connections that had not previously been explicit. In this way, the collage that precedes the architectural design is a useful and informative intuitive act.
"Spontaneously, the painting takes on its own life and becomes an idea in the process. Non-intention is propelled forward by the will to form; it is driven by intuition."

- Steven Holl

**CHAPEL OF ST. IGNATIUS**

SEATTLE, WASHINGTON

1994-97

STEVEN HOLL

By this time in Holl’s career, he had done museums, churches, and civic buildings. He had acquired expertise to a level that he could do intuitive watercolor sketches that could be generators for projects. The box of colored bottles could have been an authentic generative concept sketch for the project. Regardless, the watercolor was done, and physical models were created to further explore the idea. Holl uses intuition while searching for direction in his projects.
Intuition in an architectural process

**ANALYTICAL MATRIX - PROJECTS**

[on Frank Lloyd Wright] “...the most memorable thing is the deep intuitive quality revealed in his buildings. You feel this other dimension in his buildings of sympathy with nature and you know it can only come from intuition, from the idea that architecture can be something sublime.”

-Santiago Calatrava

SATOLAS STATION

SATOLAS, LYON, FRANCE

1989-94

SANTIAGO CALATRAVA

Santiago Calatrava’s sketchbook reveals that he had a concept in mind and produced an intuitive, gestural sketch. This gestural sketch was translated very literally into architecture. It makes me question whether the initial sketch was an abstract gesture or it was actually a move done with architectural form in mind.
“Those first sketches are me looking for an idea. They are scribbles that aim to find the right route for a project to take. It is fundamental that you have this dialogue with your work; you interact with the drawing, with your thoughts and with the memories of sketches and ideas past in order to draw out the next idea. Sketching is not part of the thought process, for me it is the thought process. Most of my buildings look like the original sketch. This is because they are born of a clear concept, an idea that has come from thinking and listening to what my mind, memories and sketch pad are telling me.”

-Rafael Vinoly
“I trust the gut feeling, the intuitive hand, the intuitive feel about the project... you can technically solve accommodation problems, you can solve problems of view and so on but which problem to solve first is a gut feeling... you can’t explain it but you feel that’s right and nine times out of ten you are right.”

-Ken Yeang

Ken Yeang talks about an intuition-led design process, but after reading the narrative of his process, it seems much more linear, rational, and business-like. He develops a list of features he wants in the design and combines them. He uses intuition as a decision-making device, but this seems to use intuition in the most minimum way in a design process.
For the Schocken Store, and other projects by Erich Mendelsohn, the early sketches are fluid and dynamic. These could be said to be intuitive reactions to the project requirements, but I feel that Mendelsohn is just sketching to produce a new architectural gesture. The sketches become a search for architectural form or figure.

"Thus for architecture, two components are necessary. In the first component - intellect, brain, the organizing machine - spatial possibilities of expression strike with lightning force, as in a vision, in the activity of the subconscious; the second, drawn from the completed organization, is that of the creative impulses, the blood, the temper, the senses, and organic feeling."

-Erich Mendelsohn
INTUITION in an architectural process

Analyzing the matrix

After completing the matrix, a critical, holistic, assessment was done in order to make observations about the role of intuition in an architectural process. There appeared to be several categories of intuition-based methodologies used early in the design process. It became useful to separate the projects into groups according to methodology-defined categories. The categories included: Definition, Abstraction, Figuration, Theory, and Decision-making.
One way in which architects can use intuition in the architectural design process is to allow for intuitive reactions to the design problem aid in defining the problem itself. The definition of the design problem can be done by documenting and internally analyzing emotional and natural responses to design problem specifics such as site or program. Successful architects, represented in the precedent matrix, that utilize this form of intuitive activity are Frank Lloyd Wright, Marlon Blackwell, and John Ronan. All of these individuals use intuitive reactions to site conditions to frame the design problem and seek inspiration from site related factors. Intuitively responding to such conditions forecast a more grounded design that meshes well with context.

Intuitive thinking can be utilized when examining abstract concepts in an architectural problem. Within the precedent matrix, architects such as Samuel Mockbee, Coleman Coker, and Antoine Predock have shown examples where producing abstract artifacts at the beginning of an architectural project allows them to explore intuitive and subconscious factors in the project. They use the artistic acts as a way to flesh out concepts and make explicit connections that were previously invisible. The physical artifacts produced become a vehicle for generating ideas in the architectural realm. The resulting architecture is often unconventional and the design often reflects a depth of understanding.

