

# **Art-Making in Practice**

ACHIEVING OPTIMAL CREATIVITY DURING THE CONCEPTUAL DESIGN PROCESS

by

**TAYLOR LININGER**

**A REPORT**

submitted in partial fulfillment of the requirements for the degree

**MASTER OF LANDSCAPE ARCHITECTURE**

Department of Landscape Architecture, Regional & Community Planning  
College of Architecture, Planning & Design

**KANSAS STATE UNIVERSITY**

Manhattan, Kansas

**2016**

Approved by:

Major Professor  
Laurence Clement

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# Abstract

There can be no design product without a design process to achieve it; how we design is just as important as what we design. If landscape architects engage creative activities at work, they may be able to achieve flow, “an optimal and positive state of mind during which key individuals are highly motivated and engrossed” (Fullagar, Knight, and Sovern 2013, 236). Individuals experiencing flow find themselves in situations with challenge/skill balance, intrinsic motivation, and empowering self-confidence.

The methods used for this master’s project and report evaluated three art-making techniques in terms of the flow state and the design solutions they inspired. Watercolor, printmaking, and digital drawing were each incorporated into three simple design projects and filmed for peer-review. Fellow landscape architecture students reviewed segments of the film and completed a survey to measure the author’s flow state. Additionally, they provided a critique of the art-making processes based on their perceptions of the filmed design processes and resulting design solutions. The peer assessment, accompanied with the author’s self-reflection of art-making as ideation, provide insights into creativity and “good” design. Art - as concept, craft, and communication - are integral and evident in every part of the project.

The findings show how design processes that include different art-making media affect and facilitate a flow state that leads to responsive design concepts. Landscape architects should incorporate art-making into their professional practice as a means of facilitating creativity without spending excessive amounts of time or resources in the conceptual stage of a design process.

# Art-Making in Practice

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THE CONCEPTUAL DESIGN PROCESS

Taylor Lininger



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Achieving Optimal Creativity During the Conceptual Design Process

A report submitted in partial fulfillment of the requirements for the degree:  
Master of Landscape Architecture

Department of Landscape Architecture, Regional & Community Planning  
College of Architecture, Planning & Design  
Kansas State University

Committee Members:

Laurence Clement, Associate Professor, Dept. of LARCP  
Jon Hunt, Associate Professor, Dept. of LARCP  
Dr. Clive Fullagar, Professor, Dept. of Psychological Sciences

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# Abstract

There can be no design product without a design process to achieve it; how we design is just as important as what we design. If landscape architects engage creative activities at work, they may be able to achieve flow, “an optimal and positive state of mind during which key individuals are highly motivated and engrossed” (Fullagar, Knight, and Sovern 2013, 236). Individuals experiencing flow find themselves in situations with challenge/skill balance, intrinsic motivation, and empowering self-confidence.

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# Preface

I've never considered myself an artist. Through all of my years singing, acting, and designing, I admired others for their artistry while I thought of myself as a mere hobbyist. It has taken me years to understand and appreciate that I, too, am an artist. An artist is anyone who makes connections between people and the world they live in. Who better to explore those connections than a landscape architect?

From its inception, this project was meant to push my creative abilities to a new level that can inspire other designers and that I can carry through to my professional career. It is my hope that all landscape architects incorporate an artist's mindset into their work, and that art and creative processes continue to inspire great design. Creativity isn't just a buzzword, it is the stuff that our world is made of: the city, the museum grounds, and the art on the walls.

# 01



We can't keep from thinking... if I put down something, that thing will help the next thing come, and I'm off. If I let the process go on, things will occur to me that were not at all in my mind when I started”

- William Stafford, 1982

# **Introduction & Background**

THE PROBLEM

PROJECT SUMMARY

KEY CONCEPTS DEFINE

LITERATURE REVIEW & SYNTHESIS



# The Problem

## AN IMPERATIVE FOR CREATIVITY

Design practitioners have many expectations placed on their work. While they are striving to meet specific project demands, they are also challenging their ability to create something new and inspired. Often, the relationship between “functional” and “inspired” design options are strained by the realities of time and available resources. Though it is difficult to achieve symbiosis, it is not impossible.

Designers must discover the thing that best enhances their creative process, and design practices must encourage those creative processes in order to achieve viable and innovative design products. Professional landscape architects, as designers with balanced technical and artistic abilities, are positioned to employ artful methods of expression to guide them through conceptual design phases. Art-making could optimize a design process by bridging the creative gap between acceptance of a design problem and development of a design solution.

# Project Summary

The landscape architecture curriculum at Kansas State University guides students to think conceptually, and to express ideas through various art-making techniques that lead the designer to a solution. In the workplace, realities like time, anxiety, and specific client demands hinder the potential success for idea generation - ideation - in a design process. To understand the viability of art-making in landscape architecture practice, I will complete three simple design projects using art-making to achieve flow and encourage idea generation.

The relationship of art-making to flow state will be measured through peer assessment of filmed video segments taken during the art-making and concept generation stages of each design project. Their assessment, along with a self-assessment of my experiences, will accompany a review of the art and design products made during each design project that uncovers the efficacy of each art-making meth-

od. Each art-making method – watercolor, printmaking, and digital drawing – has unique properties which will result in comparable measures of flow and efficacy. A reflection of my experiences and evaluation of art-making based on its ability to facilitate moving the architect from acceptance of a design problem to schematic design will conclude the report.

## RESEARCH QUESTION

How do various art-making methods affect a designer’s flow and influence conceptual design?

# Key Concepts Defined

## ART-MAKING

The act of making art is dually methodological and unpredictable. Art-making is concrete in that it deals with real, tangible mediums, and it is whimsical in that the process can be unpredictable and the product often abstracted. Art is a visual communication device which can be used to solve complex problems. “Speculative and intuitive factors are involved in problem-solving and it is in this respect, as well as the practical aspect of art-making, that makes art practice an important activity in fostering problem solving” (Hickman 2005, 110).

Many people find art-making to be therapeutic, whether they are traditionally ‘good’ at what they are doing or not. In a workplace, art-making can contribute to a sense of timelessness or flow: “Arguably, taking part in regular art-making activities has the potential to break through routines and conventions in the workplace” (Upitis et al. 2008, 4). Art-making incorporated into the work of a landscape architect can be therapeutic, contribute to flow, and aid in communicating and solving design problems.

## CREATIVITY

Every creative person has a different definition for creativity. Some see it as a metaphysical property separate from the creator himself. This report hinges on definitions of creativity that rid the concept of any mystique or assumptions that creativity requires magic or gift (de Bono 1970, 11). Creativity can be judged as a process/response or as a product. A creative process is difficult to judge, but is typically heuristic rather than algorithmic (Amabile 1996, 35). Heuristic means “enabling discovery or problem-solving, especially through relatively unstructured methods such as experimentation, evaluation, trial and error, etc.” (OED Online 2015).

Mihaly Csikszentmihalyi, author of *Creativity: Flow and the Psychology of Discovery and Invention*, ascribes creativity to synergistic experiences, rich environments, and labor. Creativity is “a process by which a symbolic domain in the culture is changed” (1996, 8), an endeavor that is met with great challenge and resistance. A person that hopes to create a valuable new idea or product must invest a great portion of their life to finding a solution to a problem.

## FLOW

“Flow is an optimal and positive state of mind during which key individuals are highly motivated and engrossed in an enjoyable activity” (Fullagar, Knight, and Sovern 2013, 236). The term was first used to describe the mindset of encouraged and interested people in 1975 by professor of psychology Mihaly Csikszentmihalyi. Csikszentmihalyi characterizes flow experiences as being enjoyable, immersive, and intrinsic (Demerouti 2006, 267). Flow relates to creativity in that creative people must love and be invested in what they are doing in order to make significant progress in their work (Csikszentmihalyi 1996, 107).

## IDEATION

By a classic definition from Jim Bagnell and Don Koberg’s *The Universal Traveler: A Soft-Systems Guide to Creativity, Problem-Solving, and the Process of Reaching Goals*, ideation is the idea that there are many means to an end, that it is potentially most useful for designers to “...search for the the seeds or principles of ideas that might then be applied over and over again to a variety of problem situations” (1974, 73).

Tomas Dorta, Edgar Perez, and Annemarie Lesage from the School of Industrial Design at the Universite de Montreal define ideation as “the activity where by designers are exteriorizing

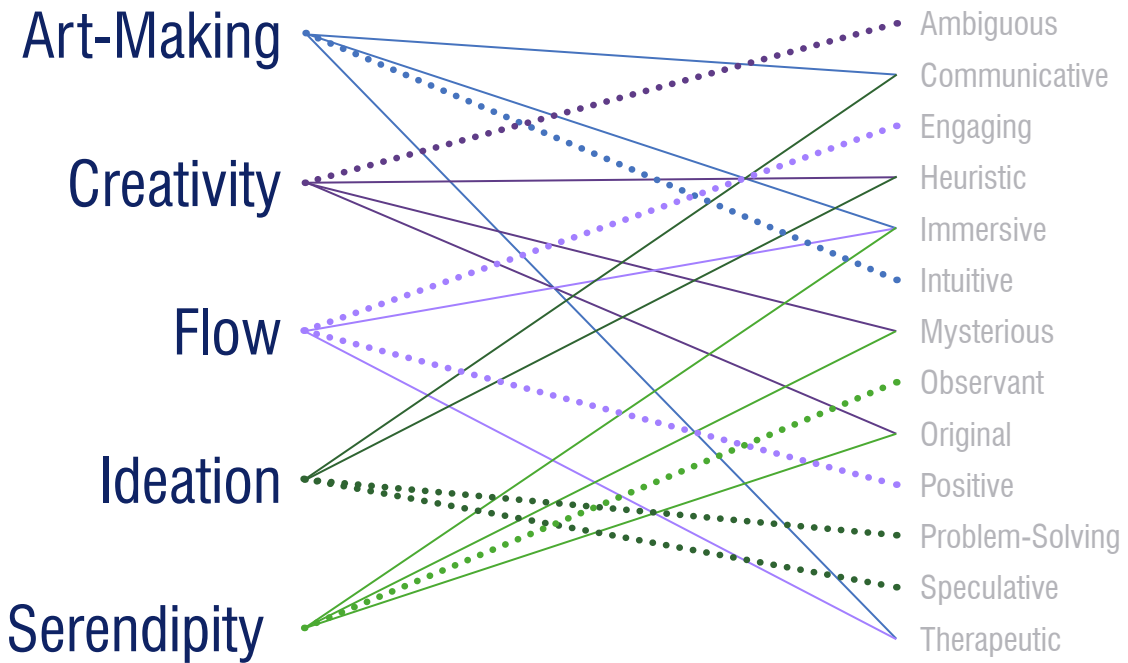


Figure 1-01 Characteristic connections between key terms (Author)

their internal mental images, engaging in a conversation of a sort with themselves, as opposed to asynchronous collaboration with third party designers or clients” (2007, 123). It is important to distinguish that ideation, as a step in a design process, occurs after program and site analysis. However, ideation often involves processes which remove the designer from situations where they must make immediate decisions pertaining to the design problem or client needs.

### SERENDIPITY

Since it was first coined in 1754 by Sir Horace Walpole, serendipity has typically been used to describe the mystery behind the discovery of

ideas. *The Oxford English Dictionary* defines serendipity as “the faculty of making happy and unexpected discoveries by accident. Also, the fact or an instance of such a discovery” (2015). However, many researchers believe that serendipity involves conscious intention. There are several variations on the word to differentiate the mindset of people who are not intentionally searching for a discovery and those who are. It is important for people to remain receptive and observant so that they can find meaning in serendipitous events (Horan 2011, 338).

IDEATION COMPONENT	DESCRIPTION
Example Exposure	Excite ideas by exposing the subject to a solution for the same problem
Flexible Representation	Use representation mediums that are easier to manipulate, e.g. graphical presentation
Frame of Reference Shifting	Change how objectives and requirements are being viewed, perceived, interpreted
Incubation	Add programmed delay to allow sub-conscious processing to take place
Provocative Stimuli	Trigger new ideas by exposing the subject to related and unrelated pointers, pictures, sounds...
Suspended Judgment	Postpone premature decisions or dismissing an idea

Table 1-01 Components of ideation (Modified from Vargas-Hernandez, Shah, and Smith)

## Literature Review & Synthesis

### IDEA GENERATION AND DEVELOPMENT

Ideation, as I have previously described, is the necessary phase in a design process where many potential concepts are developed. Every person who has a problem to solve participates in ideation. Designers often use intuitive components of ideation to motivate forward thinking. These components include provocative stimuli, suspended judgment, flexible representation, frame of reference shifting, incubation, and example exposure (Vargas-Hernandez, Shah, and Smith 2010, 284). Table 1-01 lists definitions for each of these ideation components. Art-making is an ideation method composed primarily of provocative stimuli, suspended judgment, and flexible

representation. The best ideas are ones that are previously unexplored, drawn from a pool of many varying options, and are feasible/viable. The results of ideation are thereby measured by their novelty, variety, quality, and quantity (Shah, Vargas-Hernandez, and Smith 2003, 116).

The practice of suspending judgment allows a designer to keep many options on the table before making a decision regarding the quality of each idea. There is no correct way to solve the complex problems designers face. “The need to be right all the time is the biggest bar there is to new ideas. It is better to have enough ideas

for some of them to be wrong than to be always right by having no ideas at all” (de Bono 1970, 107). While suspending judgment is just one of several ideation components, it is very relevant to this report in that the act of art-making delays judgment on design concepts.

Many philosophers, including Immanuel Kant, agree that spontaneity is linked to imagination (Casey 1976, 67). In Edward Casey’s description of the process of *imagining*, one can imagine in different degrees of controlledness and definitiveness. For imagination to equate to ideation, the product of imagination must have some balance of efficacy and ambiguity. “In spontaneous imagining it is not a question of fulfilling explicit intentions, but what is imagined must still possess enough coherency for it to count as the *specific* content of the imaginative experience” (1976, 105).

Many of the tools that architects use during their design processes are mechanical, therefore stifling intuitiveness and ambiguity which are inherently necessary to ideation. Designers require methods of representation that permit flexibility, ambiguity, and abstraction. Those characteristics are typically found in sketching and model building (Dorta, Perez, and Lesage 2007, 122-124). It is not a far leap to suggest that further abstraction of graphic representation can help designers generate more varying, high quality, new ideas.

### ART-MAKING AND CREATIVITY-STIMULI

Noe Vargas-Hernandez, Jami J. Shah, and Steven M. Smith’s descriptions of provocative stimuli and flexible representation in “Understanding Design Ideation Mechanisms through Multilevel Aligned Empirical Studies” imply that designers may achieve a better ideation process by allowing an ambiguous representa-

tion of an idea to inspire further ideas (2010, 387). Ambiguous representation (art-making) during ideation results in a cognitive artifact of design - a product that stimulates reflection and engages a conversation between the designer and a visual representation of their idea (Dorta, Perez, and Lesage 2007, 123).

Art is never finalized. A piece hanging in a gallery is never complete, because viewers will always ascribe new meanings and value to it. Art made with the express purpose of stimulating creativity is “less concerned with the discovery of truth than with the creation of meaning. What art seeks is not the discovery of the laws of nature... but rather the creation of images that people will find meaningful and from which their fallible and tentative views of the world can be altered, reflected, or made more secure” (Eisner 1981, 9).

The latin root of *art* refers to an individual’s skill – it did not originally correlate with creativity or imagination. Now, we see art as something that relates to concept, craft, and communication. Art is conceptual in how it relates to design, or the process of solving a problem. Craft refers to the skills needed to make something and is often thought of as the utilitarian aspect of art. Finally, the product of concept and craft is the ‘work’ of art that involves communication of the maker’s creativity and imagination (Hickman 2005, 11-13).

For some, there may be no greater fear than that associated with an empty piece of paper. Great artists are intimidating because it seems that their creations are born of a magical property we do not possess. Removing the mysterious stigma surrounding art leaves us with a three-letter word representing a common human activity that is used to help us solve our

intellectual and emotional problems. Making art provides ideators with inimitable feedback and response. “The work we make, even if unnoticed and undesired by the world, vibrates in perfect harmony to everything we put into it - or withhold from it. In the outside world there may be no reaction to what we do; in our artwork there is nothing but reaction” (Balyes and Orland 1993, 49). The blank page is undoubtedly scary, but designers must feel that they are up to the challenge of making art if they hope to find success in the practice of it.

## FLOW THEORY

Mihaly Csikszentmihalyi found, through studies of people who worked at their craft purely for enjoyment, that flow states are typically characterized by nine elements (Csikszentmihalyi 1996, 111):

1. There are clear goals every step of the way.
2. There is immediate feedback to one’s actions.
3. There is balance between challenges and skills.
4. Action and awareness are merged.
5. Distractions are excluded from consciousness.
6. There is no worry of failure.
7. Self-consciousness disappears.
8. The sense of time becomes distorted.
9. The activity becomes autotelic.

A flow state is typically characterized by a combination of all or most of the above elements. If some elements are missing, the experience is something entirely separate from flow. Some measures of flow consider more generalized components, such as absorption, work enjoyment, and intrinsic work motivation. The flow short scale (Table 1-02) is a strong form of measurement to assess all of the flow components (Shiepe-Tiska and Engeser).

Csikszentmihalyi’s elements of a flow state can be separated into two categories: psychological traits and situational traits, or preconditions. The two must interact in order to elicit flow. The psychological traits include awareness, focus, lack of self-consciousness, lack of worry, time distortion, and enjoyment. Preconditions of flow include clear goals, immediate feedback, and challenge/skill balance (Fullagar, Knight, and Sovern 2013, 237).

In most design scenarios, there are clear goals developed by the client, immediate feedback from clients and fellow practitioners, and educated/experienced design professionals that feel technically and creatively challenged by their work. In the workplace, conditions that stimulate flow can prevent boredom and anxiety in employees (Demerouti 2006 ,269).

## PROBLEM SOLVING IN DESIGN PRACTICE

Jim Bagnell and Don Koberg established a guide for creative processes in 1974 with *The Universal Traveler: A Soft-Systems Guide to Creativity, Problem-Solving, and the Process of Reaching Goals*. The following terms are attributed to design process, in order:

1. Acceptance: to allow the problem to become the generator of process.
2. Analysis: to get the facts and feelings.
3. Definition: to conceptualize and to clarify those goals concerning the problem situation.
4. Ideation: to search for the means to achieve the determined ends.
5. Selection: to determine the best ways to go.
6. Implementation: to give physical form to our selected “best ways.
7. Evaluation: to determine the effects or ramifications as well as the degree of progress of our design activity.

	<b>Not At All</b>		<b>Partly</b>	<b>Very Much</b>	
I feel just the right amount of challenge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My thoughts/activities run fluidly and smoothly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't notice time passing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have no difficulty concentrating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mind is completely clear.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am totally absorbed in what I am doing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The right thoughts/movements occur of their own accord.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I know what I have to do each step of the way.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that I have everything under control.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am completely lost in thought.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<b>Easy</b>			<b>Difficult</b>	
Compared to all other activities which I partake in, this one is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<b>Low</b>			<b>High</b>	
I think that my competence in this area is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<b>Too Low</b>		<b>Just Right</b>	<b>Too High</b>	
For me personally, the current demands are...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Table 1-02 Typical components of a flow short scale (Modified from Shiepe-Tiska and Engeser)

The guide posits suggestions for efficient design process, several of which urge the designer to document and take sufficient time to incubate ideas. “The process-oriented problem-solver who keeps a good record (words, pictures, plans, souvenirs, etc.) will have a far greater product than the product-oriented problem-solver without a record of the rush to meet the goal” (Bagnell and Koberg 1974, 26).

Design is a product of lateral thinking, where generation is more important than selection. “The lateral thinker says: ‘I am looking but I won’t know what I am looking for until I have found it’” (de Bono 1970, 40). Landscape architects must acknowledge that the solution is not evident based only on the problem statement. Ideation, the generation of potential concepts, is where the designer attempts to find what they are looking for.

There must be clear and evident goals during the design process. According to Jami J. Shah, Noe Vargas-Hernandez, and Steve M. Smith of Arizona State University’s engineering department:

“Designs do not happen by accident; they must satisfy a set of pre-defined set of specifications, even if these specs sometimes get modified as the designer and client both get a better understanding of the design problem and design space. Thus, design is goal oriented. A designer’s success is judged by how well his/her design meets desired goals and how well he/she has identified the alternative ways of achieving the those goals” (2003, 111).