Architects can also rely on intuition while creating an architectural figure or form. Architects such as Frank Gehry and Erich Mendelsohn produce sketches very early in the design process that explore intuitive reactions to general project factors. These early, intuitive, sketches are gestural, expressive, and conceptual, yet they fully anticipate the forthcoming architectural form. The sketches become a vehicle for exploring figure and form in literal architectural expectation. The resulting architecture is often criticized for being artistic, sculptural, or frivolous; however, the resulting architecture encapsulates an initial emotional reaction and often provides innovative and unconventional structures for the built environment.

Another way in which architects can exercise intuitive thoughts in the architectural design process is to frame theories based on intuitions. The architects represented in the precedent matrix (Fujimoto, Chang, Zumthor, Holl) have intuitively created architectural theories in response to previous experiences with architectural situations. These successful architects now use a larger theory, concept, or idea about architecture as a framework for how they use intuition in design. Instead of making wild, ill-considered moves, they have a framework directing the architectural moves that come into the process intuitively.

Architects can also rely on intuition in a very minimal way that only takes lead in situations where a quick decision or evaluation is needed. Architects such as Rafael Vinoly and Ken Yeang seem to use intuition in this minimal way. They utilize intuition as a decision making vice after a highly rational, strategy-based, design process has been adopted. When intuition plays such a role in the design process, conventional and contemporary buildings result, rather than innovative or forward-looking buildings, which might arrive from a process with more divergent thinking.
**INTUITION** in an architectural process - *EXPERIMENT*

A design experiment testing how intuition should be used in an architectural process
How *should* intuition be used in an architectural process?

After analyzing the architectural precedent matrix project-by-project and the full matrix in its entirety, categories of methodology were established. Of the five recognized categories, the three categories of *definition, abstraction,* and *figuration* were acknowledged as having the most creative potential for an architectural project that wishes to extract the full design possibilities involved with intuitive thinking. In order to fully explore these three designated methodologies, an architectural project was established as a vehicle for experimentation. The project brief, disclosed by the thesis mentor, Chris Ford, is described directly below:

*I was approached by two brothers known to me who are looking for sites to open a “Butcher Shop & Taxidermy Service” in the North Bottoms area of Lincoln NE. (The neighborhood is special to them for family reasons.) However, since this is their first business venture together of this type, (they were bankers who were recently laid-off due to the economy) they have no tangible idea of what a program for such a hybridized or dual facility would look like. Due to an upcoming meeting with a particular funding source, they said that it is important to them to have a viable architectural proposal on or before Sunday December 11th. Although their site selection is preliminary, they seem particularly fond of Lancaster County Parcel ID Number 10-23-102-006-000. They stressed that “time was of the essence” and that they were desperate for assistance.*

The unprecedented nature of the program and the unfamiliar nature of the site left no pre-conceived notions for how the design or design process should work; therefore the designer would be put into a position where intuition would be heavily relied upon. The three methodologies recognized previously (definition, abstraction, figuration) would be utilized in a sequential order in the design process of a singular project, rather than starting three separate design projects.
Definition is a specific exercise which allows intuitive responses to certain design parameters help structure, frame, and define the design problem. The examples from the matrix (Marlon Blackwell, John Ronan, and Frank Lloyd Wright) used intuitive reactions, specifically from the site characteristics, to define the problem. Other features of the design problem, such as program, activities, or underlying issues can also be used as a way of intuitively defining the problem more concisely. It is not until the design problem is more well-defined that creative solutions can be extracted. For the design experiment, it was very pertinent to gather as much information about the site as possible in order to draw the most potential for intuitive reactions. A site visit was also imperative for picking up nuances the site offered.
Using **INTUITION** to define and frame an architectural project

In order to use intuition as a way to further develop and define the design problem, an eidetic site collage was created as a way to document specific site conditions and conceptual programmatic intentions. The resulting collage is displayed below. The collage is informed by an analysis of existing site conditions such as topography, site boundary lines, neighboring houses, and related infrastructure. The collage also documents photographic imagery of the current site and some imposing features such as the highway overpass and the quaint light poles. Considerations of intended program were also included as a way to start generating conceptual connections of human activities that will take place on the site. All of these considerations were analyzed and documented quickly as an intuitive reaction to the vague design problem.
The creation of a physical artifact was completed as a way to explore metaphysical and abstract concepts and relationships in a tangible form. The process of bringing forth metaphysical ideas began with sketches of concepts regarding the carving nature of the butcher shop activity and the taxidermist activity of representing nature. The actual initial sketches are displayed below. However, after the initial sketching period ended and the construction phase began, the formal arrangement and appearance of the artifact was slowly altered. The act of making became an improvisational activity where compositional design moves were made on-the-fly. The resulting artifact is displayed on page 63. The concept explored was the carving and manipulating of nature; an alteration of states within a single entity. This concept represents abstracted activities from both of the programmatic functions found within the forthcoming architecture.
The formal figuration of an architectural project can be explored intuitively when enough freedom is allowed for improvising relationships and compositions. The process of architectural figuration for the design experiment followed a roughly sequential pattern of alternating sketching and physical modeling followed by digital manipulation in a computer. The process began with sketches that confirmed the concepts of carving and altering, which were extracted from the abstraction exercise. A new concept of linking the two programs was also explored using sketches. Drawing on trace overlays over the site allowed the figuration exercise to be highly specific to the site and this allowed a direct responsiveness to contextual issues.
ITERATION 1

Iteration 1 was initiated with drawings on trace overlays over the site. The first drawings envisioned a main stair in the middle of the structure, which embodied the carving concept. This main stair was implemented to carve into the entire composition and simultaneously define the separation between the butcher shop and the taxidermy clinic. This move appears in plan and section, but gets lost in the physical mass model. Juxtaposition within materiality was also envisioned, and later rendered onto the physical model using digital manipulation. The resulting architectural project was rather normative and fell short on fully embodying the generative concept of carving.

PLAN AND SECTION KEY

1. ENTRY
2. CUSTOMER BROWSING
3. FROZEN STORAGE
4. TAXIDERMY GALLERY
5. TAXIDERMY WORKSHOP
6. BUTCHER WORKSHOP
ITERATION 2

Iteration 2 was a new take on site features and began to capitalize on some of the formal gestures experienced on site. These formal gestures were first explored on trace overlays. The major formal move was to mimic the directional ricochet that occurs on site, in the space underneath the overpass. This move is represented in the architectural design with a major staircase. Instead of being buried inside the structure (like iteration 1) the staircase was moved to the perimeter of the building to become a more expressive element. A physical model was constructed to evaluate compositional relationships. This model was later digitally manipulated to display material intentions.

PLAN AND SECTION KEY

1. ENTRY
2. CUSTOMER BROWSING
3. FROZEN STORAGE
4. TAXIDERMY GALLERY
5. TAXIDERMY WORKSHOP
6. BUTCHER WORKSHOP
CONCLUSIONS

A critical assessment of the design experiment

The end of the design experiment also marked the end of the first semester of the academic year and the mid-point of this design thesis. At this point, the thesis was reviewed by tenured architecture faculty. The feedback toward the project was highly critical and inundated with skepticism. The reviewers questioned whether there was anything new to be learned from this process or how one could determine the value of the investigation.

During the mid-year break, the critical distance necessary for reflection was granted and pivotal assessments were made. It became clear that an architectural problem has too many parameters and specific, technical necessities to be approached purely intuitively in an improvisational way. This distinction is most clearly seen in the design experiment in the transition between the abstraction and figuration exercises. The abstraction phase can be approached as an intuitive act since it is not burdened by the technical requirements of an architectural problem. However, these technical requirements start to hamstring intuition’s creative potential when entering the figuration exercise.
After receiving critical feedback and drawing informative conclusions, a plan for advancing the thesis was formulated. Rather than working purely intuitively in an improvisational way, as choreographed in the experiment project, the same intuitive exercises of definition, abstraction, and figuration would be drawn out in a new project over the course of an entire semester. This extra time would allow for an alternation between intuitive reactions and explicit moves. To explain how this process could be spread out over an entire semester, a semester timeline was created. The AIA, industry standard process was used as the baseline for the timeline to orient an outsider to how the intuitive exercises could fit in to a standard process timeline. The red bars injected into the AIA-recognized process represent moments where intuitive reactions could be afforded while the blank space between the red bars express a rational reflection and evaluation of intuitive moves.
ed issues on Schematic Design checklist