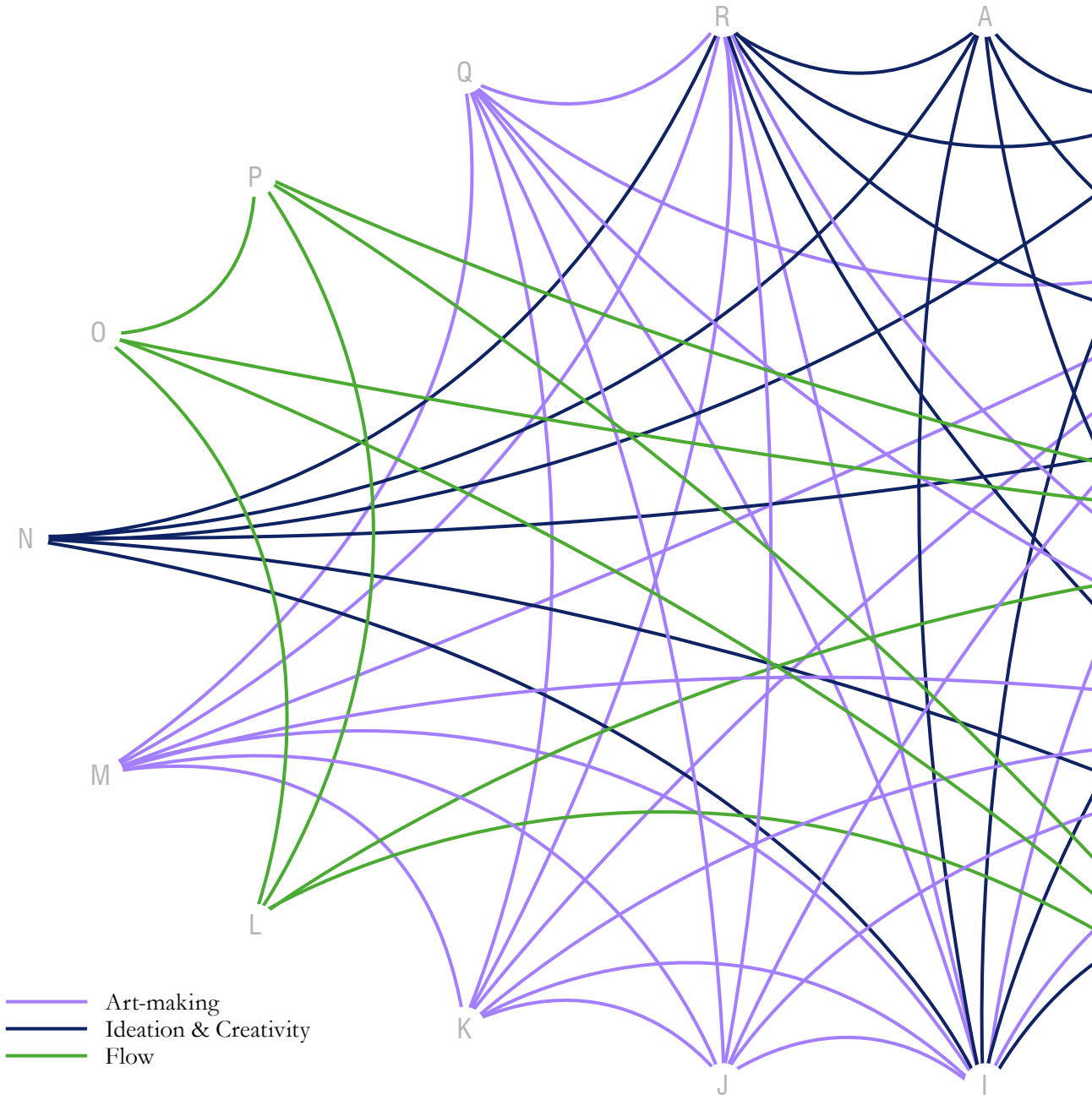
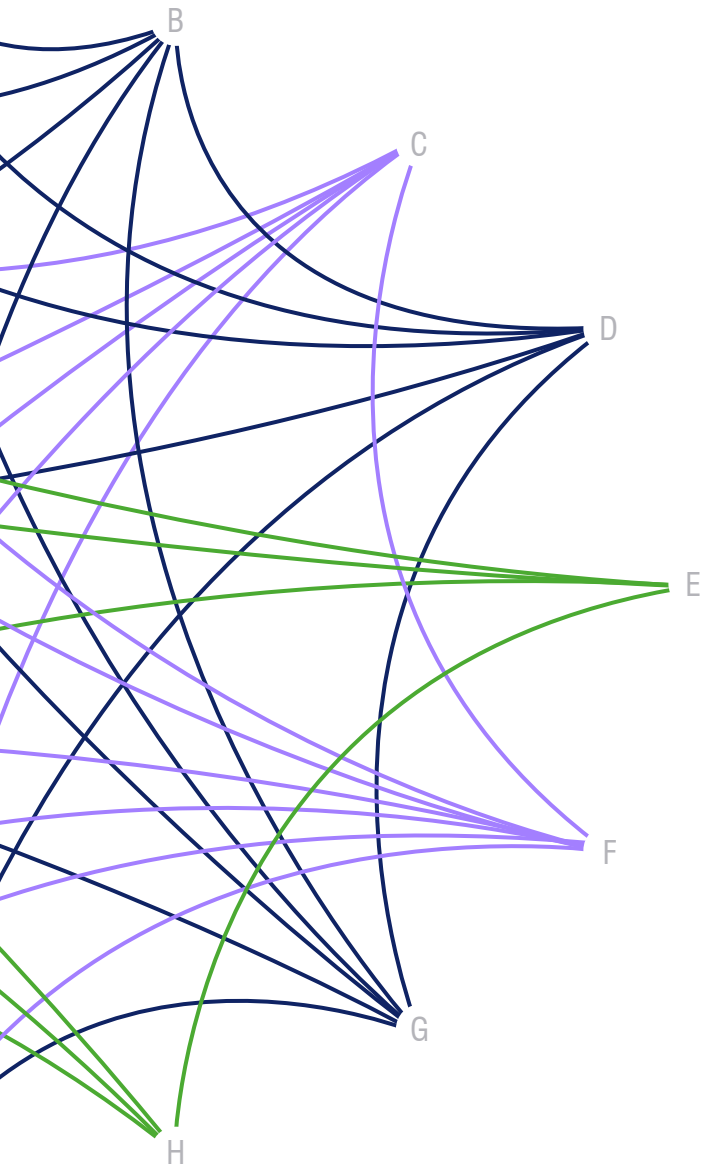


Figure 1-02 Map of literature sources (Author)



## KEY SOURCES

Listed in alphabetical order:

- A Amabile (1996)
- B Bagnell and Koberg (1974)
- C Balyes and Orland (1993)
- D Casey (2000)
- E Csikszentmihalyi (1996)
- F Davis (2005)
- G de Bono (1970)
- H Demerouti (2006)
- I Dorta, Perez, and Lesage (2008)
- J Duff (2005)
- K Eisner (1981)
- L Fullagar, Knight, and Sovern (2013)
- M Hickman (2005)
- N Horan (2011)
- O Jackson, Martin, and Ecklund (2008)
- P Shiepe-Tiska and Engeser (unpublished)
- Q Upitis (2008)
- R Vargas-Hernandez, Shah, and Smith (2010)

# 02

12



The supreme accomplishment is to blur the line  
between work and play”

- Arnold J. Toynbee, 1964

# Methodology

PROCESS

LITERATURE REVIEW

ART-MAKING

DESIGN PROJECT STANDARDS

MEASUREMENT

# Process

## THE MPR

The master's project and report is a year-long effort that begins with the definition of a research question and problem and culminates in the production and defense of a report that attempts to answer the question. The process can be explained through attribution of terms from Bagnell and Koberg:

1. Acceptance: writing a research question.
2. Analysis: completing a literature review.
3. Definition: writing an abstract/project definition.
4. Ideation: outlining a work plan.
5. Selection: determining a methodology.
6. Implementation: completing design, interviews, and surveys.
7. Evaluation: concluding and presenting findings.

## THE DESIGN EXPERIMENTS

The design projects occurred entirely within the implementation stage of the master's project and report. They differ from design processes that practitioners would typically experience because the project parameters are not defined by a client and because the projects do not proceed to final implementation or evaluation since they will not be constructed. In any practice, the amount of time allowed for each stage of the process is decided internally, based on the client's time frame. In this case, the time frame is determined by the deadline requirements for the master's project and report.

1. Acceptance: relating to the design problem.
2. Analysis: briefly studying the sites.
3. Definition: developing program statements.
4. Ideation: art-making to cultivate and inspire potentials.
5. Selection: concept generation and craft.
6. Implementation: communication (schematics and rendering).
7. Evaluation: design review.

Figure 2-01 (on the following spread) represents the path relationship between the master's project and report and the design projects.

# Literature Review

## CATALYSTS

Two established pieces of literature served as the catalysts for the development of this project: *The Universal Traveler: A Soft-Systems Guide to Creativity, Problem-Solving, and the Process of Reaching Goals* by Jim Bagnell and Don Koberg (1974), and *Lateral Thinking: Creativity Step by Step* by Edward de Bono (1970). Both books present the value of idea generation and urge designers to consider the best processes for achieving their goals. Terms identified in these sources led to discovery of more recent and specific works pertaining to creativity and design process.

## IDEATION AND FLOW

Ideation is a widely discussed topic in engineering fields, particularly by Noe Vargas-Hernandez, Jami J. Shah, and Steve M. Smith of Arizona State University. Theirs and their colleagues' articles, published frequently over the years in *Design Studies*, provide crucial components for defining ideation. The applicability of ideation transcends the various topics discussed in the literature review.

Mihaly Csikszentmihalyi's writings on flow permeate each source related to the psychological state, which he first described in 1975. Committee member Clive Fullagar provided valuable guidance on contemporary discussions of flow, which are discussed in the literature as they pertain to environments of sports, education, arts, and the workplace.

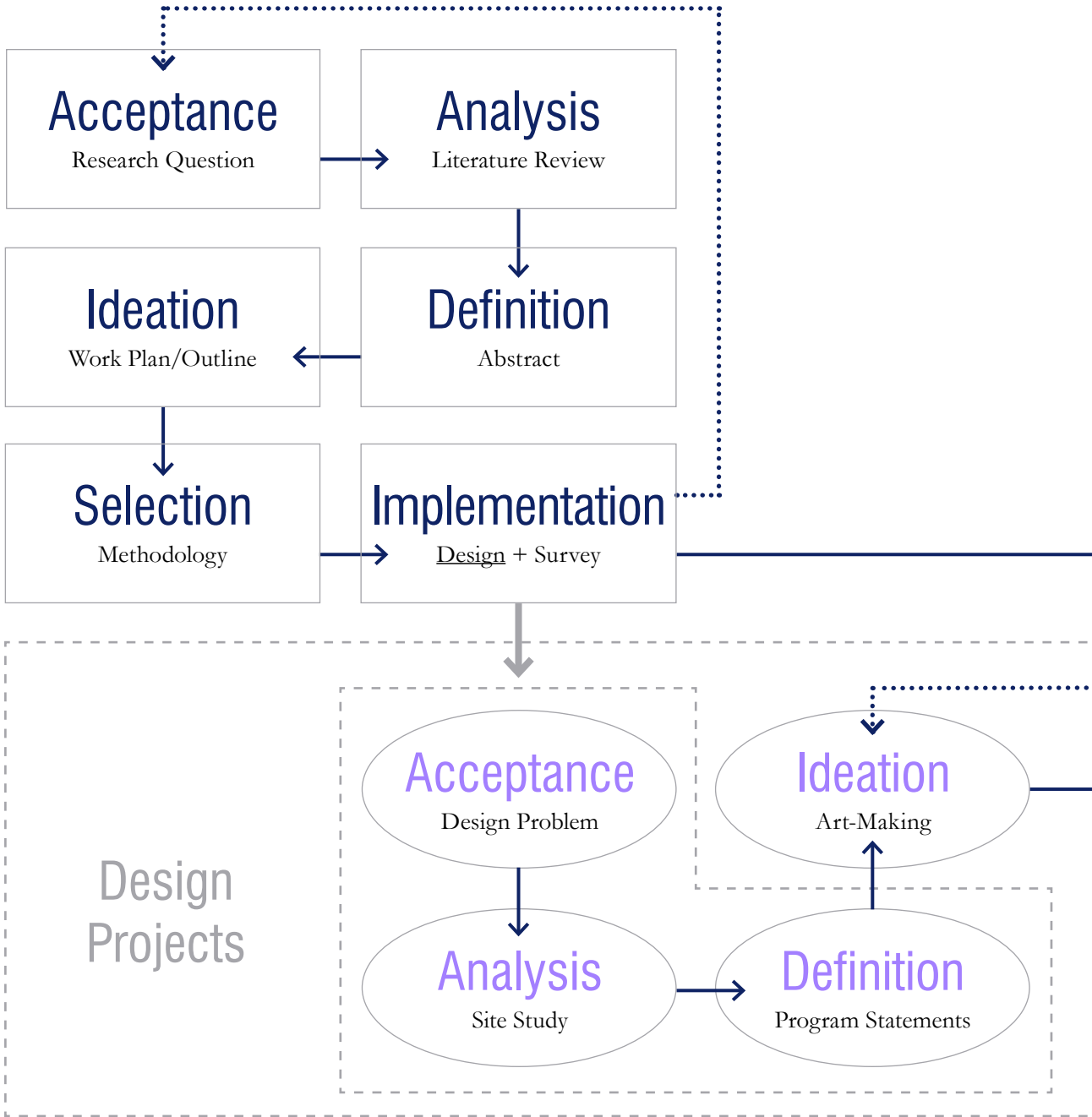
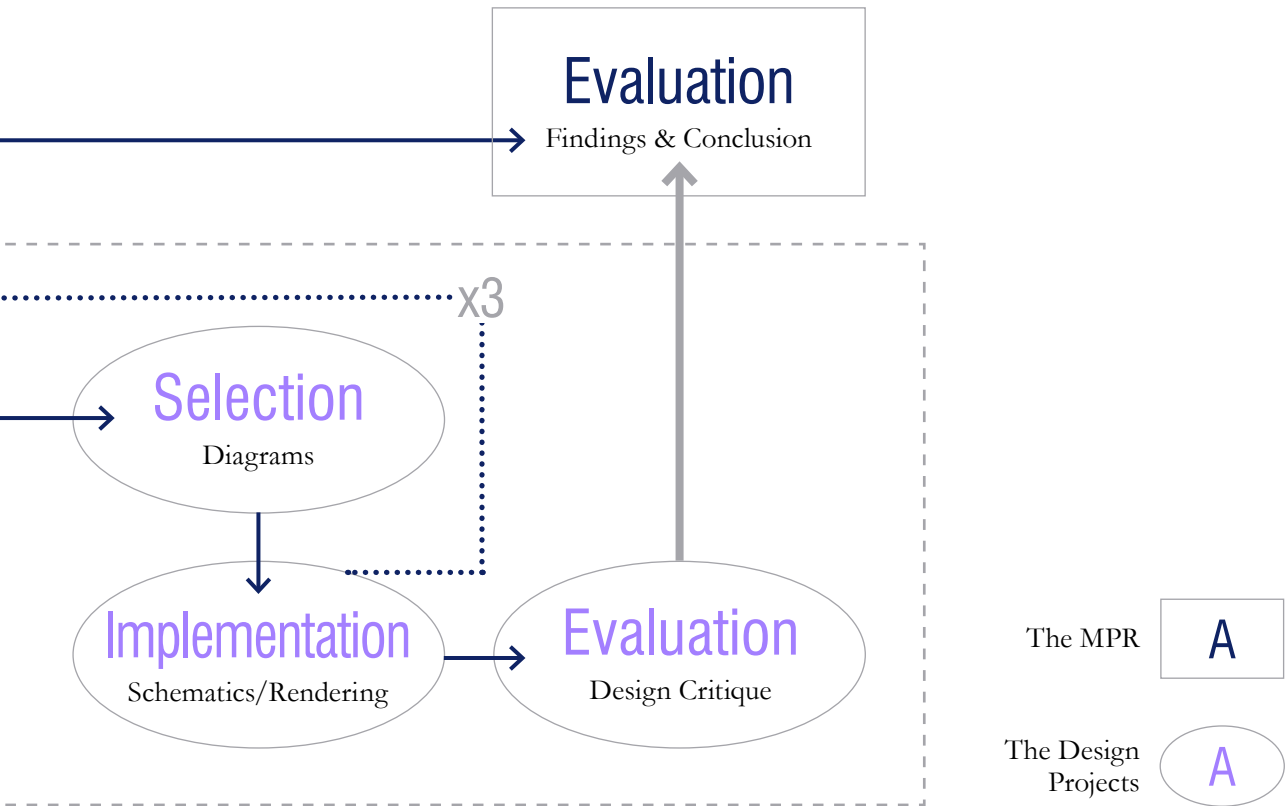


Figure 2-01 Process for project and report + design projects (Author)





# Art-Making

Watercolor painting, printmaking, and digital drawing were chosen as the art-making methods because they cover an array of art-making types: traditional, unexpected, and innovative (or, tech-based). These methods were also chosen because I, the investigator employing them, have the same amount of experience with all of them: I brought a sense of naivety to each method that was able to fuel my curiosity and interest in the art-making. Though the methods used different media and required different steps, the time spent on art-making remained as constant as possible.

It was important for the art I would be making to remain abstract – not yet rooted in the design program – so that they could be viewed as independent works that inspire concepts but do not develop them. The idea of art as craft, concept, and communication means that art is a part of every stage of a design process. In ideation, art-making is craft. It becomes concept and then communication when ideas are selected and developed later on.

## WATERCOLOR: THE TRADITIONAL

Watercolor painting is a stand-alone art form, but it is often used by architects to express early conceptual ideas. Walter Hood and Steven Holl employ watercolor painting in their design processes, and while their works of art relate to the spatial qualities of their eventual built

works, they are abstract enough to be viewed as separate work. Abstraction is important because ideation relies on delaying the decision to take one conceptual path over another (de Bono 1970, 107). The materials required for watercolor painting include watercolor paper, various watercolor brushes, watercolor paints (liquid or palette), and a paint palette.

## PRINTMAKING: THE UNEXPECTED

Printmaking, unlike watercolor painting, is not often employed by architects as part of their design process. Essentially, subtractive methods of printmaking with metal plates involve engraving the plate surface to create crevices or textures that hold ink, which is transferred to damp paper (Adam and Robertson 2007, 60). Associate professor of landscape architecture at Kansas State University and committee member Jon Hunt is experienced in printmaking and provided guidance for the use of tools and materials, as there are many paths to completing a print.

The materials I required for dry point, the method of printmaking chosen, include copper plates, etching tools, printing paper, a printing press, and ink. The imperative for this practice as a means of ideation lies in its spontaneity. Though the etching is controlled, the imprint on paper can be happily unexpected.

### DIGITAL DRAWING: THE TECH-SAVVY

Drawing is often the first practice that artists learn. In arts curriculum, students usually take figure drawing classes before moving into more specialized course work. Drawing is also considered a starting point for art because it is often associated with process. However, for the purpose of this project, drawing was employed as a stand-alone art medium that was not necessarily concerned with the perfect representation of something or the eventual transition to another art media (Duff 2005, 2).

Architects famously use drawing to represent ideas quickly and eidetically. Even those who think they lack the skills for drawing are encouraged to do it as a part of their design process. There may be a benefit to considering drawing a craft in and of itself. Drawing is often completed by the most basic of actions; “It is usually executed by marking directly on a surface” (Davis 2005, 109). Pen tablet technology introduced in the past several years allows drawing to become digitalized without losing its hands-on quality. Digitalization can open drawing up to aesthetic manipulation that can help make it - inarguably - art. “Drawing is analytical but it is also expressive in its own right” (Davis 2005, 108).

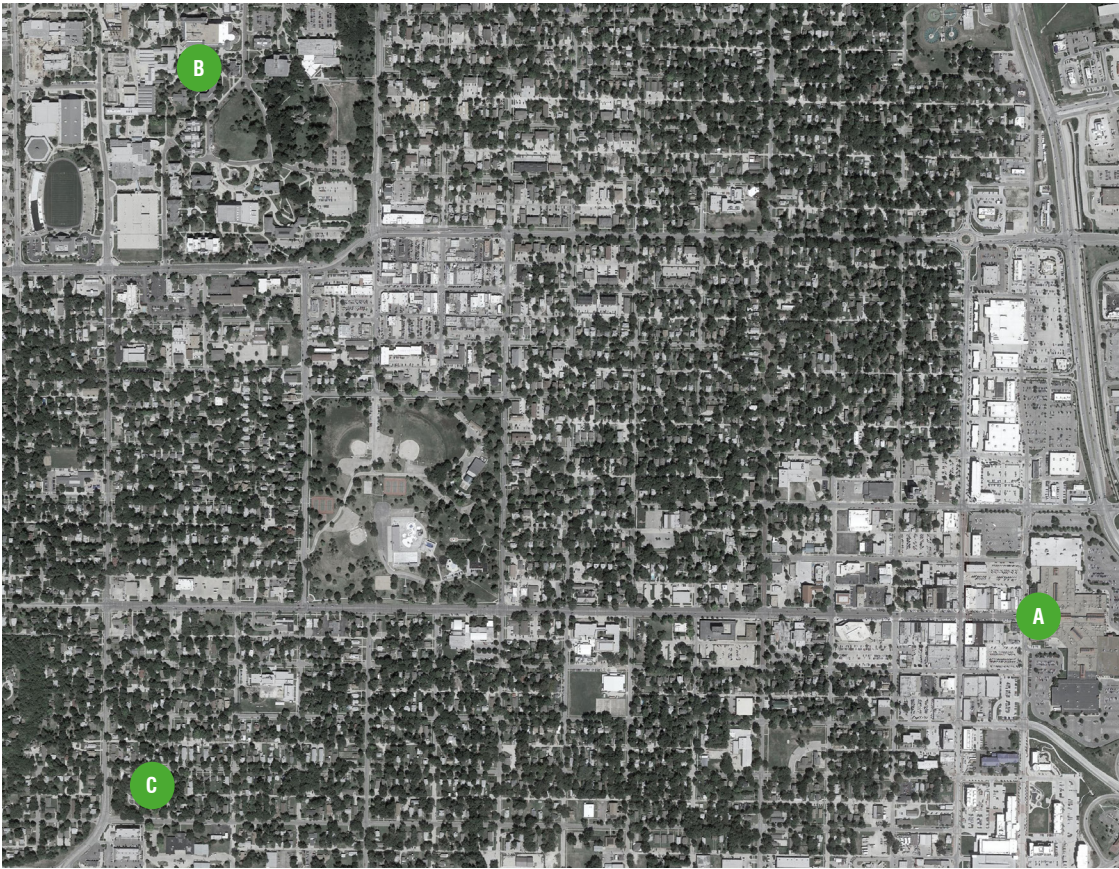


Figure 2-02 Project site locations in Manhattan, KS (Google Earth, Author)

## Design Project Standards

### PROGRAM DEVELOPMENT

Each of the simple design projects is comparable in size, scale, and complexity, though they take different forms. The sites are located in Manhattan, Kansas, and the project types are characteristic of projects completed in the regional area: an urban plaza, campus terrace, and natural playground. Figure 2-02 shows the locations of the three project sites in Manhattan. General parameters for the projects include pedestrian-oriented circulation, native plant material and preservation or use of trees, seating and lighting, and the design of a focal element.

### CONCEPT, CRAFT, AND COMMUNICATION

Design for each of the design experiments began with concept generation, which included art-making and diagramming/sketching to generate a design concept. The art made as ideation served as a cognitive artifact for design. Craft refers to the stages of concept development, where various drawings inform site layout, material selection, and detail design. Finally, communication included a 3D model, a plan rendering, and a perspective rendering. Design for each of the experiments was completed to schematics, where elements are laid-out to scale and materiality is specified. Figure 2-03 shows the proportional

DESIGN PHASES

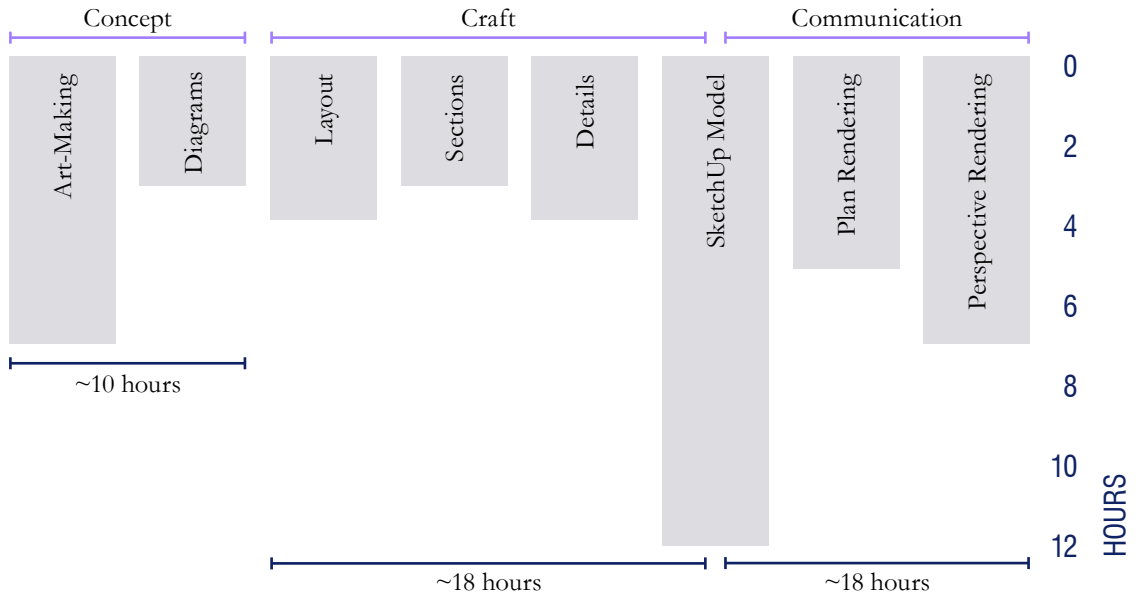


Figure 2-03 Approximate time expectation for design phases (Author)

amount of time I anticipated spending on each phase of the three design experiments.

LEVEL OF DESIGN

The design projects, though they were completed quickly, are reflective of design that is rooted in the basic design principles of form, space, and order. They aim to be compelling and serve as initial design solutions that could be used to promote further design exploration with clients and coworkers. The experiment of these projects uncovered the potential of the art-making process to inspire responsive design concepts.