CONSTRUCTION DOCUMENTS

Review unresolved issues on the Design Development checklist

Coordinate drawings with the Project Manual

Assemble final drawings and specifications for coordination

SUNDAY   FINALIZE BOOK

WEDNESDAY  PRINT BOOK

TUESDAY  TAU SIGMA DELTA BANQUET

TUESDAY  BEGIN ARCHITECTURAL SOLUTION

THURSDAY  CAREER FAIR

FRIDAY   CAREER FAIR

TUESDAY  LAYOUT REVIEW

TUESDAY  PRINT PRESENTATION MATERIALS

THURSDAY  FINAL REVIEW

THURSDAY  PROJECT BOOK DUE

SUNDAY   RADIOHEAD CONCERT

MONDAY   SPRING BREAK

TUESDAY  REVIEW

FRIDAY   BEAUX ARTS BALL

SUNDAY   POWER OUTAGE

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**INTUITION** in an architectural process - *DEMONSTRATION*

A design project demonstrating how intuition should be used in an architectural process
DEMONSTRATION PROJECT

How *should* intuition be used in an architectural process?

Having had a critical re-focusing of the design thesis during the mid-year break, the second semester began with the briefing for a demonstration project. This demonstration project would be the proving ground for a personal assessment of the role of intuition in an architectural process. Of the declared exercises and methods for how intuition can be implemented in a design process, the conclusive position for how intuition should be used in an architectural process remained constant. Intuition should be used during the stated exercises of *definition*, *abstraction*, and *figuration*. As with the experiment project, the demonstration project brief was disclosed by the thesis mentor, Chris Ford. Another similar case with the experiment project: the unfamiliar and vague nature of the program brief allowed the designer to have no pre-conceived notions coming into the project, and therefore the designer could react more intuitively. A copy of the disclosed brief is shown below.

PROJECT BRIEF

> Design Thesis: "Harris School of Violin / Violin Repair Shop"

Earlier today while I was at Starbucks, I was approached by two sisters known to me who are looking for sites to open a "Harris School of Violin / Violin Shop" in the University Place area of Lincoln NE. (The neighborhood is special to them for family reasons.) However, since this is their first business venture together of this type, (they were musicians who grew tired of their non-musical day jobs) they have no tangible idea of what a program for such a hybridized or dual facility would look like, especially in light of needing to provide a reasonable amount of parking for their patrons. Due to an upcoming meeting with a particular funding source, they said that it is important to them to have a viable architectural proposal on or before Thursday April 5th. Although their site selection is preliminary, they seem particularly fond of Lancaster County Parcel ID Number 17-17-120-011-000. They stressed that "time was of the essence" and that they were desperate for assistance. I told them I was unavailable, but I gave them your name.

Is this a project that you are willing / able to help them with? If so, let me know, and I can arrange for an approximately one hour presentation on either Thurs April 5th or Fri April 6th. It is likely that they will bring the entire ARCH faculty with them, plus a few external guests.

For your use:

http://ags.lincoln.ne.gov/gisviewer/

Kind regards,

CF
As previously stated, definition is an exercise in the architectural process that allows the designer to have intuitive reactions to the design problem, as a way to frame the problem and aid in defining the problem itself. This can be done by documenting and internally analyzing emotional and natural responses to design problem specifics such as site or program. The diagram below presents this model of action. The diagram also is a reminder that the problem specifics of site and program are comprised of both technical data and implicit essence. This prompt for gathering explicit data as well as intuitive understanding is imperative for generating a cohesive definition of the project.
DEFINITION METHODS

Creating a record of intuitive responses to design parameters

In order to gather as much information about the demonstration project as possible, and still rely on freely associated ideas and intuitions, a 6’x8’ tack board was created and utilized. The base layer of the tack board was equipped with a detailed, 1/8”=1'-0" scale site plan. This site plan, equipped with technical site data became the frame of reference for other, more essence-based observations. The tack board was a tool that was both referential of important data as well as a physical demonstration for making creative speculations and observations about the project; thus being the perfect tool for generating project definition.
TECHNICAL DATA