# Measurement

## RECORDING

I recorded myself during the concept phase of each design experiment, which amounted to a total of approximately 25 hours of footage. Most of the art-making took place at my desk in studio, while some was done in the printmaking room in Seaton Hall. The video equipment included a tripod and Canon Vixia HFR52 camcorder. The filming focused on capturing my face and arm movements and showed glimpses of the art as I worked.

## FLOW SURVEY

Flow is often measured through analysis of multiple traits. Though not common, some methods of analysis use ratings from peers, teachers, or general ‘observers.’ These can be accompanied with self-assessment to make the measurement more comprehensive (Jackson, Martin, and Ecklund 2008, 563). Assessments of flow should be brief, typically one question for every trait of flow. Since some traits of flow are impossible for an observer to measure, this survey asked just seven questions (Martin and Jackson 2008, 142).

One-minute segments of the video footage were selected and compiled for review from six of my fellow landscape architecture students. Each student was given 18 video segments to review in random and unique order. The video segments to be measured were randomly selected, four from each beginning, middle, and end of the three projects, amounting to 36 total video segments. The random selection of segments from the footage of art-making mirrors the experience sampling method (ESM) for measuring flow. In the ESM, participants are notified at unplanned moments during an activity and asked to respond to a short survey (Fullagar and Delle Fave, 21). Having evaluators (including myself) review random seg-

ments of video eliminates the primary source of critique for the ESM, which is concerned with participants becoming distracted from the moment by taking a survey during their activity (Fullagar, Knight, and Sovern 2013, 254).

The student evaluators completed a short survey for every video segment they viewed. The survey asked participants to measure how much they agree with the following statements:

1. The subject had no difficulty concentrating
2. The subject was totally absorbed in what they were doing
3. The right thoughts/movements occurred of their own accord
4. The subject’s thoughts/activities ran fluidly and smoothly
5. The subject was in control/had a sense of purpose
6. The subject was distracted by non-task related factors
7. The subject seemed to enjoy what they were doing

Participants submitted their response to the survey on a Scantron sheet where *A* refers to “Not at All” and *E* refers to “Very Much.” *A* responses will be scored as a value of 1, and *E* responses as a value of 5. Component six, “the subject was distracted by non-task related factors” will be scored in reverse. The evaluators were provided with a flow measure rubric (seen in Figure 2-04) describing the process in detail. I correlated the Scantron sheet with the video segment identifier (i.e. A1, B4, C9).

Additionally, I completed the surveys for each video segment, so that I could compare my self-assessment with measures from my peers. I also completed the entire short

# Flow Measures Rubric

Use this rubric as a guide - mark the rating for each video segment on the provided Scantron sheet.

Please rate how much you agree with the following statements:

	Not at all	Partly	Very Much		
<b>CONCENTRATION</b> The subject had no difficulty concentrating:	A	B	C	D	E
<b>ABSORPTION</b> The subject was totally absorbed in what they were doing:	A	B	C	D	E
<b>SPONTANEITY</b> The right thoughts/movements occurred of their own accord:	A	B	C	D	E
<b>FLUIDITY</b> The subject's thoughts/activities ran fluidly and smoothly:	A	B	C	D	E
<b>CONTROL</b> The subject was in control/had a sense of purpose:	A	B	C	D	E
<b>DISTRACTION</b> The subject was distracted by non-task related factors:	A	B	C	D	E
<b>ENJOYABILITY</b> The subject seemed to enjoy what they were doing:	A	B	C	D	E

Figure 2-04 Flow measures rubric (Author)

scale survey from Shiepe-Tiska and Engeser, which includes questions that would not be possible to ask in a peer-review, for the entire art-making experience to contribute to my reflection of their success.

The survey was designed as a balanced incomplete block, where participants do not view every video segment, but they view an equal amount from each section of video segments. The evaluators each viewed 18 video segments – six from each of the three design projects. Every video segment was viewed by three evaluators. Figure 2-05 shows the overall balance and connectivity of video segment viewership. The survey responses were documented to describe how each evaluator measured flow given their distinct set of video segments, to correlate flow with specific activities during art-making, to compare overall flow state for each art-making method, and to evaluate each distinct measure of flow. I also showed how the peer evaluator's responses compared to my self-assessment of flow.

Each evaluator responded to the flow state survey based on their perception of how concentration, absorption, spontaneity, fluidity, control, distraction, and enjoyability manifested in the segments they viewed. Descriptions of each evaluator's responses can be found on pages 26-31, and detailed information for the randomization of video segments and raw survey responses can be found in Appendix A.

## EFFICACY REVIEW

The students completing the flow state survey gathered for a review of the art and design products I created to help determine the efficacy of art as a tool for concept generation. They were asked to write comments about the parallels between the art products and ensuing design products. Additionally, they were asked to rank the design projects based on how successful they were in responding to the art products.

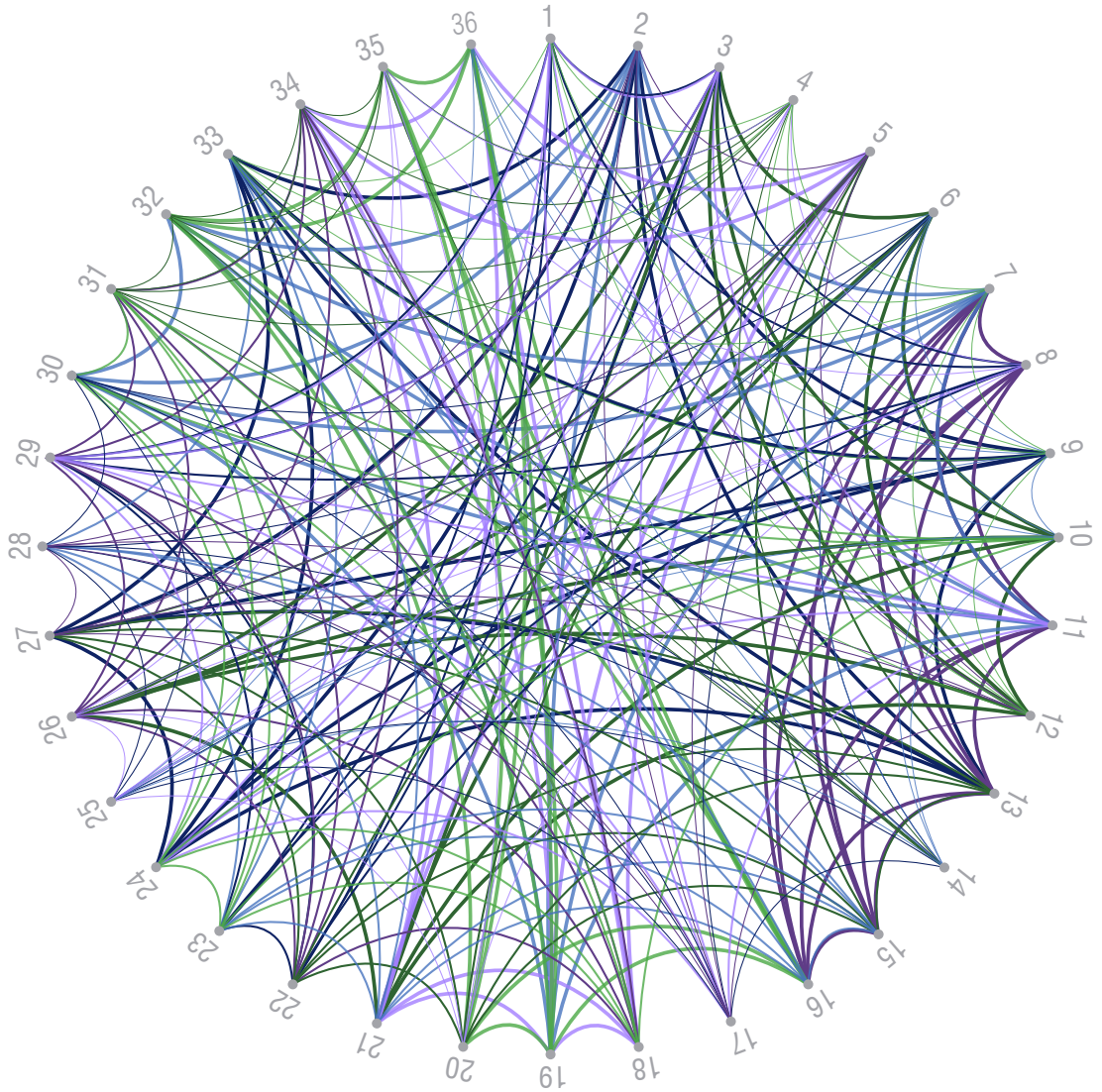


Figure 2-05 Survey balance and connectivity (Author)



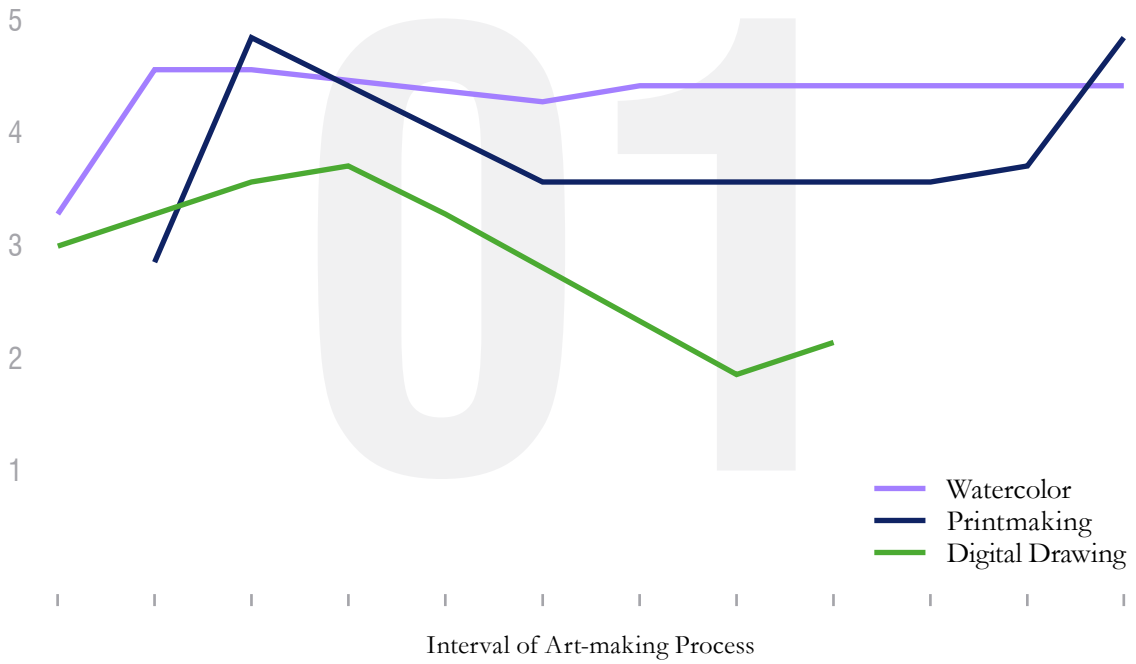
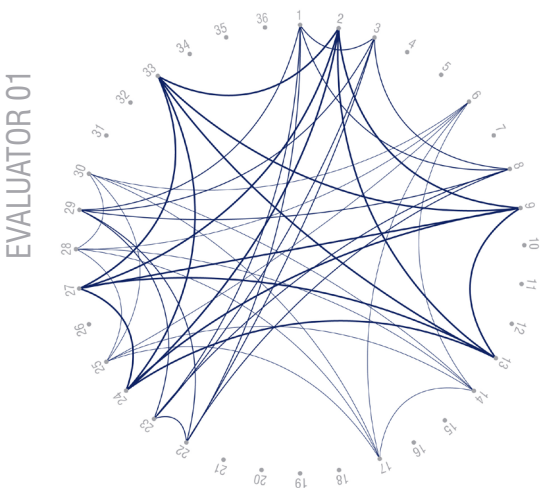


Figure 2-06 Evaluator 01 measurements of flow (Author)



Evaluator 01 measured high levels of flow (3.7-5) in 50% of the video segments they viewed and low levels of flow (1-2.7) in 11% of the segments. Project A, watercolor, received the most consistently high flow ratings.

Figure 2-07 Distribution of video segments to Evaluator 01 (Author)

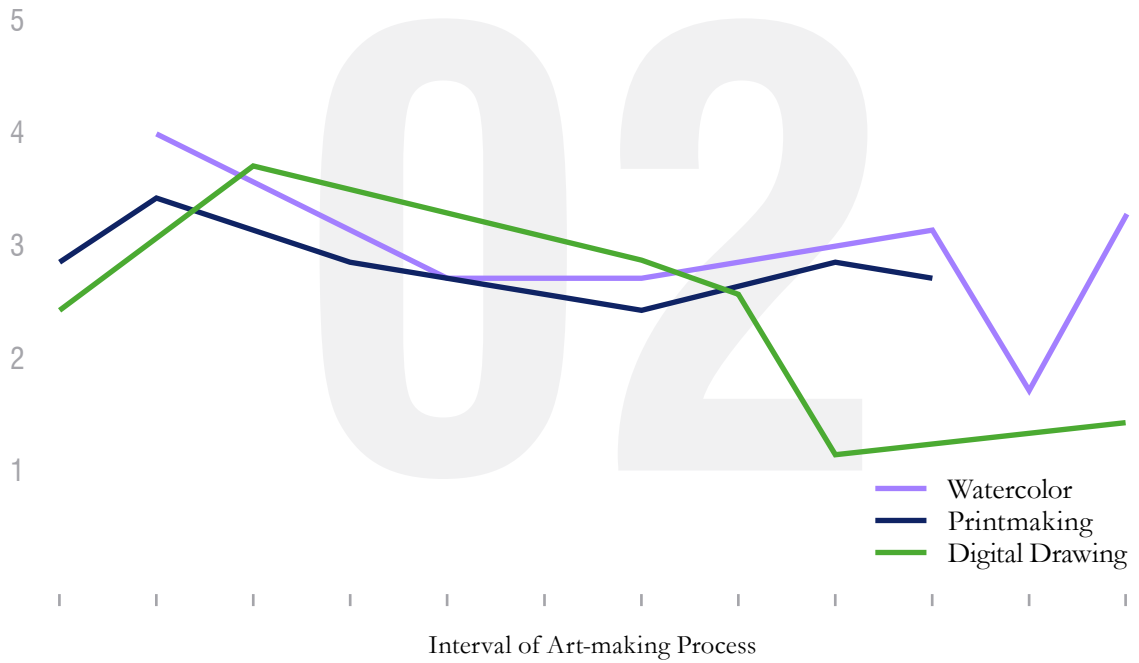


Figure 2-08 Evaluator 02 measurements of flow (Author)

Evaluator 02 measured high levels of flow (3.7-5) in 11% of the video segments they viewed and low levels of flow (1-2.7) in 56% of the segments. This evaluator measured flow at a consistently lower rate than any other evaluator.

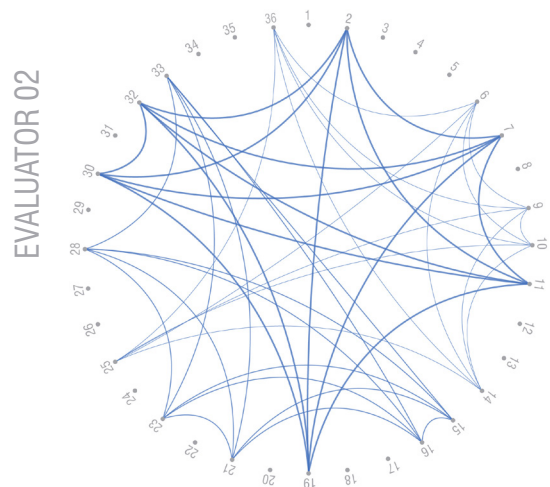


Figure 2-09 Distribution of video segments to Evaluator 02 (Author)

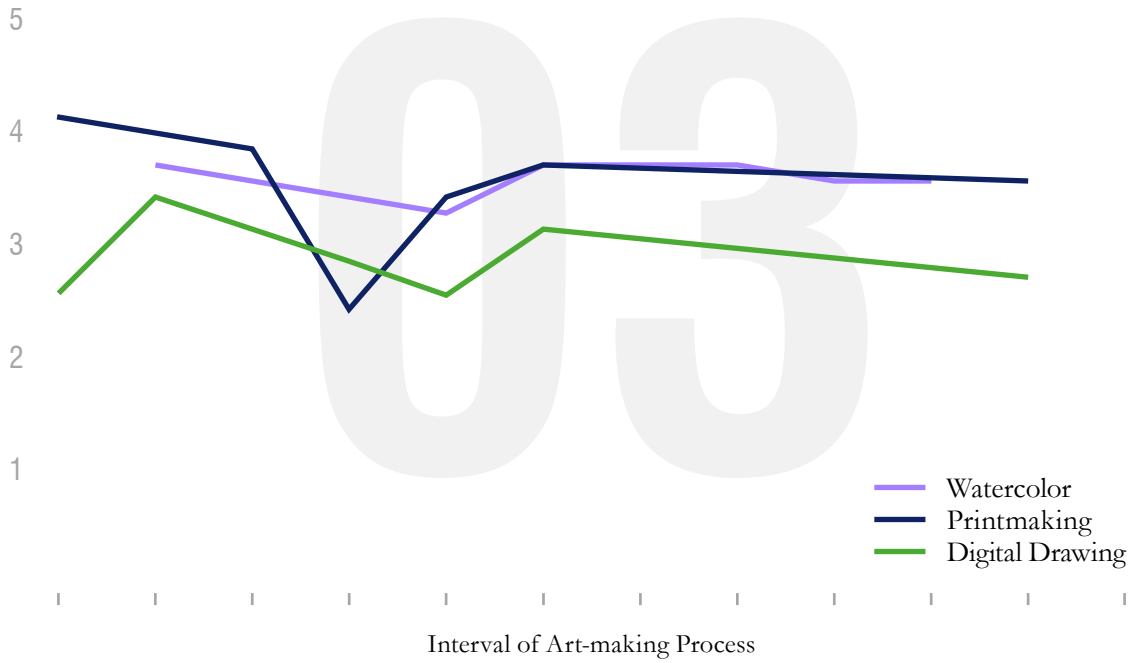


Figure 2-10 Evaluator 03 measurements of flow (Author)



Figure 2-11 Distribution of video segments to Evaluator 03 (Author)

Evaluator 03 measured high levels of flow (3.7-5) in 33% of the video segments they viewed and low levels of flow (1-2.7) in 22% of the segments. Project A and B (watercolor and printmaking) received the most consistently high flow ratings from this evaluator.

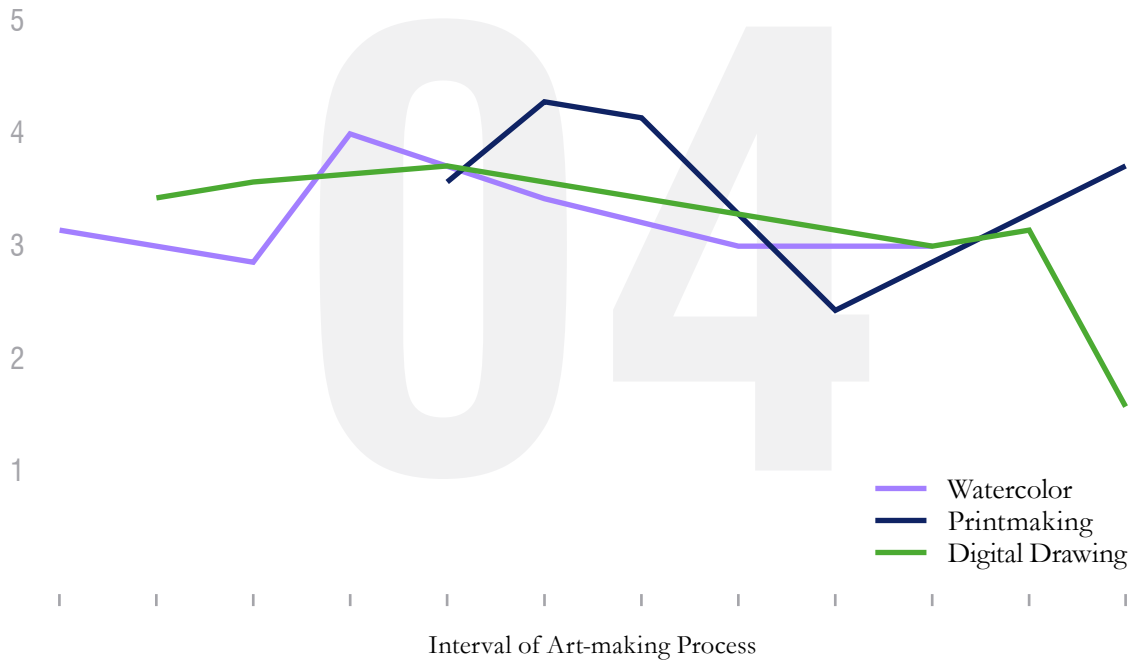


Figure 2-12 Evaluator 04 measurements of flow (Author)

Evaluator 04 measured high levels of flow (3.7-5) in 28% of the video segments they viewed and low levels of flow (1-2.7) in 11% of the segments. Project B, printmaking, received the highest ratings of flow from this evaluator.

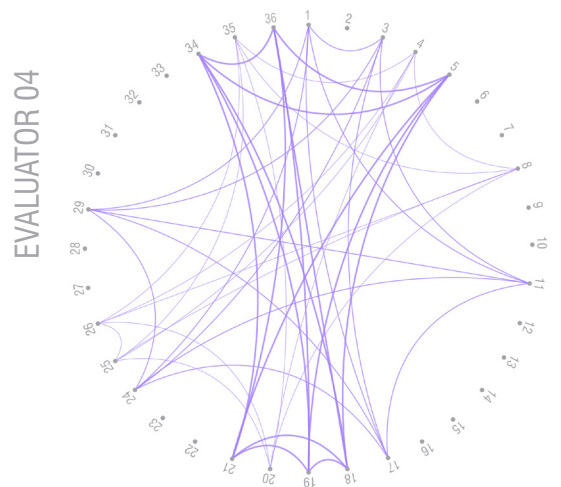


Figure 2-13 Distribution of video segments to Evaluator 04 (Author)

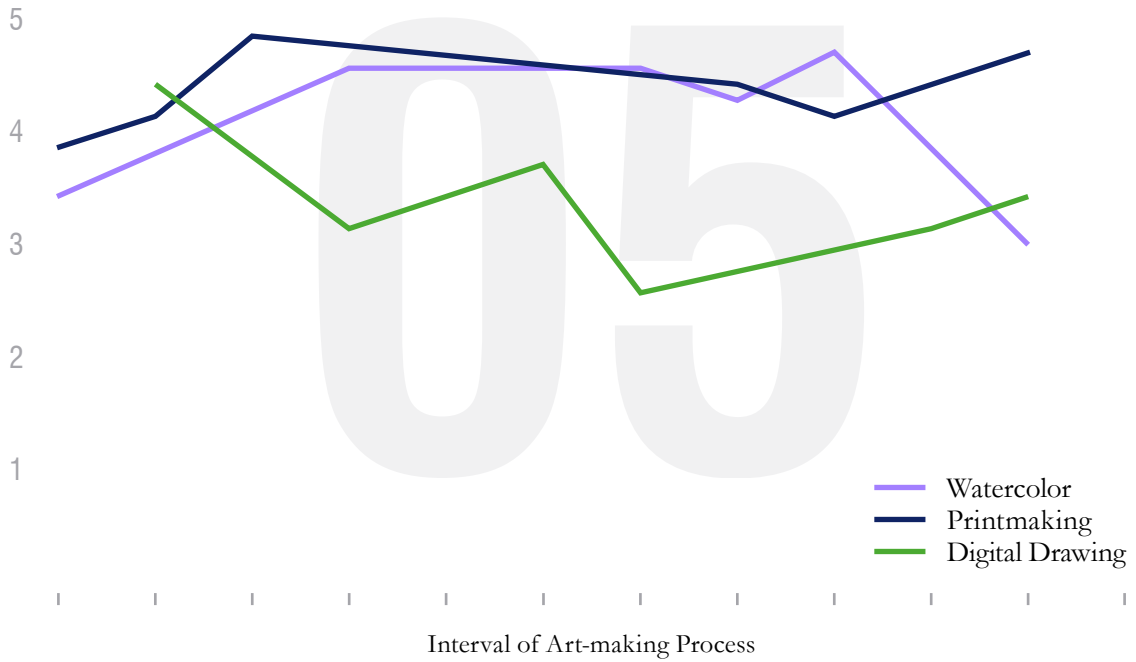
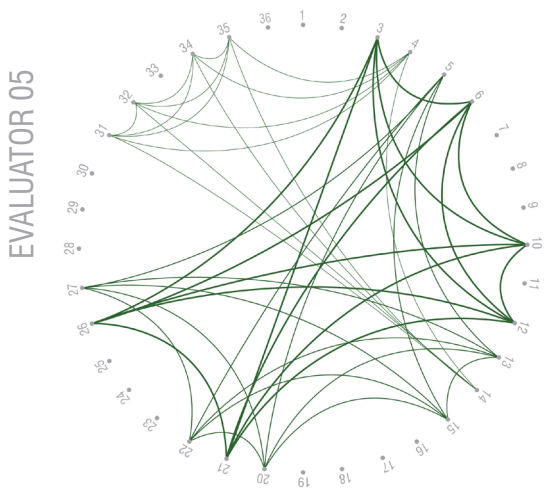


Figure 2-14 Evaluator 05 measurements of flow (Author)



Evaluator 05 measured high levels of flow (3.7-5) in 67% of the video segments they viewed and low levels of flow (1-2.7) in 6% of the segments. Projects A and B, watercolor and printmaking, received the most similarly high flow ratings from this evaluator.

Figure 2-15 Distribution of video segments to Evaluator 05 (Author)

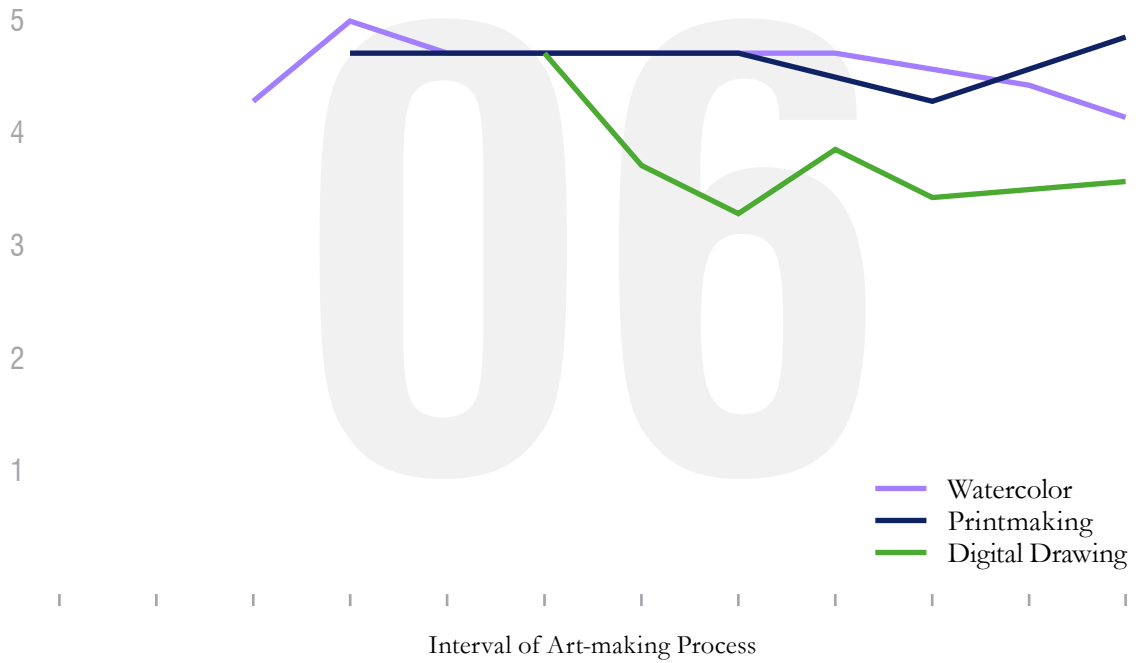


Figure 2-16 Evaluator 06 measurements of flow (Author)

Evaluator 06 measured high levels of flow (3.7-5) in 83% of the video segments they viewed and low levels of flow (1-2.7) in 0% of the segments. This evaluator measured flow at a consistently higher rate than any other evaluator.

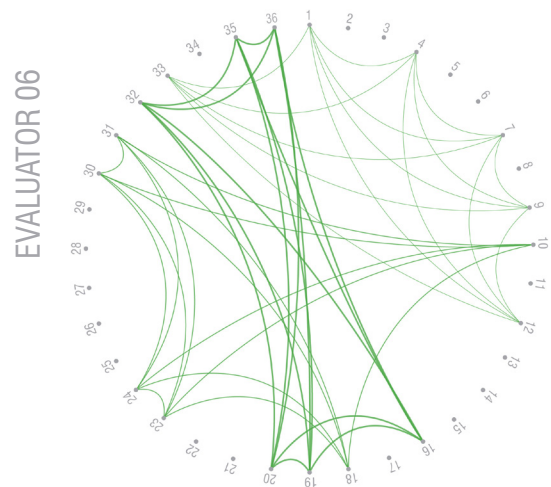


Figure 2-17 Distribution of video segments to Evaluator 06 (Author)

# 03



Painting is complete as a distraction. I know of nothing which, without exhausting the body, more entirely absorbs the mind”

- Winston Churchill, 1948

# The Urban Plaza

ART-MAKING

DESIGN





Figure 3-01 Van Gogh Watercolor paints (Author)

## Art-Making

### MATERIALS + PROCESS

The materials used to complete the watercolor paintings include the following:

- › Van Gogh Water Colours in Azo Yellow Light, Payne's Grey, Cobalt Blue, Madder Lake Deep, Burnt Umber, and Phthalo Green (Figure 3-01)
- › Strathmore Watercolor Paper, 400 Series (Figure 3-02)
- › Loew-Cornell Brushes (Figure 3-03)

Watercolor painting began in both iterations with preparing the paper and collecting water. With no clear plan for the first piece, I start-

ed by mixing colors to get a rich shade of red. As a novice watercolor painter, I first explored washing the page with color in large strokes, eventually mixing blue into the painting background. From there, I began to add denser pigmented lines and washes.

For the second iteration, I wanted to explore using finer brushes and more detailed strokes. Rather than starting with a background wash, I worked from the edges in, building detail and tone over time. I painted more layers and added more color pigment to the second iteration than the first.



Figure 3-02 Loew-Cornell Watercolor brushes (Author)



Figure 3-03 Snapshot of watercolor painting (Author)



Figure 3-04 Snapshot of watercolor painting (Author)

## PRODUCT REFLECTION

My idea of watercolor before embarking on this exercise was characterized by pure splotches of pigmentation that perfectly graduated to other tones and areas of the paper. When I realized I wasn't going to accomplish that vision, I was discouraged. However, I found that layering pigment and not stopping once the page was covered was more freeing than sticking to my preconceived notion of what watercolor painting could be. The ability to continue adding water and pigment onto a single page helped me paint beyond my preference or initial vision.

The same ability to continue adding watercolor to the painting left me in a loop where I was not sure when to stop. While this elicited a flow state, I wasn't ever immediately sure that I was happy with what I made. Flow traits that I experienced during watercolor painting included, in order of intensity:

- › The sense of time becomes distorted.
- › Action and awareness are merged.
- › There is immediate feedback to one's actions.
- › Distractions are excluded from consciousness.
- › The activity becomes autotelic.

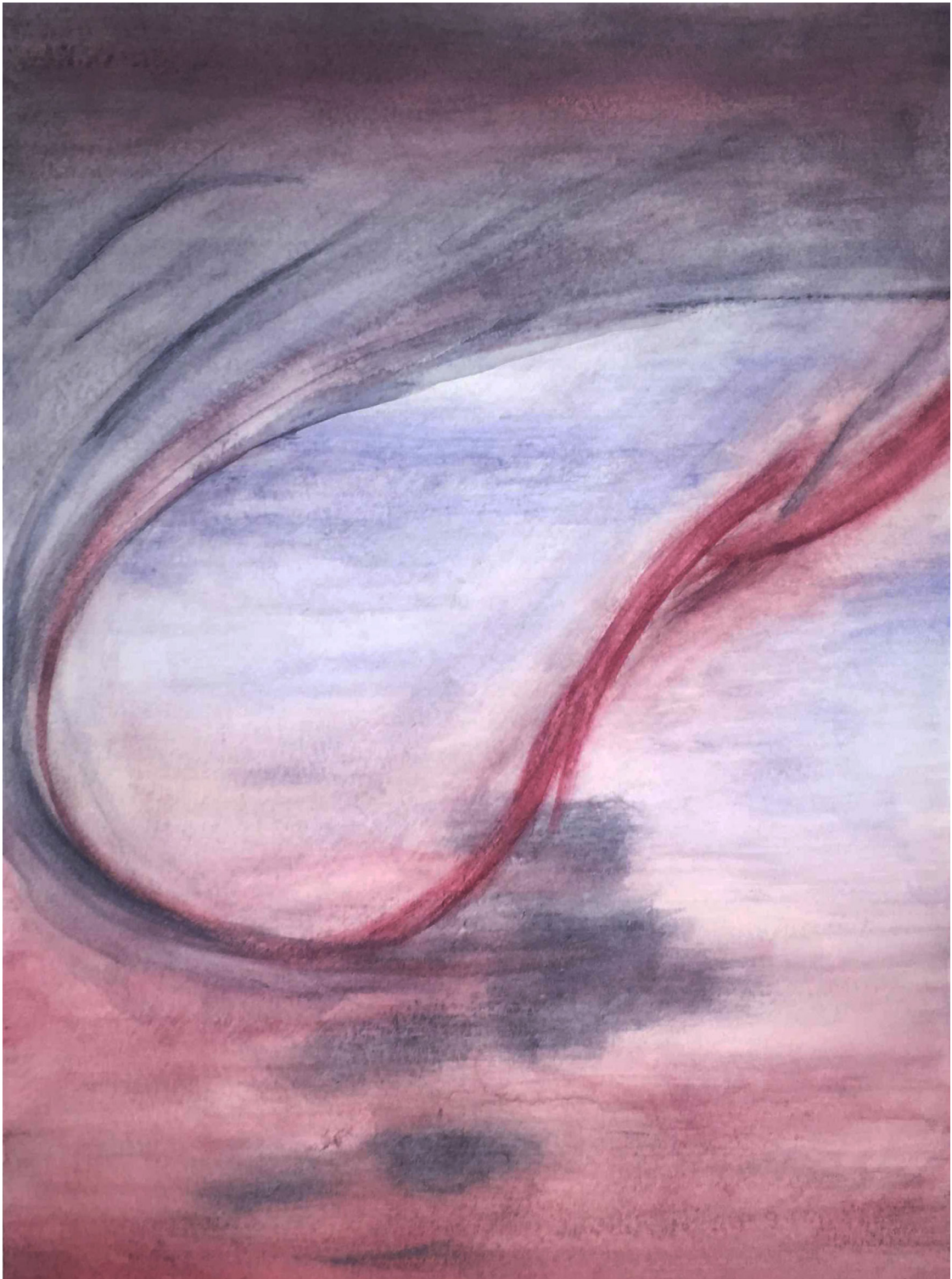


Figure 3-05 Watercolor product one (Author)

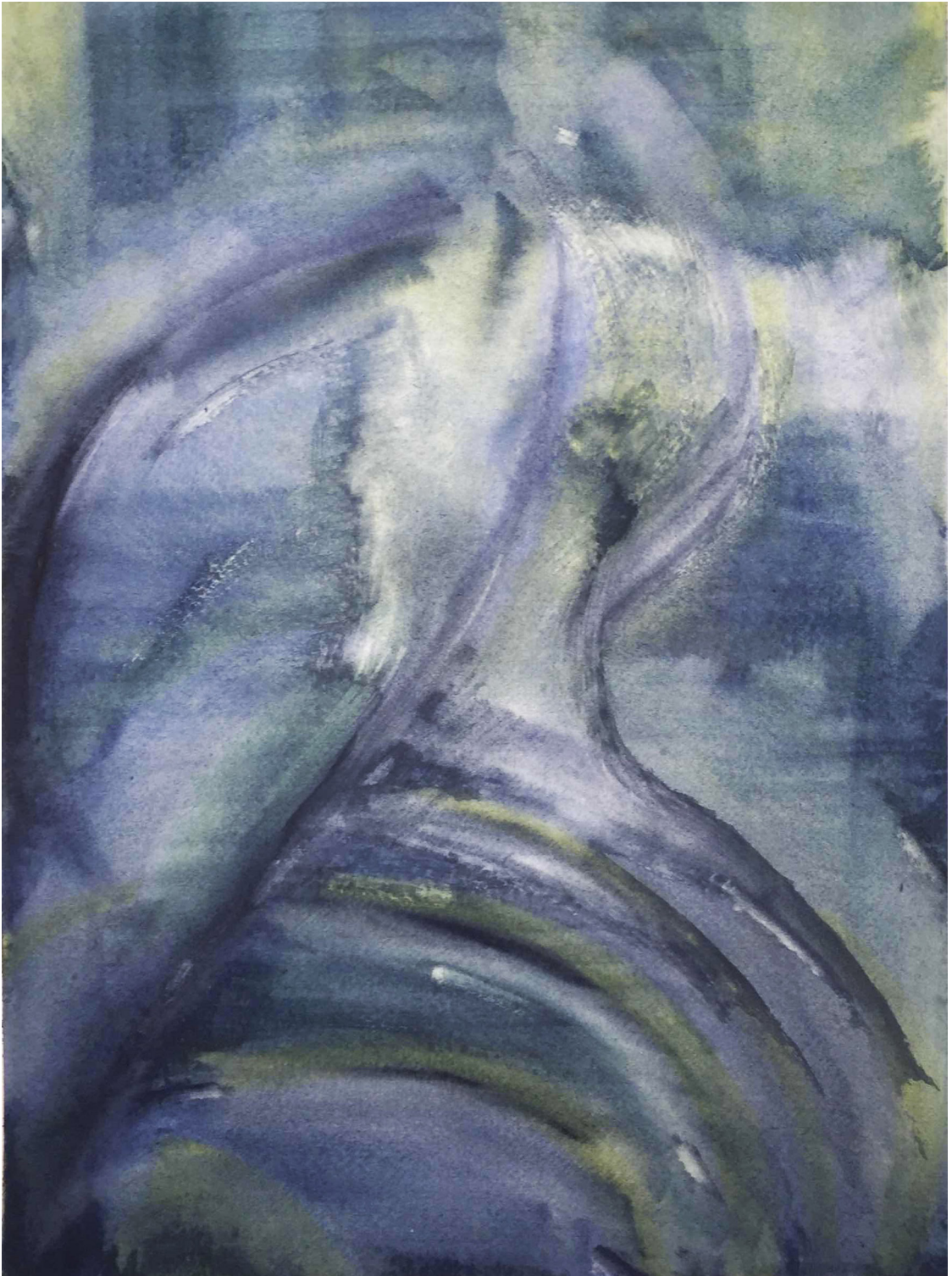


Figure 3-06 Watercolor product two (Author)



Figure 3-07 Existing conditions of the Urban Plaza (Author)

## Design

### PROGRAM STATEMENT

The Urban Plaza is a 15,549 square foot space at the western entrance to Manhattan Town Center and is surrounded by several storefronts. The plaza is the endpoint for Poyntz Avenue, Manhattan's busiest downtown street. It requires a renewed design as the rest of downtown Manhattan resurges with new businesses and improved streetscapes. In addition to pedestrian-scale circulation and basic lighting amenities, the program requirements for the urban plaza include:

- › Use of tallgrass prairie plant material
- › Design of a focal art piece
- › Seating for 10-20 people

### CONCEPT DEVELOPMENT

Through this and every form of art-making, I used the product to imagine metaphors between the art and potential design solutions. In these products, I related the higher pigmented, sweeping strokes to a path and the subtle color changes for textures in plant material and density. Figures 3-08 and 3-09 on the following spread show sketches made during concept development.

- › Color: urban materials (light, steel greys) meet with rich, light warm hues akin to prairie grasses to create a contemporary hue.
- › Texture: smooth, feathery plant textures



Figure 3-08 Concept development for the Urban Plaza (Author)

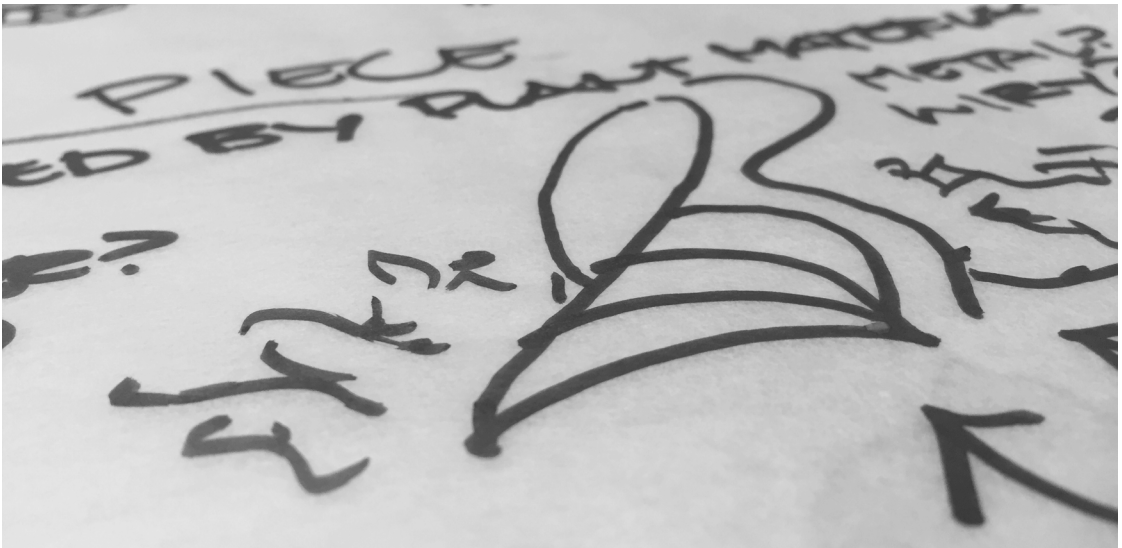


Figure 3-09 Concept development for the Urban Plaza (Author)

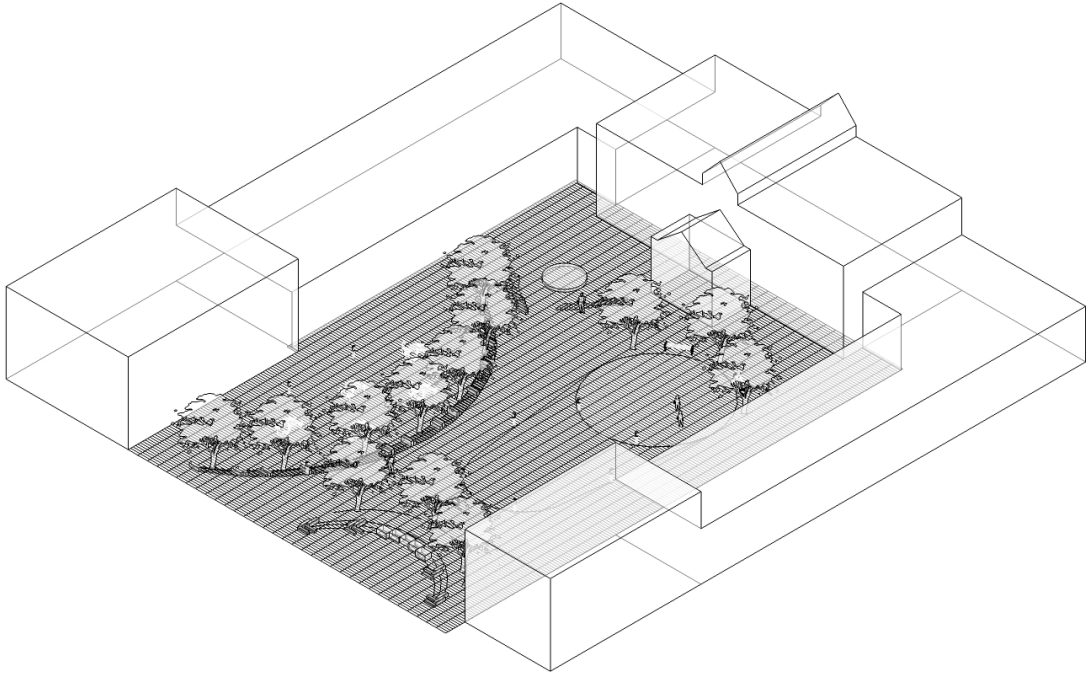


Figure 3-10 Model development for the Urban Plaza (Author)

and materials that look cut by machine (steel, feathery grass, “fluffy” shrubs, smooth pavers).

- › Form: large, organic curves that don’t overwhelm the small space. Low perspectives that allow view in and out.
- › Function: storefronts not crowded, seating and lighting dispersed and individualistic.

### SITE DESIGN AND COMMUNICATION

The Urban Plaza includes a stone seating wall adjacent to the street front, a shaded cafe seating area, a sculpture display, a circular lawn, and a gravel pathway through flowering shrubs. The arcs present in the seating walls, trees, and paving patterns, though formal, mimic the more organic arcs in the art that inspired them. The flowering shrubs and trees create a light and billowing texture in the design.