While gathering typical and necessary technical information about an architectural project, utilizing intuition to guide the search for pertinent information can lead to the discovery of unique relationships and unconventional attributes. Rather than treating intuition as a tool that looks for broad assumptions, intuition hints at pertinent information and organizes the hierarchy of importance within that information.
Intuition in an architectural process

**DEFINITION**

**ABSTRACTION**

**FIGURATION**
**Precedent**

**Robertson & Sons Violin Shop**

- Sales Department
- Restoration - Repair Department
- Rental Program
- Sheet Music Library
- 3 Instrument Showrooms
- Rental Hall = 120 Seats (blue)

**Three Stages @ Folsom Lake College**

- Stage 1: 850 Seat Theatre
- Stage 2: 200 Seat Theatre
- Stage 3: 100 Seat Theatre
- Black Box: Flex Space (Teaching / Recording Studio / Gallery)
- Grand Lobby / Mezzanine
- Rehearsal Space, Classroom, Scene Shop

**Dietz Music Lincoln, NE**

- 3 Levels
- Recital Space (100 people)
- Workshop
- Showroom
- Array of Instruments

**The Violin Shop Lincoln, NE**

- Owners: David Frederick (Master Luther)
- Henry Halvquist
- Rental Shop
- Full Workshop (300 sq. ft)
- Showroom 300 sq. ft
- Storage
- 2000 sq. ft.

**Biodegradable Workshop**

"We arranged things perfectly, so that when I drop dead, everything will decay with me, and I will have left no impression on the ground." - Alt Carpenter

16 x 34 ft. Shop

"The less machinery you have, the more freedom you have to play, to make shapes." - Carpenter

P. 32.
In order to use intuition as a way to further develop and define the design problem, a photographic essay was created as a way to document specific site conditions. The photographic essay, displayed below, highlights the characteristics of the site that were of particular, personal interest or curiosity. Photography was used as the medium because it quickly and accurately captures guttural feelings and emotional reactions to site conditions.
CULTURE OF CRAFT

In regards to specific programmatic information of violin making, intuitive speculation into the culture of violin-making uncovered a particularly high interest in the nature of craft. Working by hand with high precision is important to the activity of violin-making. By visiting a local violin maker and documenting the hand-craft of violin-making, a great appreciation of craft was recognized.
In association to specific conditions of the program, there is a rich history of violin design culture that has been passed down for centuries. Broad, intuitive assumptions of violin design led to an explicit research of this culture. New, explicit knowledge was gathered regarding the design culture of the most famous violin-maker: Antonio Stradivari. The drawing at right was generated following the specific proportions Stradivari outlined for the design of plate moulds in a violin.
DEFINITION REPRESENTATION

Creating a document that synthesizes the definition phase

The '6x8' tack board as a fluid association of ideas was an incredibly useful tool for assessing the demonstration project. However, a more static, synthesized, artifact was desired to be a definitive documentation of significant information. The representation technique utilized was an eidetic collage, consisting of both technical data and implicit essences. Similar to the physical tack board, the digital collage utilized the technical, vector-based data as a framework for which depictions of project nuances could fit into. Several iterations were done in order to vet out the most informative, yet compositionally pleasing collage. All three collages presented in this book are a synthesis of technical data, site characteristics, and the cultural nuances of violin making.
Intuition in an architectural process

DEFINITION

ABSTRACTION

FIGURATION
As previously stated, abstraction is an intuitive exercise in the architectural process that explores concepts and ideas, without holding one's self accountable for architectural realities or constraints. By setting aside burdens of architectural reality, one can become fully immersed in pure, abstract, concepts. The process of creating physical artifacts is an exercise for making new connections that were previously invisible or within a subconscious realm.