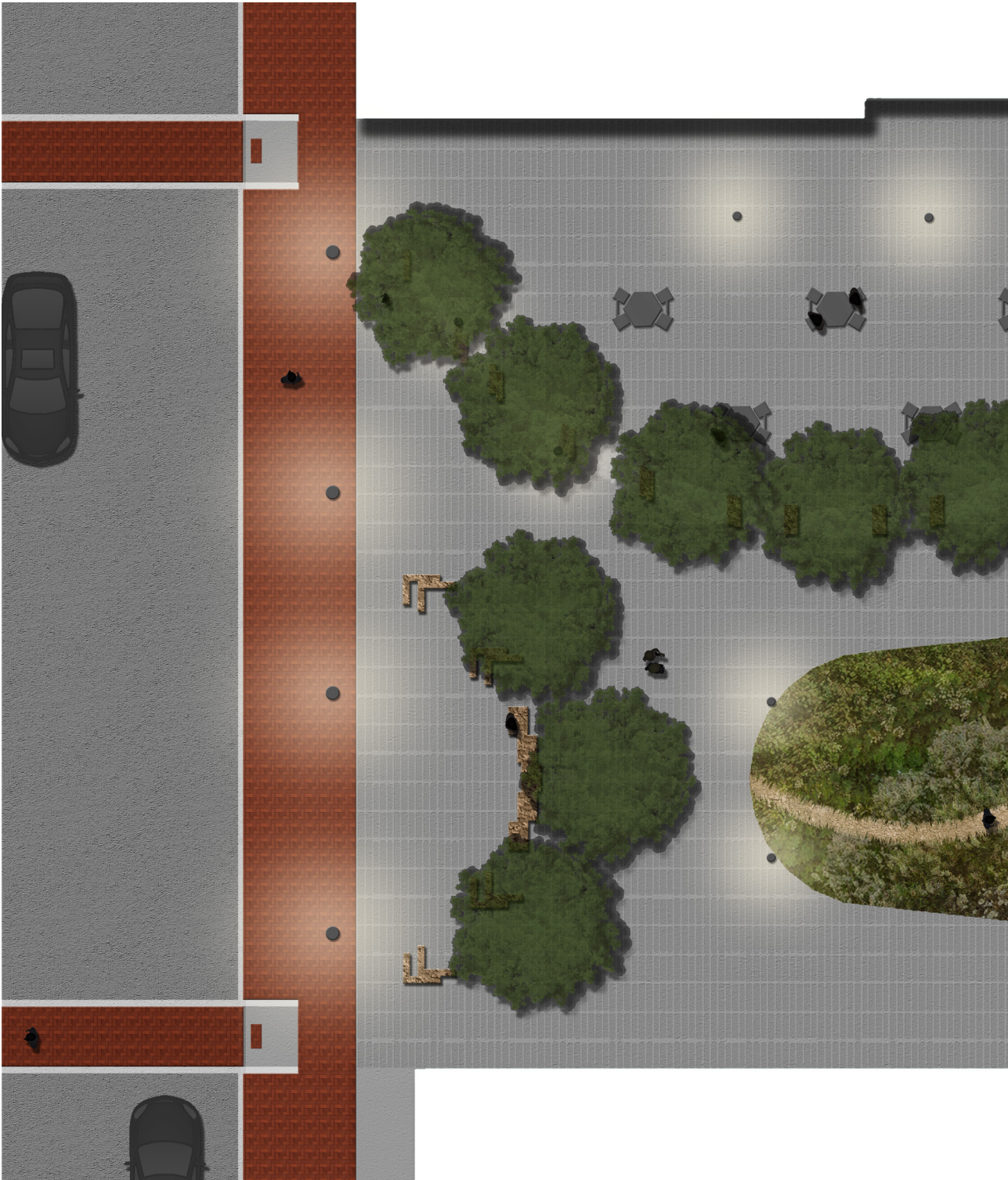


Figure 3-11 Final site plan for the Urban Plaza (Author)

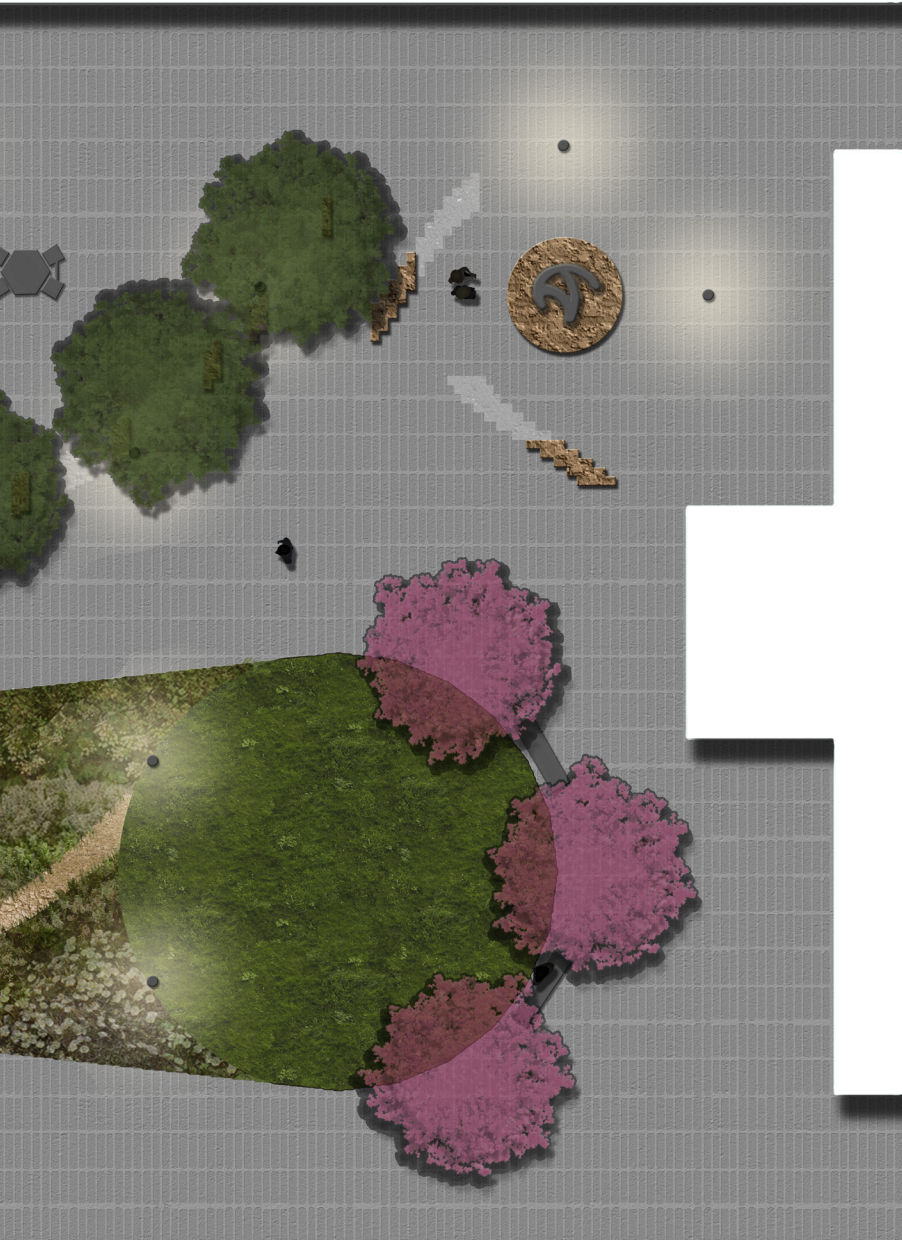




Figure 3-12 Perspective rendering for the Urban Plaza (Author)



# 04



Don't allow the lucid moment to dissolve on a hard dry surface; you have to engrave the truth"

- Adam Zagajewski, 2002

# The Campus Terrace

ART-MAKING

DESIGN

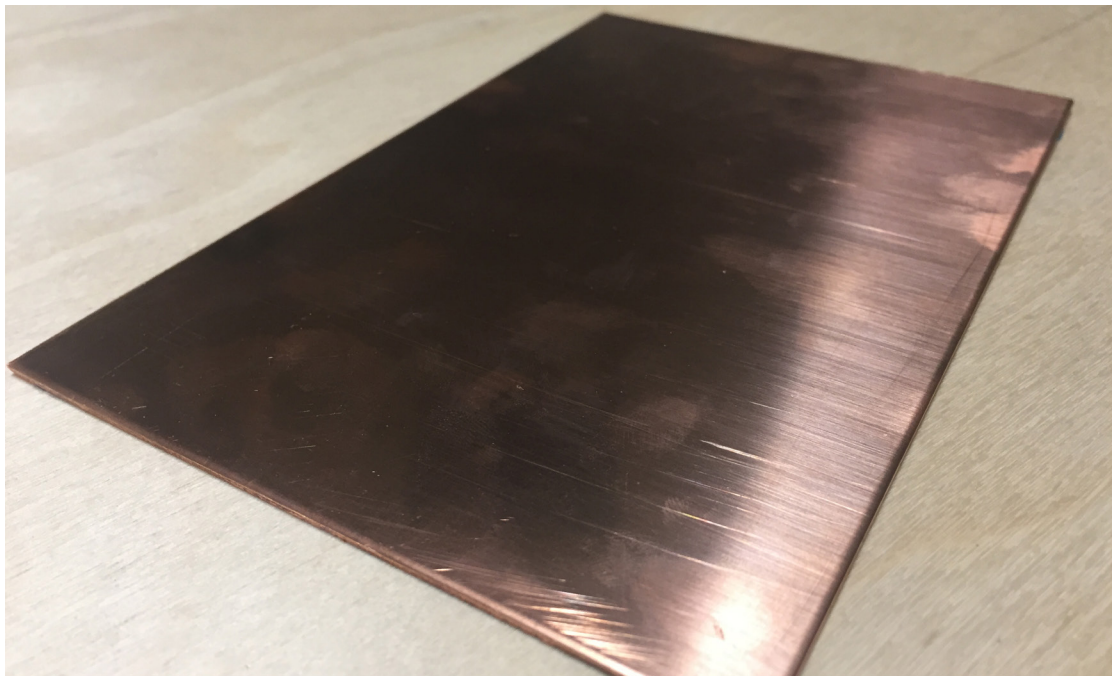


Figure 4-01 Copper etching plate (Author)

## Art-Making

### MATERIALS + PROCESS

The materials used to complete the prints include the following:

- › 6" x 8" Copper Etching Plates (Figure 4-01)
- › BFK Rives Printmaking Papers
- › Akua Intaglio Ink in Carbon Black
- › Etching Set, borrowed from Professor Jon Hunt
- › Tulle and other fabric scraps
- › Printing Press, located in Seaton Hall

Printmaking involved four distinct stages. First, the copper plates had to be degreased and the edges beveled. This process was nec-

essary for the ink to adhere to the copper plate and so that the plate would not rip the paper. Next, I used various etching tools to create channels and textures on the plate. Most of the creative energy involved in printmaking occurred during this stage. The marks I made resulted from my interest in testing every tool. I made minimal marks at first because I was unsure how well the marks would hold ink and transfer it to the paper.

After I produced a few prints, I responded to the outcome and made more etches, even adding a second plate and pressing some papers



Figure 4-02 Snapshot of printmaking - etching (Author)

twice. The process of applying ink and removing the excess is just as crucial to the outcome of the print as etching. This stage was messy, so there were periodic breaks between inking and pressing where I had to leave the room to wash my hands. Pressing is the final stage of printmaking, and it is the quickest. Finally being able to see the delayed outcome of the print is revelatory and exciting.





Figure 4-03 Snapshot of printmaking - inking (Author)

## PRODUCT REFLECTION

I felt confident during the first stages of printmaking, perhaps because I could not see the final outcome as I was etching. The discouragement I felt during watercolor painting was not present during printmaking, because the action and result were very distanced from each other. Because I was constantly looking forward to seeing the result of the print, I made minimal marks and felt good about stopping the etching stage when I did.

I was not very conscious of time while I was etching, but the inking process felt lengthy and drawn out. Taking a short break to wash my

hands between inking and pressing helped me refresh and transition positively into the next stage. Flow traits that I experienced during printmaking included, in order of intensity:

- › The activity becomes autotelic.
- › There are clear goals every step of the way.
- › Distractions are excluded from consciousness.
- › Self-consciousness disappears.
- › The sense of time becomes distorted.
- › There is balance between challenge and skills.
- › There is no worry of failure.



Figure 4-04 Printmaking product one (Author)

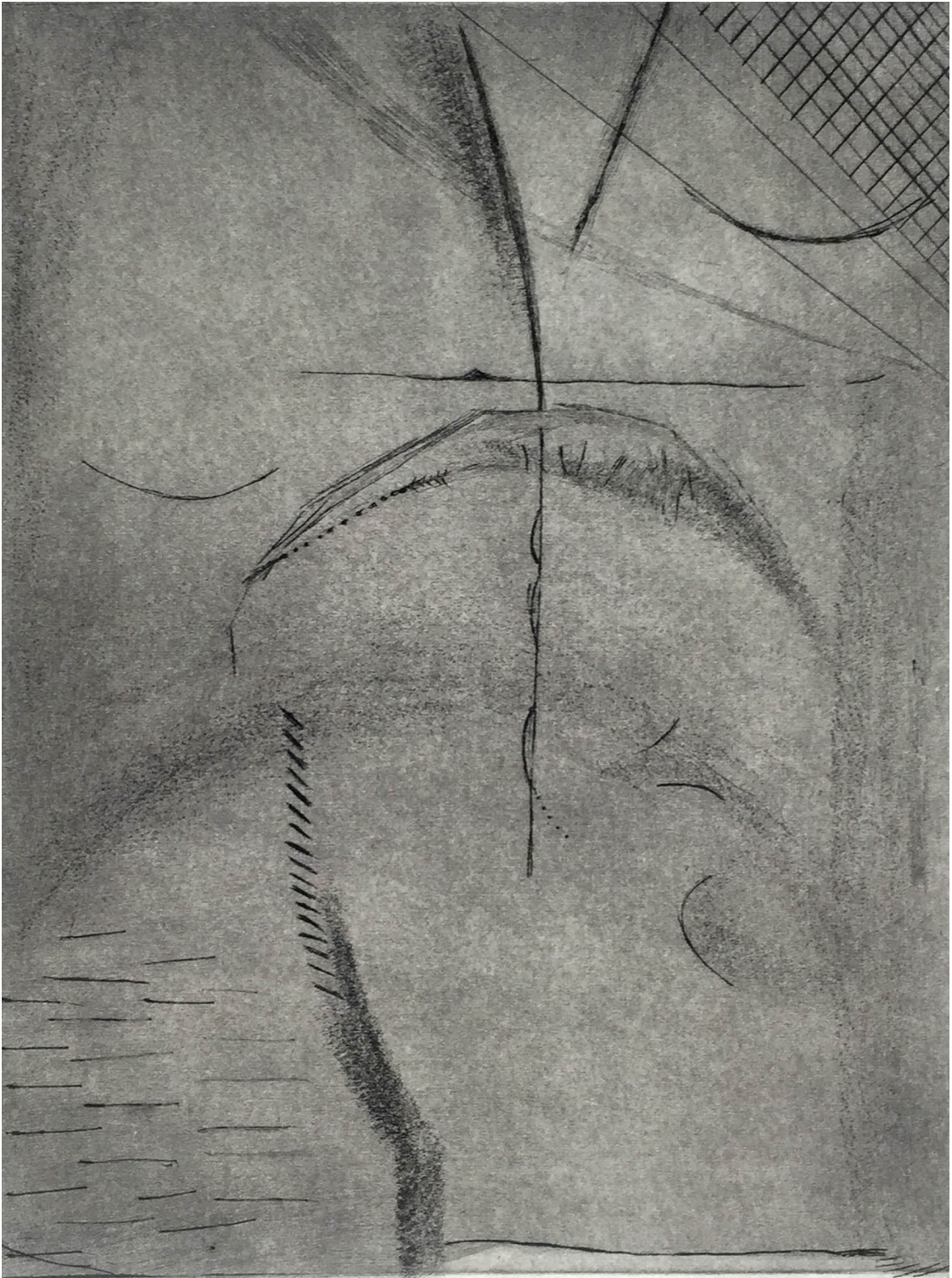


Figure 4-05 Printmaking product two (Author)



Figure 4-06 Existing conditions for the Campus Terrace (Author)

## Design

### PROGRAM STATEMENT

The Campus Terrace is a 15,989 square foot portion of lawn in the midst of various construction projects in the heart of campus. Located just south of Hale Library and north of the student union, this space could become a usable venue for outdoor gatherings on the Kansas State University campus. In addition to pedestrian-scale circulation and lighting amenities, the program requirements for the campus terrace include:

- › Use of trees for shading
- › Amphitheater-style grading
- › Seating for 25-50 people

### CONCEPT DEVELOPMENT

I translated the heavy inked marks in the print into exact forms and textures in the design. The definitiveness of those lines, made with very intentional etching marks in the copper plate, made it easy to map the art onto the site. Where the concept sketches I completed for the urban plaza, based on the watercolor painting, were more general and abstract, the drawings I initially made for the campus terrace (Figures 4-07 and 4-08) were immediately placed into real site context.

- › Color: since color wasn't part of the art-making process, it didn't directly inform

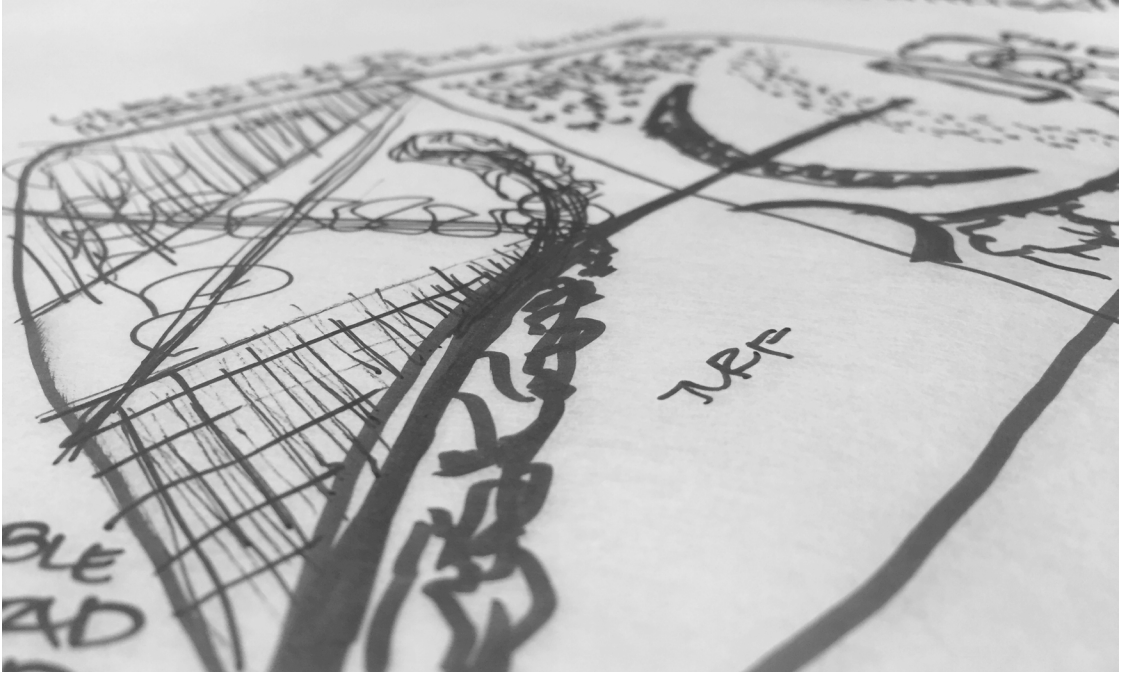


Figure 4-07 Concept development for the Campus Terrace (Author)

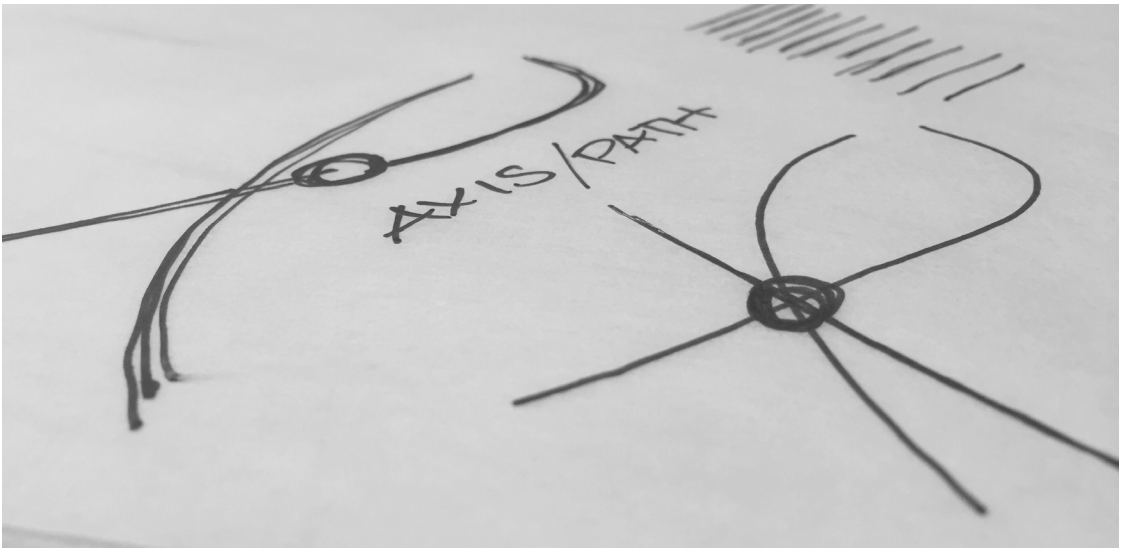


Figure 4-08 Concept development for the Campus Terrace (Author)

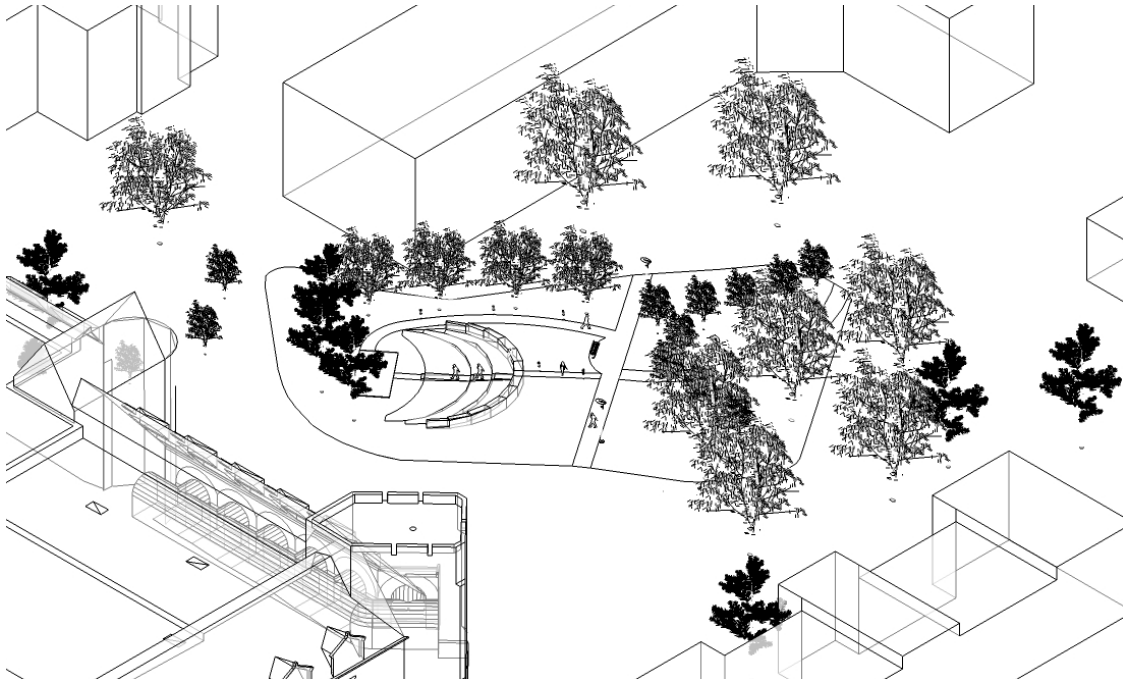


Figure 4-09 Model development for the Campus Terrace (Author)

the design concept. However, the grey tones influenced a moodier rendering style.

- › Texture: subtle but expansive variations in turf, clean edges for paths and forms.
- › Form: tight arc for the amphitheater space, with a bisecting path and looser arcs shaping the adjacent paths and tree lines.
- › Function: gathering areas at lower grade, existing trees kept where possible. Pathway connections made to existing sidewalks.

## SITE DESIGN AND COMMUNICATION

The Campus Terrace is a central space on the Kansas State University campus for students and classes to gather. The main feature of the design is an amphitheater with three tiers of turf grass seating and one level of a stone seating wall. The two primary circulatory paths bisect the amphitheater and run parallel to the back of it, respectively. A ramped, tree-lined pathway frames the amphitheater on the south side, and a large swath of tallgrass defines the space at the north.



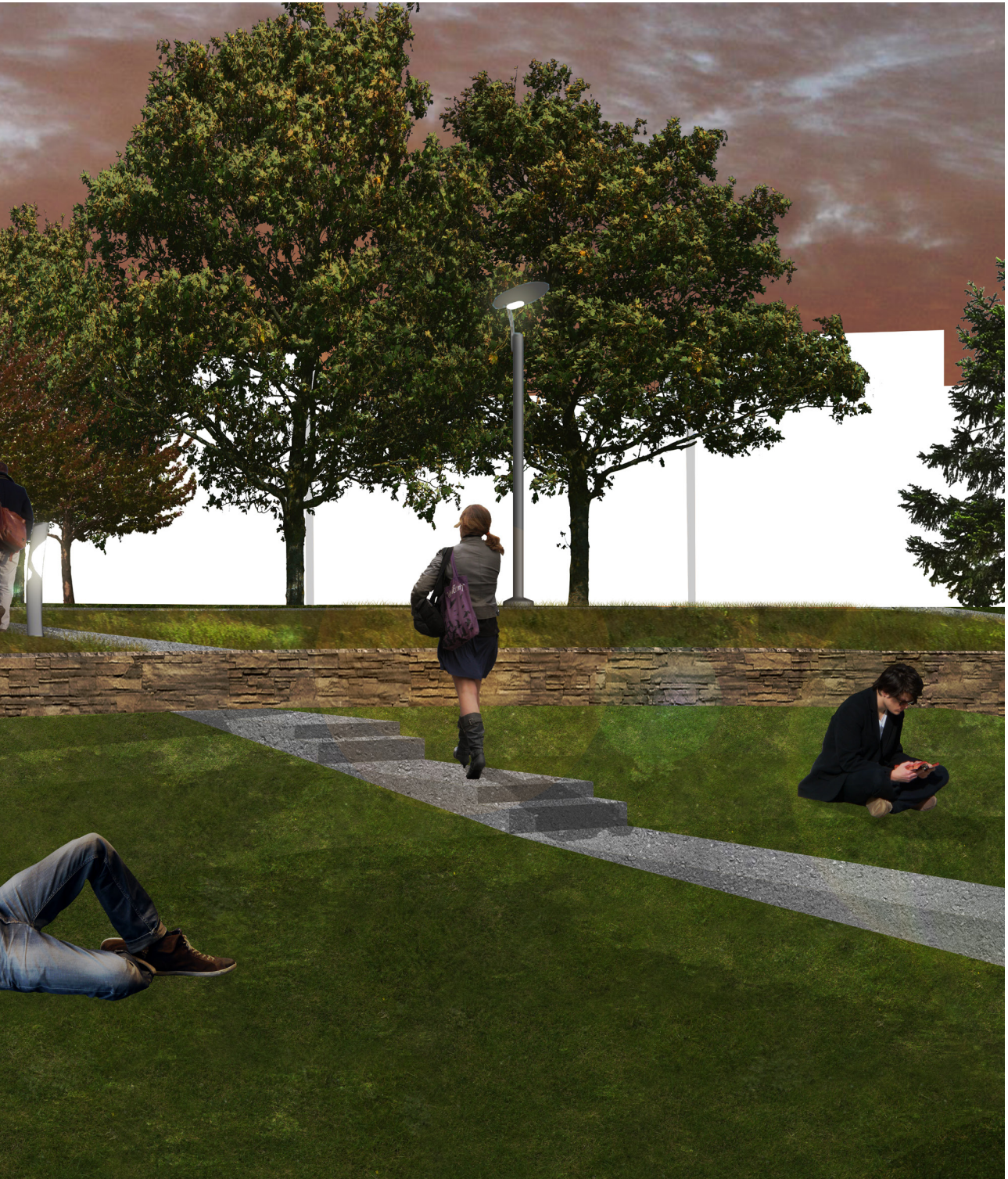
Figure 4-10 Final site plan for the Campus Terrace (Author)







Figure 4-11 Perspective rendering for the Campus Terrace (Author)



05

“

The difference between nothing and not-nothing is a line drawn on the air. One must try to draw this line”

- Charles Wright, 1995

# The Natural Playground

ART-MAKING

DESIGN



Figure 5-01 Intuos pen tablet (Author)

## Art-Making

### MATERIALS + PROCESS

The tools used to complete the digital drawings include the following:

- › Adobe Illustrator CS6
- › Intuos Pro Pen Tablet by Wacom (Figure 5-01)

Digital Drawing was a quick process which involved the use of only two tools. Unlike printmaking and watercolor, I remained very stationary while completing the drawing, unable to move away from my computer. My first action was to set up brush settings in Adobe Illustrator so that the stroke width and opac-

ity responded to the pressure I used on the pen tablet. The first strokes I made were to test how responsive the brush setting was to the pressure I put on the pen. I deleted most of these strokes, but some became the initial moves of the artwork.

I created more brush settings and explored creating different textures through opacity settings and manipulation of vector points. To elevate the line work, I added color and experimented with different merging settings in Illustrator.



Figure 5-02 Snapshot of digital drawing (Author)

## PRODUCT REFLECTION

Unlike watercolor and printmaking, I was able to manipulate and completely remove the marks I made during digital drawing. While this ability could have drawn out the process with never-ending changes, it sped up the process because of the immediate clarity of the artwork's progress. My typical experience with sketching is discouragement, due to the imperfections and lack of clarity in the line work. Illustrator eliminates those imperfections by immediately turning the lines I draw into vectors with more perfect arcs and clean edges.

I used Adobe Illustrator to complete the digital drawing exercise because of its ability to respond to pressure settings and various brush styles. However, other programs like Adobe Photoshop and SketchBook could have been used with similarly responsive settings. Flow traits that I experienced during digital drawing included, in order of intensity:

- › There is immediate feedback to one's actions.
- › There is balance between challenge and skills.
- › Action and awareness are merged.
- › Self-consciousness disappears.

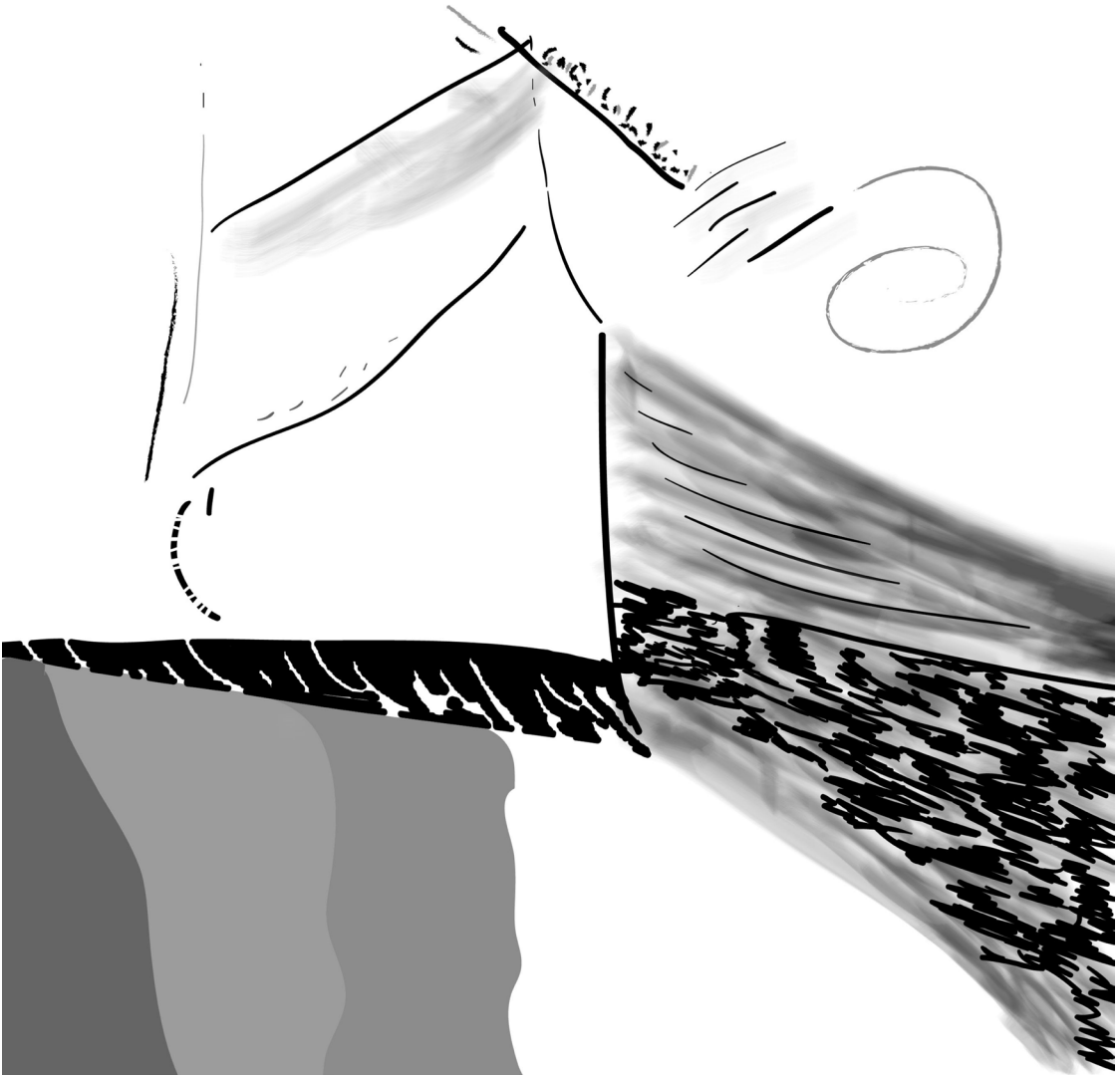


Figure 5-03 Digital drawing product one (Author)

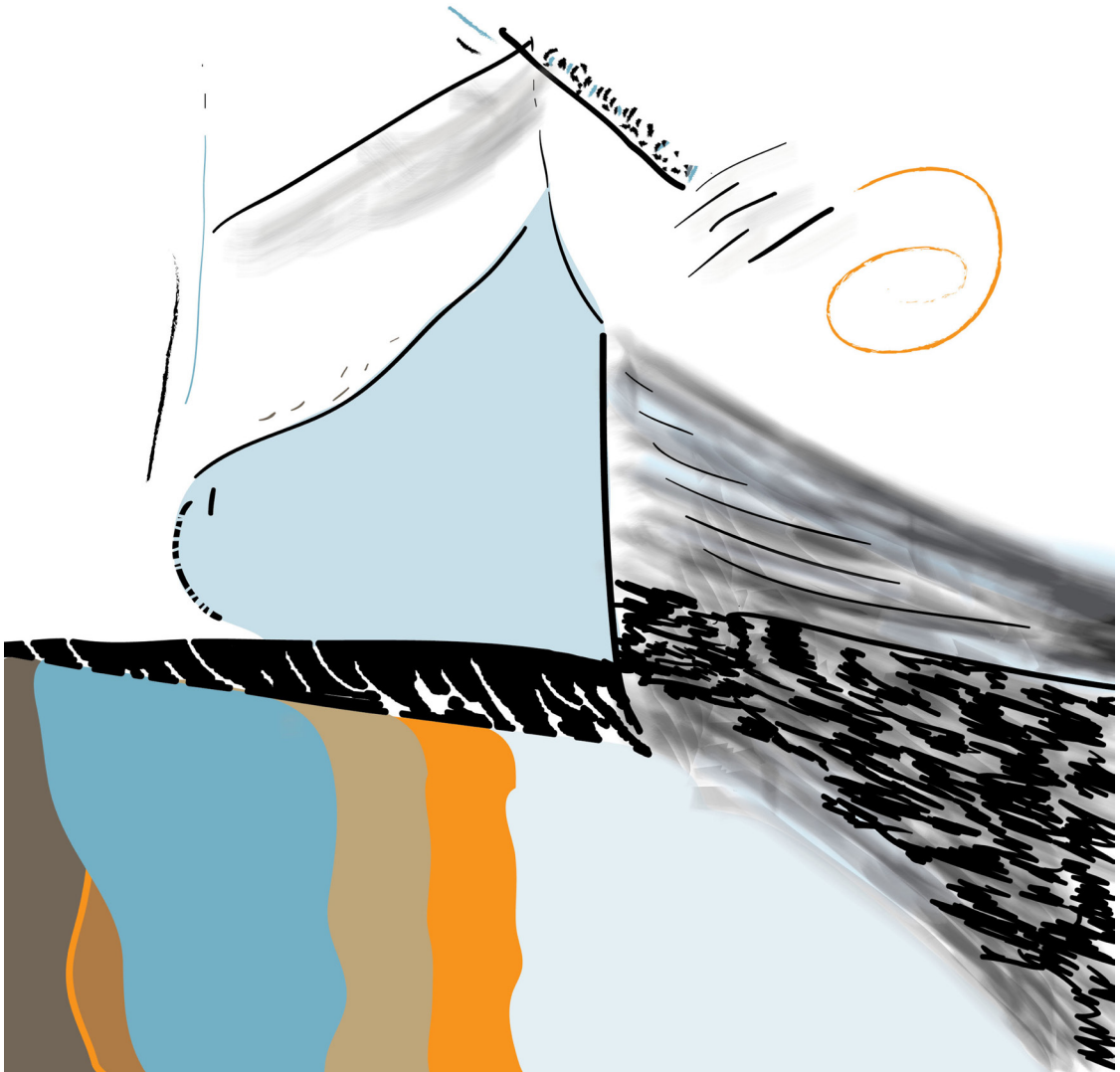


Figure 5-04 Digital drawing product two (Author)





Figure 5-05 Existing conditions of the Natural Playground (Author)

## Design

### PROGRAM STATEMENT

The Natural Playground is a 16,473 square foot area of lawn and trees in Long's Park, a residential neighborhood park near the intersection of 17th Street and Fort Riley boulevard. A natural playground would enhance the use of this park, which currently has a shelter and playground, without over-developing it. From the National Wildlife Federation, "The idea behind a nature play space is that instead of the standard, cookie cutter metal and plastic structures that make up the bulk of today's playgrounds -- people can incorporate the surrounding landscape and vegetation to bring nature to children's daily outdoor play and learning environments." In

addition to pedestrian-scale circulation and lighting amenities, the program requirements for the natural playground include:

- › Preservation of existing trees
- › 2-4 play theme zones
- › Seating for 10-15 people

### CONCEPT DEVELOPMENT

Color greatly influenced the concept for the Natural Playground and helped keep the design whimsical and energetic. Rather than mapping the artwork onto the site, as I did with printmaking and the campus terrace, I



Figure 5-06 Existing playground at Long's Park (Author)

selected certain elements of the artwork, like the spiral and maze-like texture, to inspire the play zone themes. The overall theme extracted from the artwork into the design was the radiating placement of play zones from a central gathering place.

- › Color: orange and blue elements brighten the more natural colors and textures in the playground.
- › Texture: natural textures like stone and tree bark to tie the play areas to natural elements of the park.
- › Form: circular forms celebrate the organic materials and patterns that children can

recognize and respond to.

- › Function: two play zones radiate from a central gathering space and are connected by a third play zone.

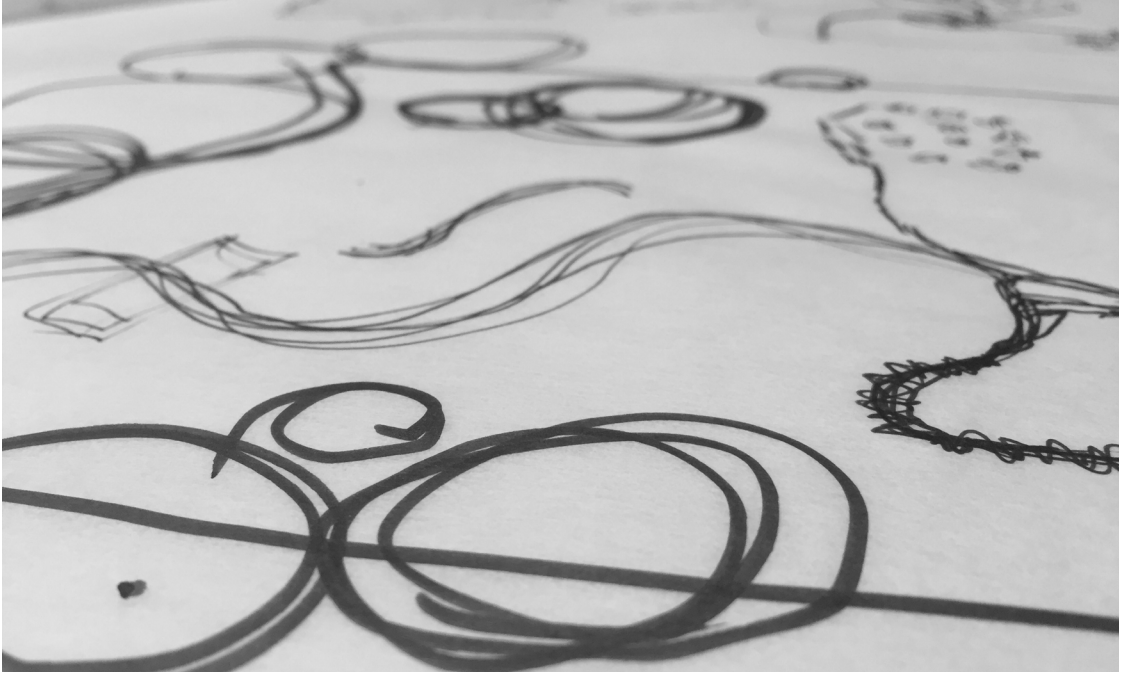


Figure 5-07 Concept development for the Natural Playground (Author)

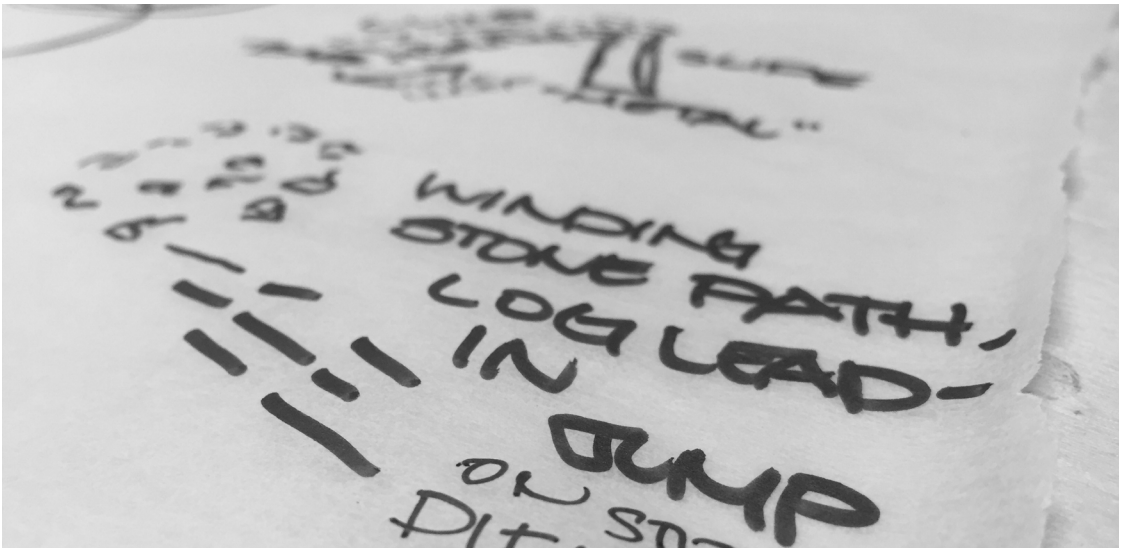


Figure 5-08 Concept development for the Natural Playground (Author)

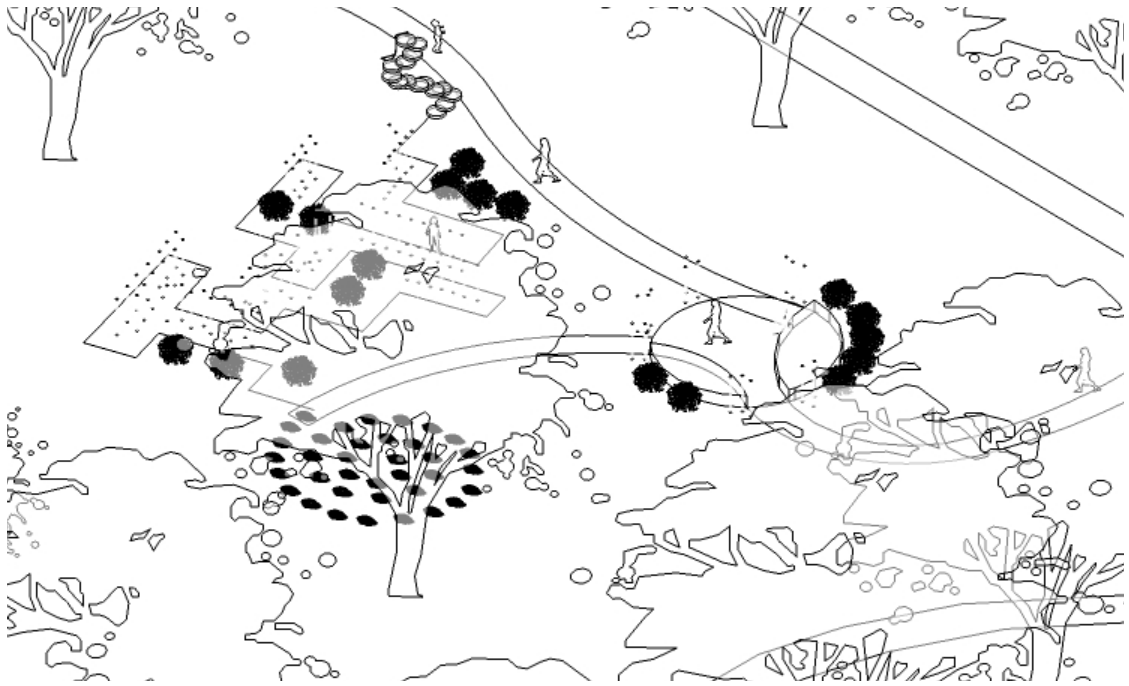


Figure 5-09 Model development for the Natural Playground (Author)

## SITE DESIGN AND COMMUNICATION

The Natural Playground adds a new experiential element to Long's Park, by providing an informal play area where children can interact with natural materials. Crushed stone paths connect three play zones and a circular gathering platform to the existing playground and sidewalks. The gathering platform channels three paths through it to the play zones, and raised platforms provide seating.

Play zones incorporate a spiral with boulders for children to explore and climb on, a slide accessed by stepping up several tree stumps, and a maze through tallgrass shrubs. Orange

and blue light poles act as a light source for the gathering platform and act as a barrier in the maze. The zones take advantage of a previously unused piece of land in a widely used neighborhood park, and the design allows for future addition of play zones that incorporate natural landscape elements.