The first attempt at exploring abstract concepts in the architectural program of violin making was an exploration into the harmonic proportions of violin design. The proportional framework of a Stradivarius violin was laid out and a new, abstract interpretation of that line work was created. Construction lines were interpreted as perspective lines in order to add a layer of depth and transparency. This media exercise was leaning toward an architectural language and therefore did not yield a desired level of abstraction.
CONCEPT

While defining the architectural agenda of a violin workshop and education facility, a particular conceptual interest in the violin was recognized. The embodied energy, represented through the potential energy of tension within the violin’s stings and neck, was of significant interest. Not only does a violin visually, physically, and structurally hold back an incredible amount of tension, it delicately holds a precise relationship toward a high performance on an audible level. This delicate balance between visual and structural tension, as well as audible performance was a driving concept. The question then became: What is the creative potential in exploring the abstract concept of tension in a physical way?
ARTIFACT 1

The first physical artifact in the abstraction exercise was created as a way to explore connections, materials, and mechanisms involved in tensile structures. Books on tension concepts, such as Tensegrity, by Buckminster Fuller, were referenced to gain an understanding into previously accomplished designs. However, rather than directly copying ideas of tensegrity, a unique artifact was produced. This artifact was largely unsuccessful at combining structural tension with a delicate, high performance audible tension.

ARTIFACT 2

The next artifact was focused much more on the high-performance, tune-ability qualities found in the concept goals. The singularity of the structure leaves the artifact as a simplistic device that achieves performance through brute force. The loss of expressive tensile structure leaves product number two largely a failure.
ARTIFACT 3

The third object incorporates design moves revealed in both of the first two artifacts. The object uses the structural advantages of tension to vault out large cantilevers and generates an expressive form. It also incorporates tuning mechanisms that allow for a high level of audible performance. The artifact has a very apparent base and each of the elements seem unrelated to the whole, thus compromising the unity and beauty of the entire composition.

ARTIFACT 4

When constructing the forth artifact, the intentions were to create a structural system that holds the struts in tension without coming in contact with each other. This could not be achieved while maintaining a level of acceptable audible performance, so the artifact fell into a previously successful arrangement in order to be constructed. The failure of this artifact led toward brainstorming a new method of structural interaction.
The fifth artifact took on a new structural approach that incorporated a high level of tune-able performance and an aesthetic of delicate tension members that were dependent upon each other. In order to fully experience the audible qualities of this artifact, an electronic pick-up was attached to the base, in order to amplify the sounds produced by the artifact. This led to a new conceptual speculation of performance. This abstraction was deemed successful because, as a gesture, the audible, interactive, and structural performance of the object embodies the conceptual goals of the abstraction exercise.
As previously stated, figuration is an intuitive exercise in the architectural process that explores concepts and ideas that were exposed in the abstraction exercise. This is done in a way that directly anticipates a subsequent architecture. The medium used to explore these architectural concepts were three dimensional, physical sketch-models. These intuitive sketch-models are gestural, expressive, and conceptual; yet they fully anticipate the forthcoming architectural form using architectural moves.

FIGURATION MODELS: SERIES 1

Models 1 – 5 (created at a 3/32” = 1’-0” scale) demonstrate an intention for fulfilling programmatic requirements, while using a language that simultaneously dealt with conceptual considerations of tension. This design approach quickly began dealing with more conventional design issues, including program arrangement and user circulation. The iterations were a search for solution to a design problem.
CRITICAL ANALYSIS

Recognizing failures in the figuration models: series 1.

The productive yield from models 1 – 5 demonstrated articulated attempts at finding a specific architectural form. This design approach quickly showed signs of retreat toward typical design rather than utilizing full opportunities regarding the concept. The rendering at right epitomizes this retreat towards old methods because the rendering is rather uninformative. It was done simply to replicate the figuration exercise done in the experiment project completed earlier in the thesis. Acknowledging that this method was failing to capitalize on the creative opportunities of intuitive design, a new approach was taken and is displayed in model series 2.
Models 6 – 17 (created at a 1/16" = 1'-0" scale) are much more dynamic and expressive of the conceptual basis for the design project. The visual tension displayed in these models highlight a playful dialogue and interaction between the architectural elements of structure, form, and enclosure. Images and critical analysis of all 11 models are shown on the following pages.
MODEL 6

The gestural interaction between structure, enclosure, and site demonstrates an architectural agenda that relates to the generative concept of tension. As a gesture, this model embodies an architectural language. However, as a direct form of architecture, the relative scale and spatial arrangements do not have a functional or realistic relationship to the architectural program.

MODEL 7

Model 7 continues to demonstrate a playful interaction between enclosure and structure. It also capitalizes on the dynamic and tenuous structure utilizing only a single point of connection to the ground plane. However, this model lacks realism and relative scale.

MODEL 8

Model 8 attempts to play up the notion of symmetry in the compositional arrangement of structure. Within the network of tensile structure, programmatic boxes are inserted to fulfill spatial requirements. This haphazard composition disenfranchises the programmatic elements and the meaningful interaction between structure and enclosure is lost.

MODEL 9

Model 9 takes a formal approach that allows the larger structure to provide the frame for how enclosure will be formed. This negatively impacts the programmatic spaces because they are so constricted to the moves done by structure, rather than the two mutually influencing each other.

MODEL 10

Model 10 is arranged around a central structural core, which provides attached structural members, as well as struts for tensile structure. This model was conceived using cues analyzed in section. The result is dynamic relationships across the vertical realms. However, a meaningful relationship between structure and enclosure is not yet realized.

MODEL 11

Model 11 exhibits a particularly high level of tension, using tension members that span and cross the entirety of the model. There are also instances where the enclosure folds around the tension members hinting at an interesting interaction between the two. However, this iteration also remains quite low and does not take full advantage of level changes that could be examined in section.

MODEL 12

Model 12 reinvestigates the notion of structural symmetry and is structured off of a central core and two large struts. The enclosure is cut back in order to accommodate structural members. This cutback is considered too submissive on the part of the enclosure.
MODEL 13

Model 13 explores the notion of ground plane manipulation. The ground plane was preserved for parking in other schemes and was dealt with lightly, with structure piercing the ground plane in minimal circumstances. A design move is made in model 13 that is quite successful: the enclosure folds around the tension member. This design move causes a visual tension that suggests a competition for dominance between the two elements.

MODEL 14

Model 14 offers a full-fledged manipulation of the ground plane. All of the parking is repositioned below the surface, to open the entire ground plane up for programmable space. This approach, though novel and worthwhile to examine, fell short in exemplifying the delicate connections desired in the generative concept of tension.

MODEL 15

Model 15 takes a different parking strategy, utilizing 30 degree angled parking. This influenced the rotation of the structural core, which added a dynamic condition to other structural members. Despite the dynamic nature of the condition, there are incongruities and poor relationships found while trying to rectify the geometries.

MODEL 16

Model 16 also explores the idea of rotating structural elements 30 degrees to fit with parking and approach conditions. Model 16 also reaches forward to hold a storefront edge and maintain the urban contextual condition. This storefront concept is compelling, but, as a gesture, overpowers the overarching concept of tension.

MODEL 17

Model 17 combines several ideas into a single composition. The storefront is pinned back using tension elements. The ground plane is manipulated to introduce a stereotomic element that attempts to rectify the other schemes’ dismemberment of the ground plane. The enclosure is folded sharply to accommodate for tension structure. The use of all of these design moves without consideration of detail or hierarchy muddles the composition’s clarity.
OBSERVATIONS

Recognizing creative potential in the figuration models

The iterative process of creating several physical models in the figuration exercise left the designer with several architectural moves to explore. The extent of the exercise was reached when the models began following a convergent path, with the last iterations attempting the same moves. The moves that provided the most potential for a dynamic architectural solution were: lifting the entire structure off the ground plane, therefore touching the site in a selective few, highly articulated, points; and creating a dynamic dialogue between tension structures and programmatic enclosure. Rather than selecting a single physical model from the figuration exercise and directly mimic its form into a digital model, particular moves from select models were used to inform an entire new composition, arranged in modeling software, using a computer. This amalgamation of moves can be seen in the final project proposal, in the following section of this book.
**INTUITION** in an architectural process - *PROPOSAL*

A design project, represented in traditional architectural means, demonstrating how intuition should be used in an architectural process
CONCEPT MANIFESTATION

The concept of tension, both embodied and visual, was a driving force behind the intuitive exercises in the design process. The architectural detail (page 119) demonstrates architecturally how that concept was manifested. The rendering depicts the detailed connection point from a structural beam to a vertical column, using a tension cable. The surface of the programmatic enclosure begins to fold around this tension structure, thus creating a dynamic relationship between architectural elements. The aggressive styling and structural requirements for tension are offset by the delicacy and finesse of connections, which draws an analogy between a resonating violin and a resonating architecture.
SITE STRATEGY