Figure 5-10 Final site plan for the Natural Playground (Author)





Figure 5-11 Perspective rendering for the Natural Playground (Author)





# 06

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The process of discovery involved in creating something new appears to be one of the most enjoyable activities any human can be involved in”

- Mihaly Csikszentmihalyi, 1996

# Findings

FLOW STATE MEASUREMENTS

INDIVIDUAL FLOW TRAITS

STUDY VALIDITY

DESIGN EFFICACY MEASUREMENTS

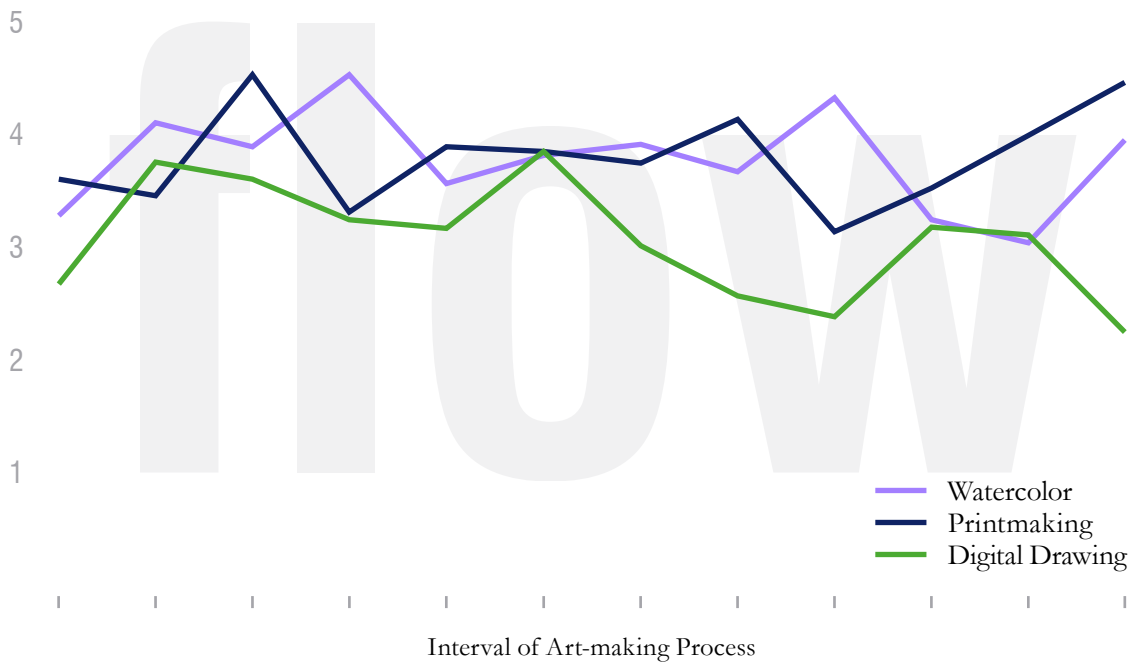


Figure 6-01 Average evaluator-measured flow for each art-making type (Author)

## Flow State Measurements

### OVERALL FLOW

Based on measurements from six evaluators, high levels of flow were measured most often for both watercolor and printmaking, and least often for digital drawing. However, the average of evaluator measurements placed printmaking slightly more conducive to flow. Figure 6-01 represents the mean evaluator-measured flow rates for the three art-making methods employed.

High measurements of flow would be those marked above 3.7, and low measurements of flow would be those marked below 2.7. Per my reflection of the art-making methods, I

would consider the variety of tasks associated with printmaking to be the major factor influencing its high ratings. I consistently measured my flow state higher than the evaluator average, which is evident in Figures 6-02 through 6-04. Since flow is not often measured by external evaluators, I was not surprised that my self-evaluation rates were usually higher. I was able to use memory and my internal monologue to measure flow, while the evaluators exclusively used body language and action to inform their measurements. Figure 6-05 on page 80 shows how each evaluator uniquely rated flow.

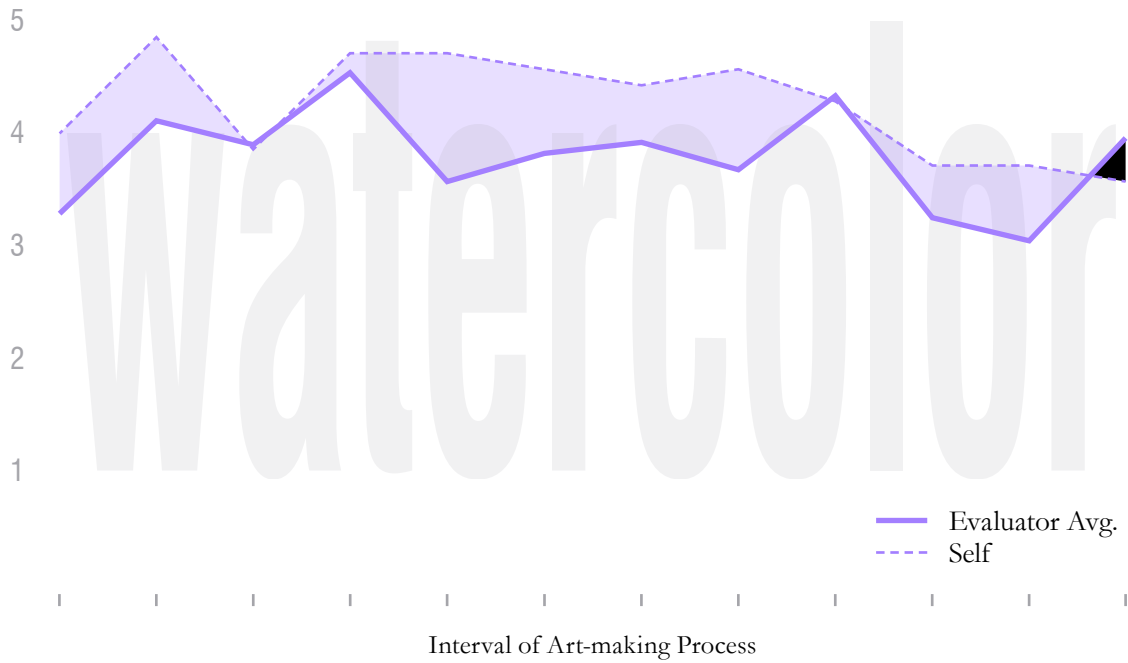


Figure 6-02 Difference in average and self assessment for watercolor (Author)

### WATERCOLOR

The evaluators, on average, measured high levels of flow for 58% of the watercolor video segments and moderate levels of flow for 42% of the segments.

I measured high levels of flow for 75% of the segments and moderate levels for 25% of them. The average evaluator measurement for watercolor was 3.81 and the average self measurement was 4.23.

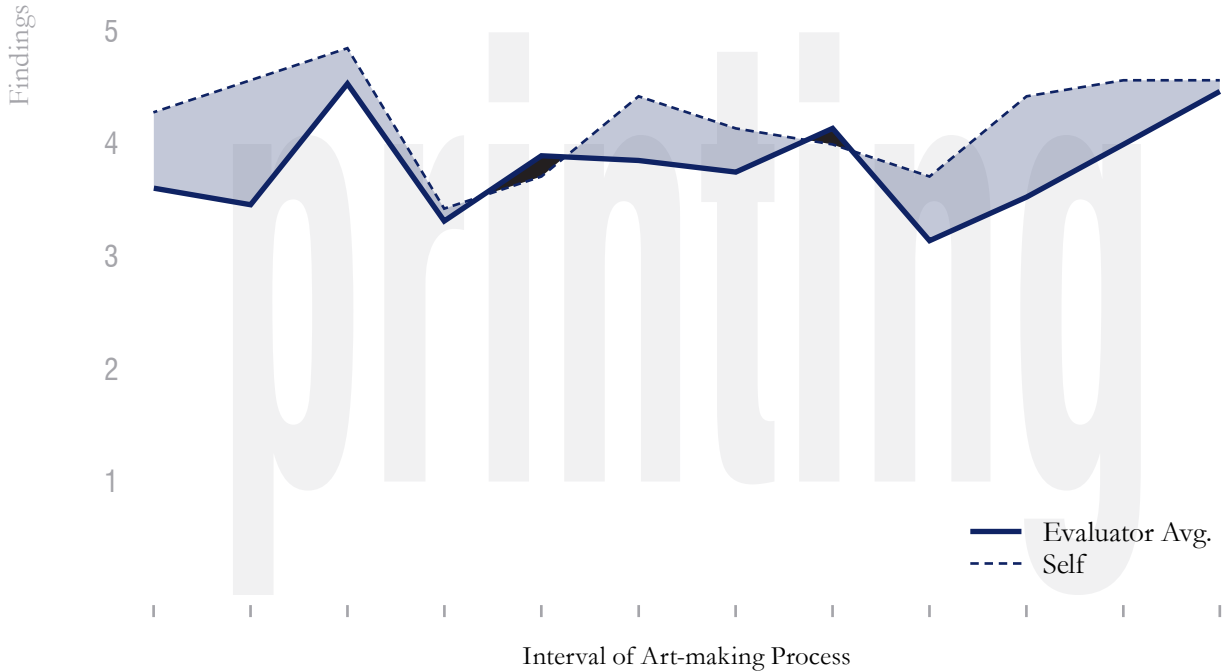


Figure 6-03 Difference in average and self assessment for printmaking (Author)

## PRINTMAKING

On average, the evaluators measured high levels of flow for 58% of the printmaking video segments and moderate levels for 42%.

I measured high levels of flow for 75% of the video segments and moderate levels of flow for 25% of them. This categorization of flow measures puts printmaking at the same rate as watercolor, but the average evaluator measurement elevates printmaking. The average evaluator measurement for printmaking was 3.81 and the average self measurement was 4.23.

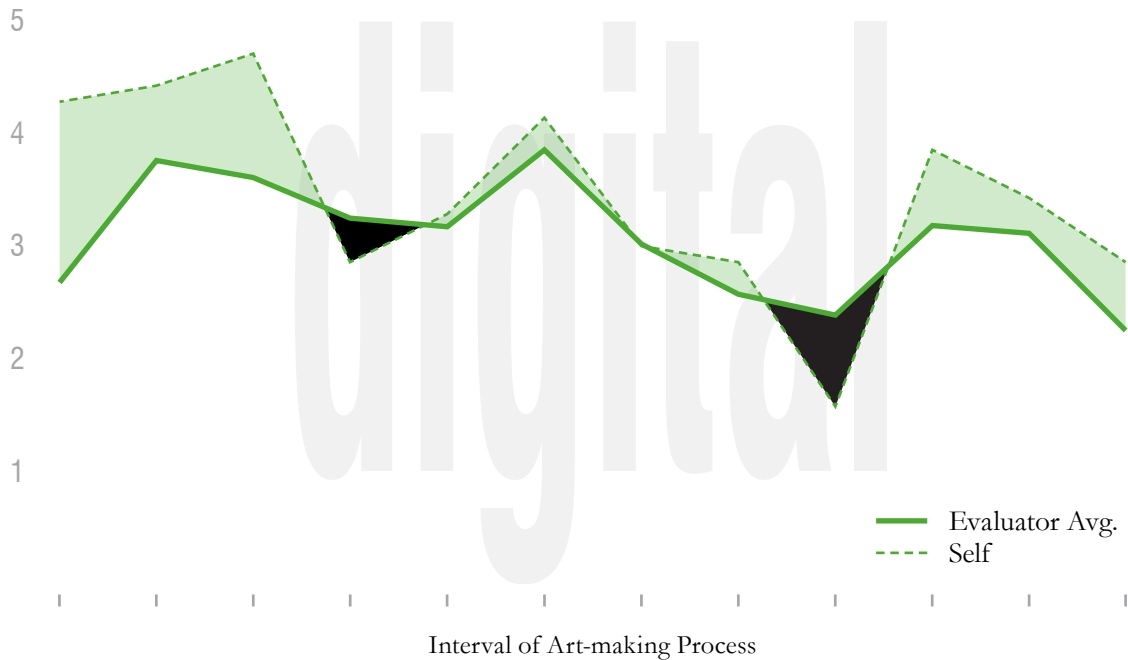


Figure 6-04 Difference in average and self assessment for digital drawing (Author)

### DIGITAL DRAWING

The evaluators, on average, measured high levels of flow for just 17% of the digital drawing video segments, moderate levels for 50% of the segments, and low levels for 33%.

I measured high levels of flow for 42% of the video segments, moderate levels for 50%, and low levels of flow for only 8% of the segments. Digital drawing received the lowest average evaluator and self measurements for flow, at 3.07 and 3.44, respectively.

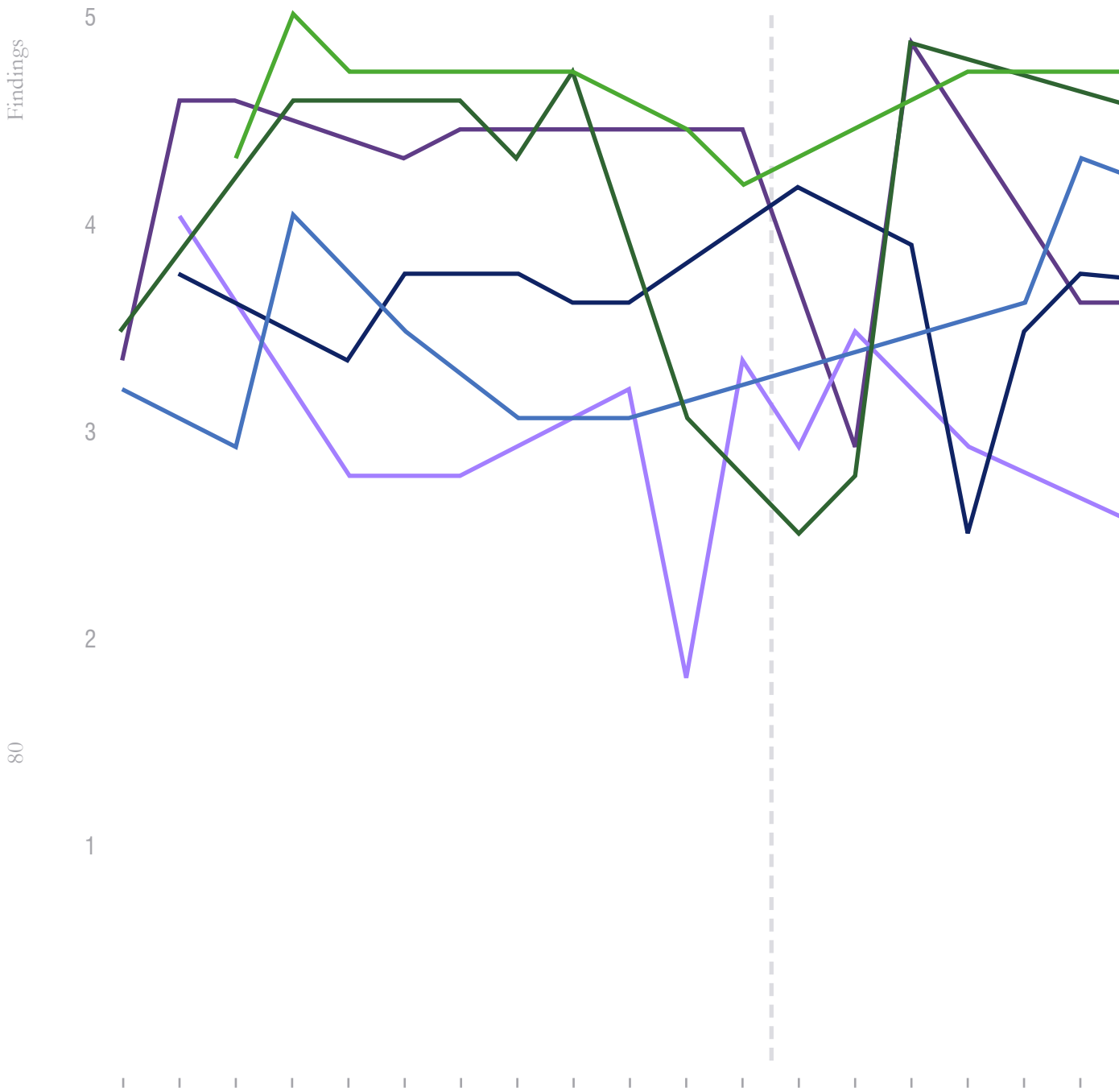


Figure 6-05 Evaluator trends through the art-making projects (Author)

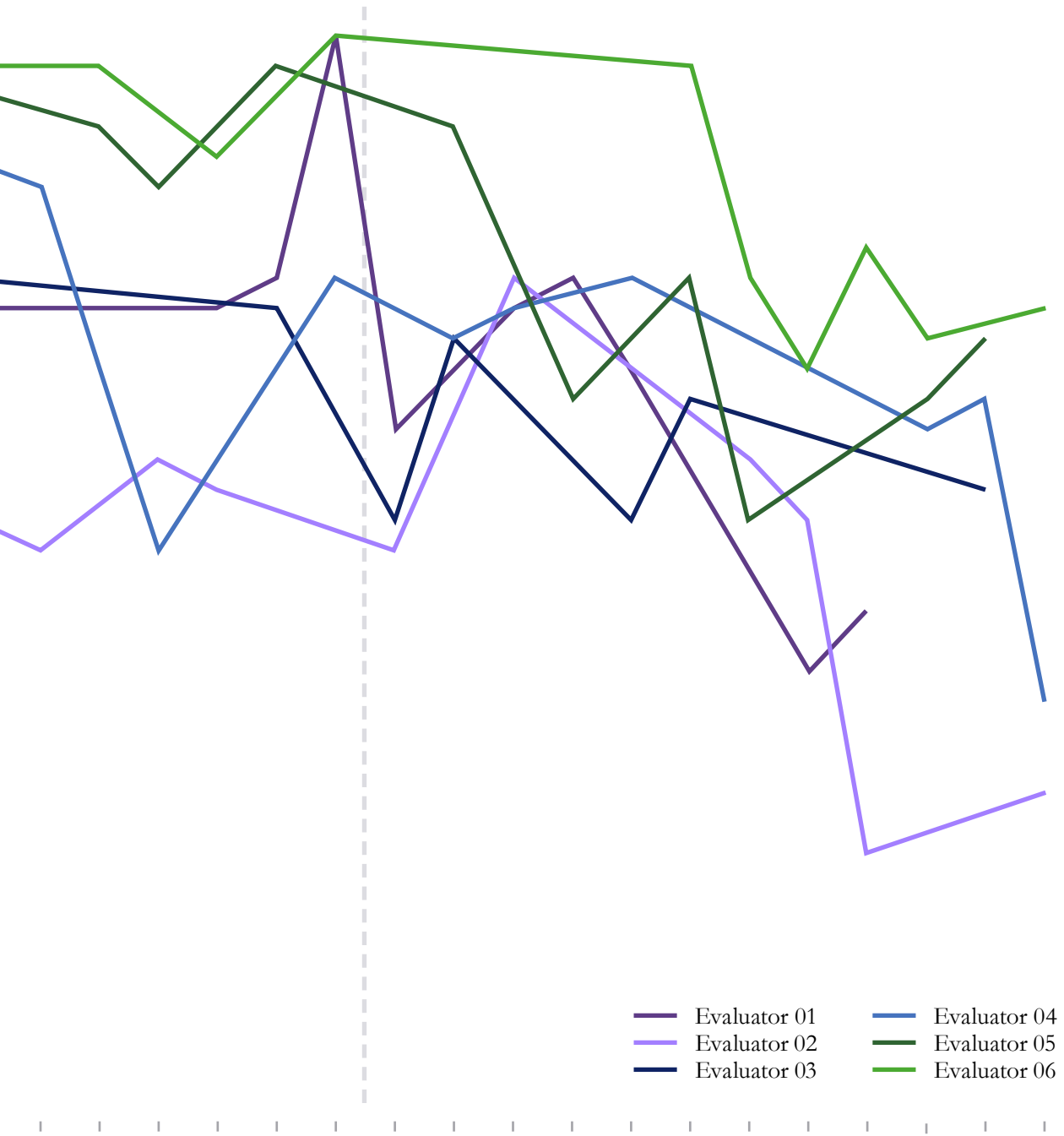






Figure 6-06 Moment of peak flow during watercolor (Author)

## SITUATIONAL FLOW

Interestingly, the moments of peak flow, according to average evaluator flow measurements for each segment of the three art-making methods, correlate strongly based on their sequential occurrence and the type of action being done.

During watercolor, peak flow occurred during the first iteration of painting, where noticeable additions were made to the art. The peak moment of flow for printmaking also occurred during the first iteration of etching, which I completed in studio. Finally, though the evaluators could not see the art as I was making it,

the peak moment of flow for digital drawing occurred as I was using the art media. None of the peak flow moments occurred during concept generation. All occurred during moments of progressive art development.



Figure 6-07 Moment of peak flow during printmaking (Author)



Figure 6-08 Moment of peak flow during digital drawing (Author)

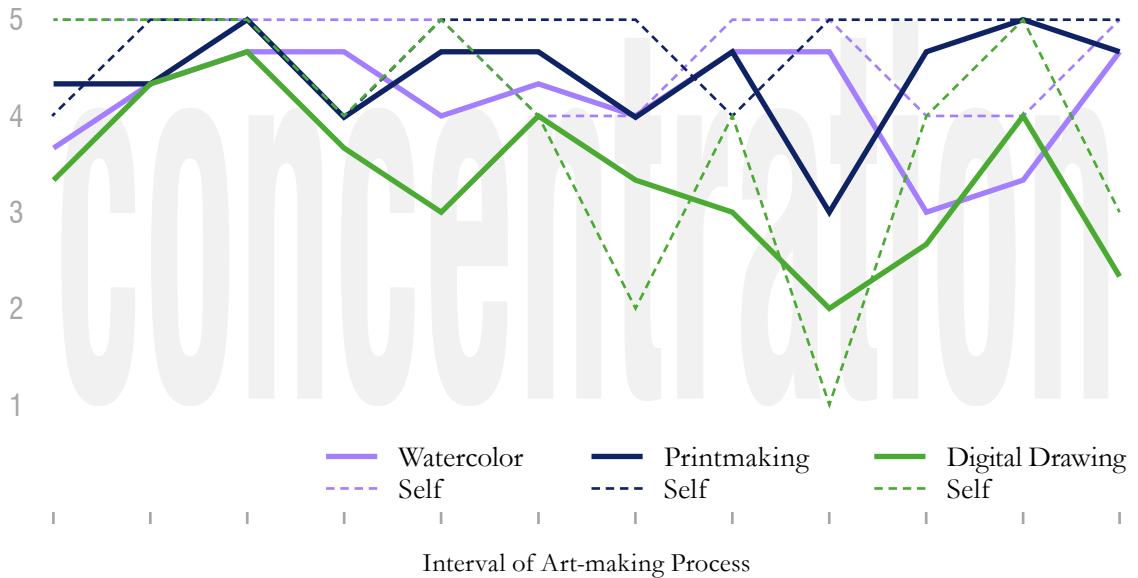


Figure 6-09 Measurements for concentration (Author)

## Individual Flow Traits

### CONCENTRATION

To measure concentration, evaluators were asked to respond to the statement, “the subject had no difficulty concentrating.” I received the highest ratings of concentration during printmaking, and the lowest ratings for digital drawing.