The site plan (page 121) displays the project’s relative size and position within the urban environment. The east façade aligns with the typical storefront condition in order to hold the urban edge and demonstrate an accord with context. Holding the east edge also allows for the typical condition of parking in the rear to occur. The major site strategy that will be clearly represented on the following pages is that nearly the entire building is elevated from the site. The structural and circulation necessities are the only particular moments where the building interacts with the site. This draws an analogy from the nature of the violin, which requires minimal contact in order to resonate with the air surrounding it.
LOBBY
360 sf
3 storey ceiling
custom reception desk
custom light feature
GALLERY

750 sf
linear gallery showcases work
doubles as circulation to recital hall
6 - 36"x60" display cases
RECITAL HALL
2400 sf
92 seats + 3 handicap seating
full stage lighting
acoustical panels
GREEN ROOF
2500 sf
semi-intensive green roof
native grasses
flexible performance space
WORKSHOP
1300 sf
8 personal work spaces
custom work benches
large power tool shop
office space
finishing room
CONCLUSIONS

Final design thesis review

On Friday, April 6, 2012, a final design thesis review was held to evaluate the entire body of work produced during the academic year in accordance with the design thesis. A panel of jurors assembled to provide critical feedback and evaluate the successfulness of the design thesis. The jurors included: special guest juror Matt Burgermaster, the design thesis advisor, tenured professors, selected local professionals, and several student colleagues. The presentation was a combination of digital media, physical presentation boards, physical artifacts, and physical models. The presentation was delivered inside of 40 minutes and preceded a 20 minute open discussion.

The presentation of the design thesis was met with great enthusiasm and encouragement by most jurors. The entirety of the design thesis process was commemorated for its diligent work and focus. Many of the comments were suggestions or speculations for how to intensify the process or the presentation of process. The most critical feedback focused on the final proposal portion of the thesis. It was stated that resulting architecture did not embody the full range of the process and did not take full advantage of the creative potential involved in the intuitive exercises.
A critical assessment of the design thesis

The intentions of this design thesis were to explicitly research intuition, understand intuition’s role in creativity, and critically apply these findings to an architectural design process. While explicitly researching intuition, the thesis enjoyed clarity of focus on a specific subject matter. The association between intuition and creativity became apparent and was critically assessed amongst a wide variety of topics and subjects. However, the research phase did lose some traction when intuition was first analyzed directly in an architectural process. The media studies portion of this book highlights an unnecessary tangent where intuition was looked at in a broad sense and general assumptions were made too rashly. Fortunately the thesis regained acute focus and diligence during the creation of the precedent matrix, which scrutinized the role of intuition and its potential for creativity in an architectural process.

When applying this research to an architectural design process, a personal stance had to be taken, which left the thesis vulnerable to subjective criticism. This criticism was clearly evident and relevant concluding the experiment phase. In fact, it was after the experiment phase that some critics posited that pure intuition doesn’t belong in an architectural design process at all. Recognizing the downfalls of acting purely intuitively, the design process was altered in a way that proved to be extremely effective. Thus one can conclude: in order to use intuition effectively, one needs to alternate intuitive moves with highly rational evaluations, thus creating a reciprocal process.

While the majority of this design thesis was about investigating creative possibilities within the design process, the majority of the criticisms toward the project occur at the stage of the manifested architectural proposal. These criticisms can reasonably be devalued due to the fact that individual critics have personal expectations for what the resulting architecture should be. They are entitled to their opinions, but leaning on those opinions as grounds for evaluation perpetuates the model that the ‘end justifies the means’ which can ultimately stifle the importance of a creative process.

In summation, the design thesis was a successful investigation into the realm of intuitive thinking. It begged the question: “How should intuition be used in an architectural process?” and supplied that question with a sequential series of exercises: definition, abstraction, and figuration. But ultimately, these exercises are just methods for the best use of intuition: generating creative options.
Recommendations for continuing research

This design thesis can serve as a starting point for individuals wishing to investigate the realms of psychology and philosophy for ways of amplifying the creative potentials within the architectural design process. While this design thesis exposed some of the creative potentials of intuition and three ways to utilize intuitive thinking, there is still a great opportunity to explore a more specific intuitive act: play. The greatest amount of creativity occurs in a relaxed environment where free-association of ideas is encouraged and resistance is minimal. These conditions can be found in a play environment. The notion of an architectural play ground is compelling and a great deal of research is available regarding correlations to play and creativity.
REFERENCE MATERIALS


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