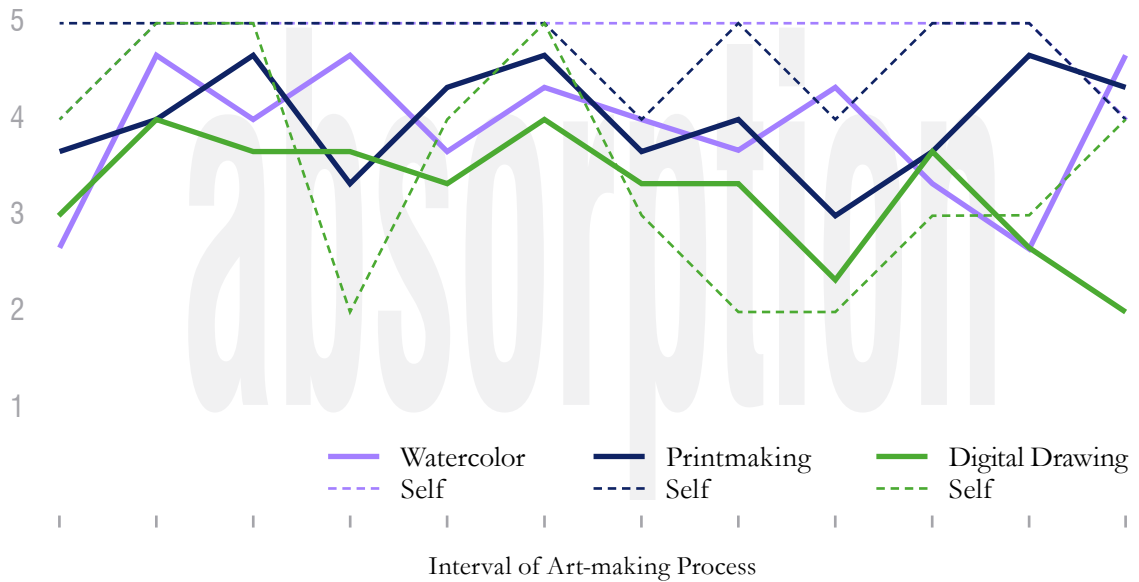


Figure 6-10 Measurements for absorption (Author)

### ABSORPTION

Evaluators were asked to respond to the statement, “the subject was totally absorbed in what they were doing” to measure absorption. I garnered high ratings of absorption during both watercolor and printmaking, and the lowest ratings for digital drawing. I measured absorption at a flat, high rate for watercolor, while my rating for digital drawing was inconsistent.

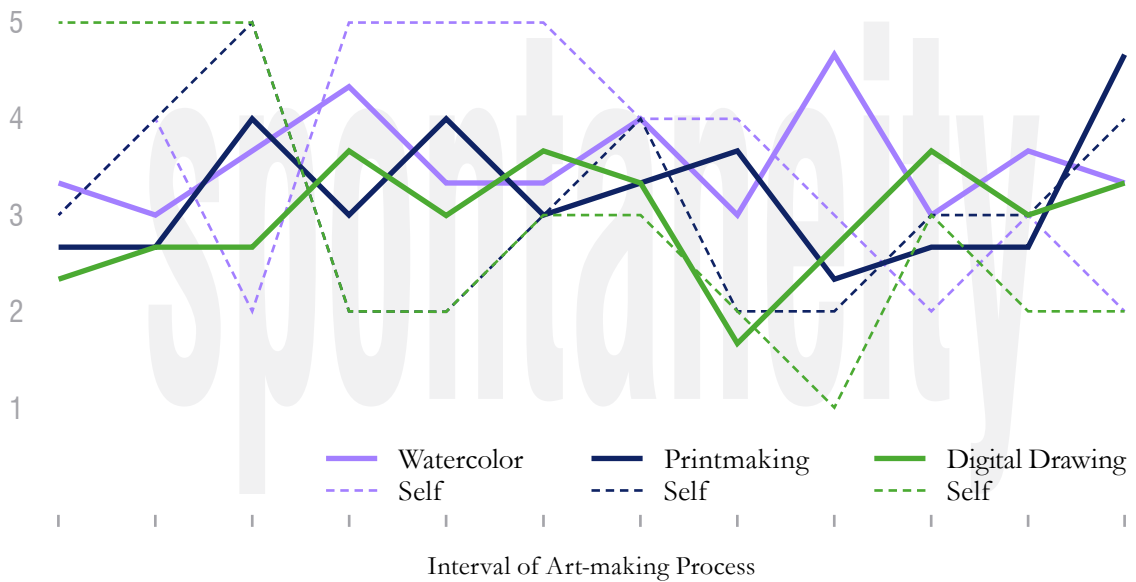


Figure 6-11 Measurements for spontaneity (Author)

## SPONTANEITY

To measure spontaneity, evaluators were asked to respond to the statement, “the right thoughts/movements occurred of their own accord.” Ratings for this flow component varied greatly. It is hard to determine a trend for this component, especially considering that my measurement had little concurrence with the evaluator average.

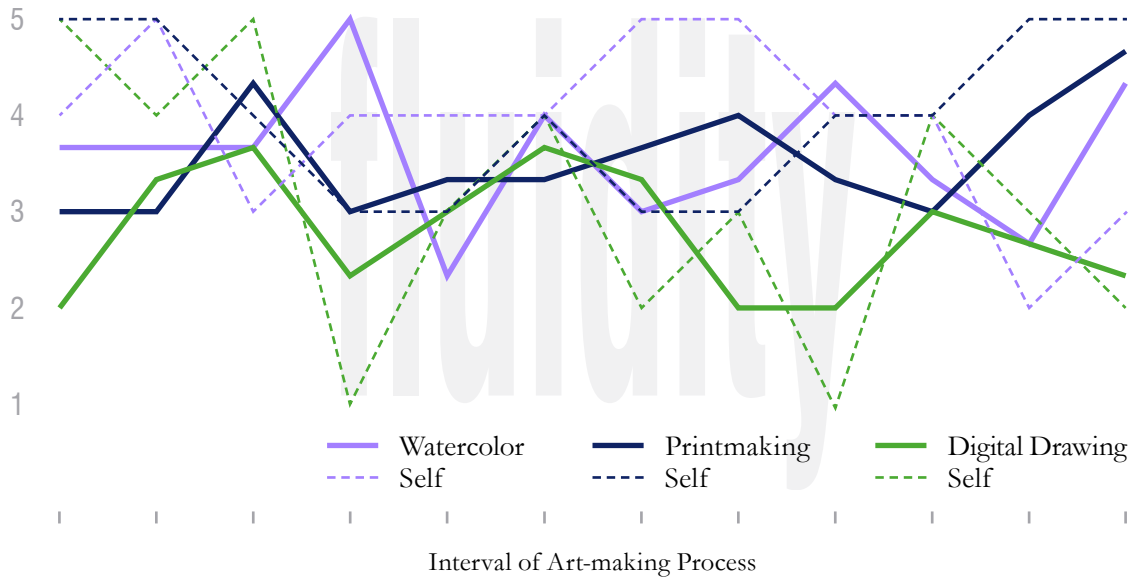


Figure 6-12 Measurements for fluidity (Author)

### FLUIDITY

Evaluators were asked to respond to the statement, “the subject’s thoughts/activities ran fluidly and smoothly” to measure fluidity. I garnered high ratings of fluidity during watercolor, which could be attributed to the perceived fluidity of watercolor painting. Printmaking likely received mid-level ratings for fluidity because of the abruptness and frequent transition of tasks.

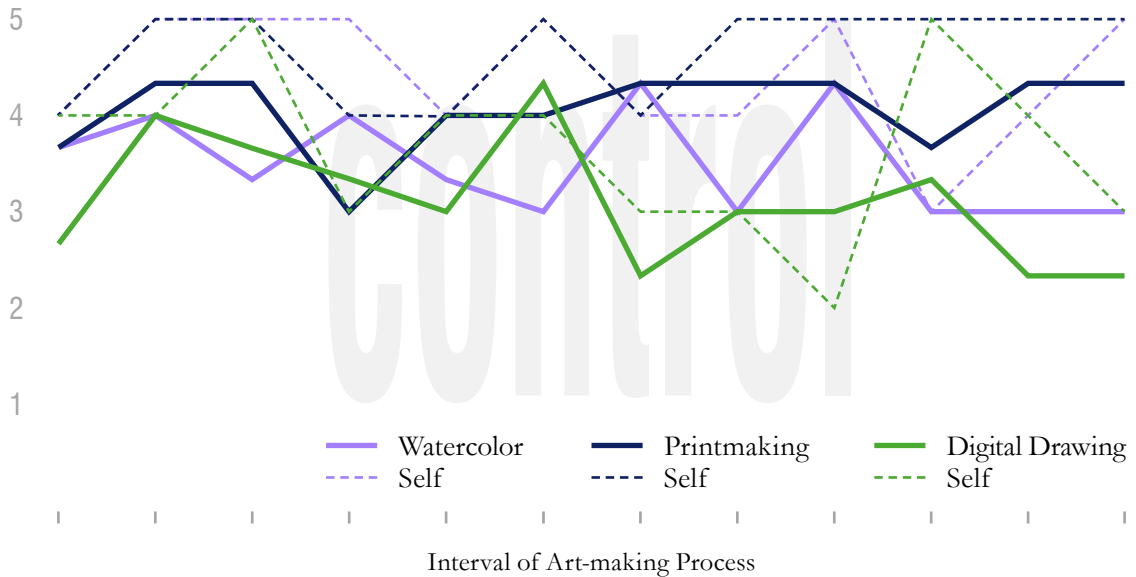


Figure 6-13 Measurements for control (Author)

## CONTROL

To measure control, evaluators were asked to respond to the statement, “the subject was in control/had a sense of purpose.” Evaluator ratings for this flow component were fairly consistent among the measurements for the other components. Printmaking received the highest ratings for control from myself and the evaluators, probably because the art-making actions were more regimented.

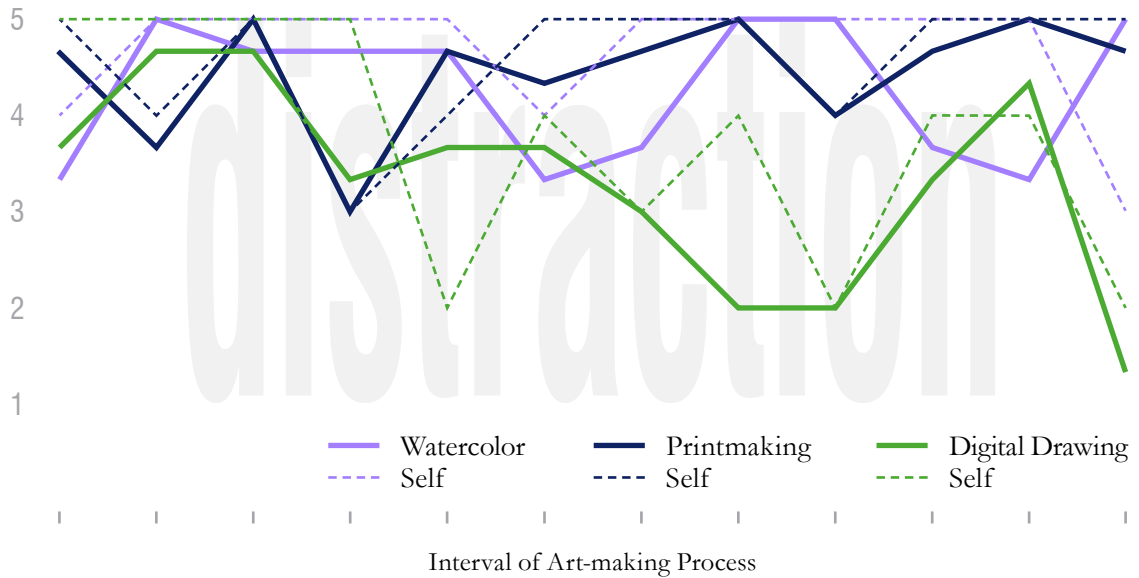


Figure 6-14 Measurements for distraction (Author)

### DISTRACTION

Evaluators were asked to respond to the statement, “the subject was distracted by non-task related factors” to measure distraction. I garnered very high ratings of fluidity during watercolor and printmaking, and significantly lower ratings for digital drawing. This component was measured from a negatively worded statement, so evaluators responses were reversed. I measured this component similarly to evaluators.



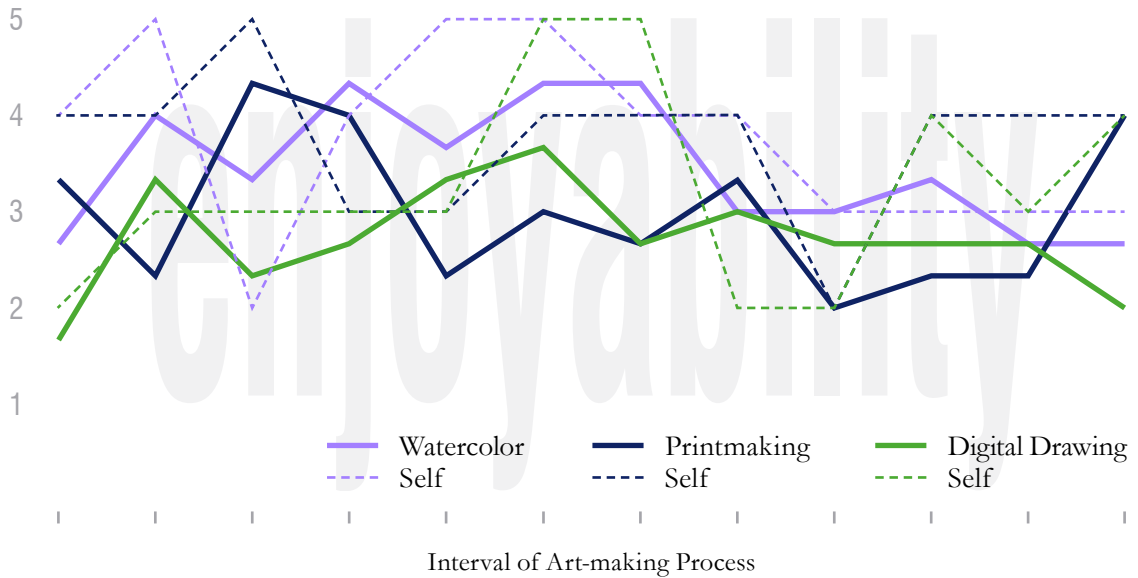


Figure 6-15 Measurements for enjoyability (Author)

## ENJOYABILITY

To measure enjoyability, evaluators were asked to respond to the statement, “the subject seemed to enjoy what they were doing.” Despite printmaking receiving the highest overall ratings of flow from evaluators, the method received fairly low ratings for enjoyability. Watercolor received the highest ratings for this component.

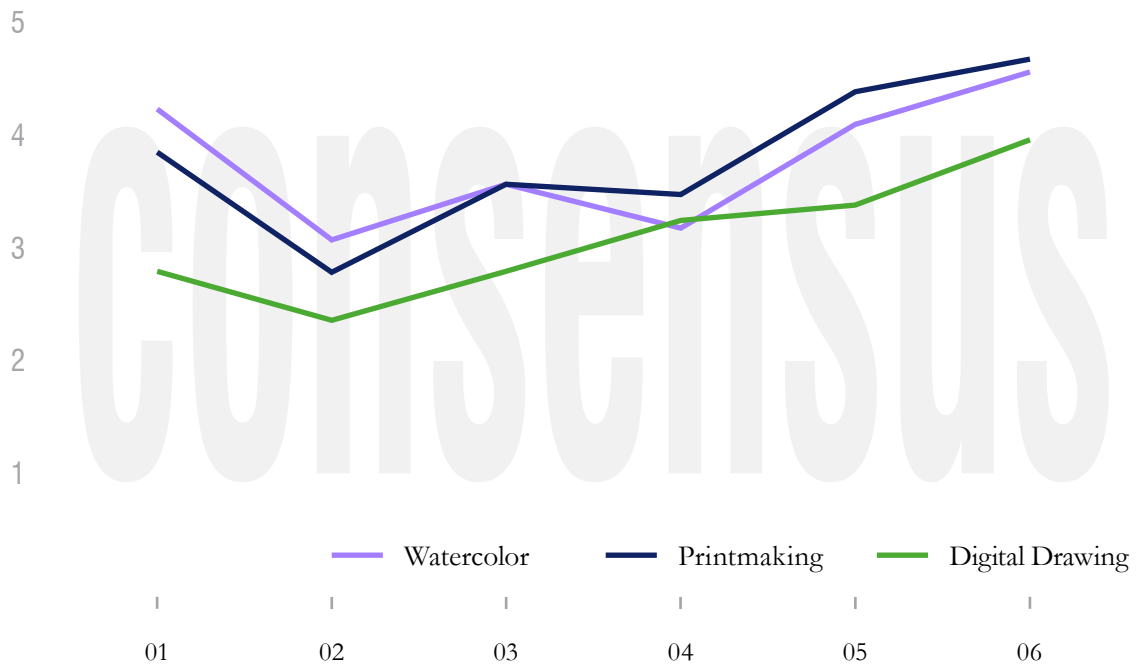


Figure 6-16 Evaluator consensus (Author)

### STUDY VALIDITY

The section (beginning, middle, or end) that the video segment was pulled from, the art-making method, and the evaluator all had statistically significant effects (where  $p < .05$ ) on the measurement of flow. There were no significant effects found among the interaction of evaluator, project type, and section. The general consensus of evaluators for all three art-making projects can be seen in Figure 6-16.

Flow measurements from the six evaluators show a consensus that digital drawing was least likely to elicit a flow state, while watercolor and printmaking elicited higher flow states at a similar rate.

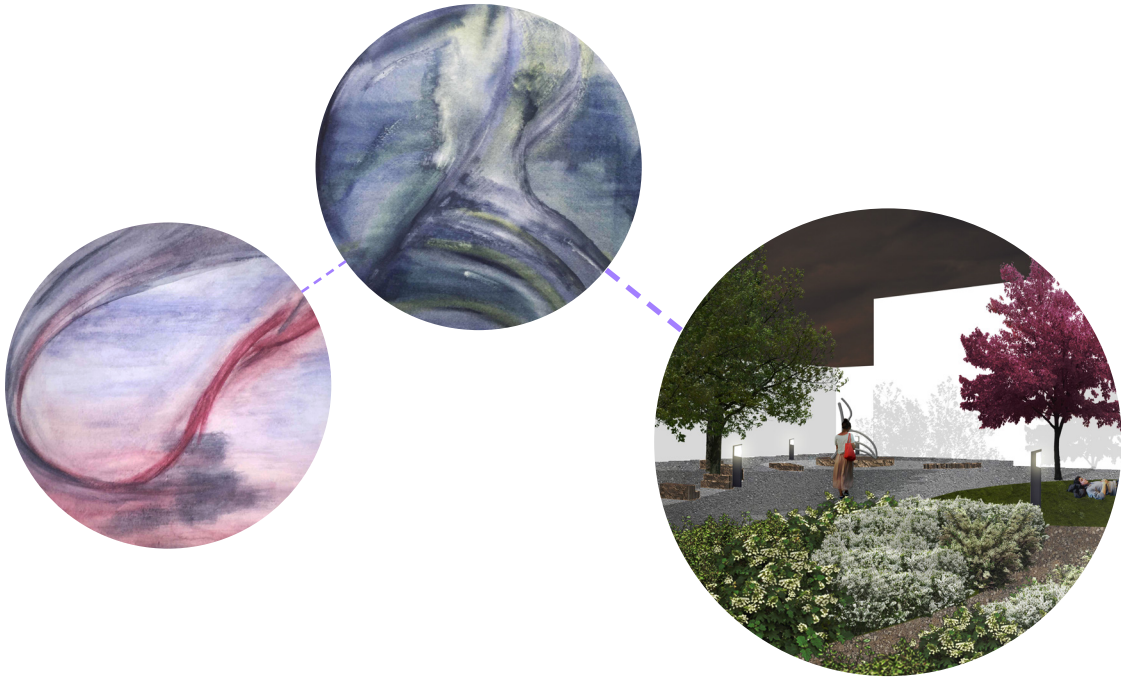


Figure 6-17 Watercolor informed design for the Urban Plaza (Author)

## Design Efficacy Measurements

Upon viewing the art products, final site plans, and perspectives for each art-making method and design project, the same evaluators ranked their preference for the designs and provided commentary on the relationships between the art product and the design concept. We saw that printmaking was the art-making method most likely to induce a flow state, according to the average flow measurements from evaluators. The same evaluators found that printmaking most successfully influenced the design for the campus terrace. In Figures 6-17 through 6-19, the size of dot correlates with the ranking given by each evaluator for the design projects.

### THE URBAN PLAZA

The Urban Plaza received mid- and low-rankings for design efficacy. Because it was not ranked first by any evaluator, watercolor painting was the least successful in inspiring a design concept. However, the evaluators had a mix of positive and critical comments:

“The rippling was seen in both the art and in the design. While the vegetation mimics the radial pattern seen in the art, the lighting and other site amenities seem to be organized on a grid.”

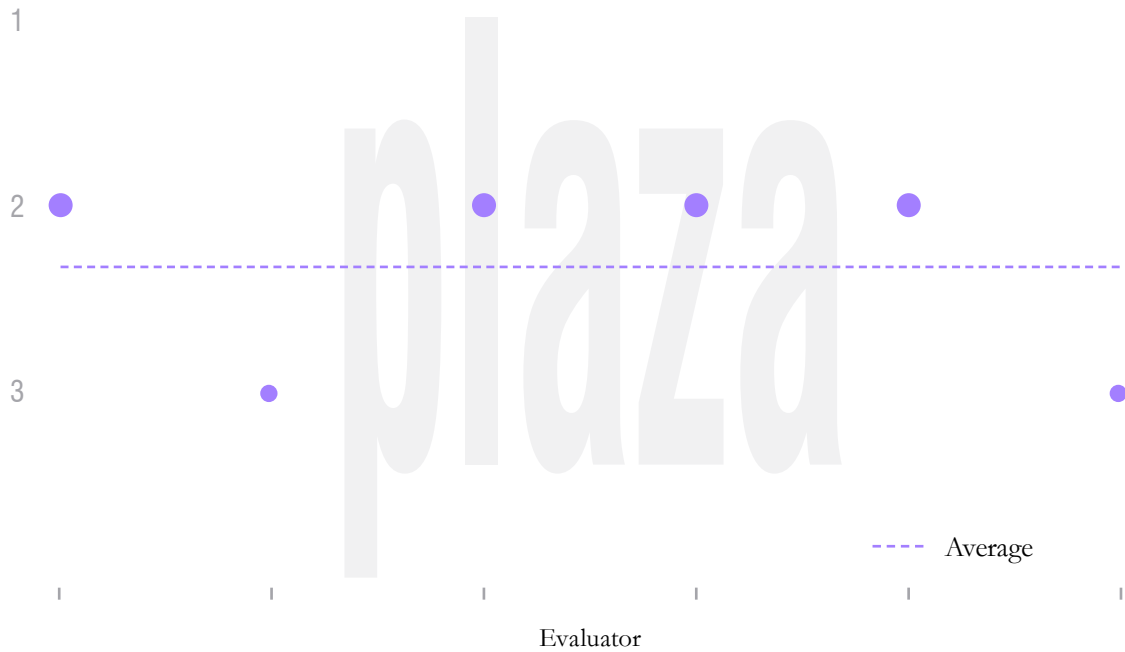


Figure 6-18 Evaluator rankings for The Urban Plaza (Author)

“These were my favorite art pieces due to the flow and freedom of them, but the design seems rigid next to them. I wish the design was more flowing. Although, I do like the design, just not much connection between the two for me.”

“The watercolors are very dynamic, and fluid in motion. The plan for the urban plaza slightly displays this sweeping form, but the spaces seem somewhat independent of each other. This makes the design feel less free flowing and more stagnant.”

“The enclosure and tone of the watercolors match the feeling I get imagining being in the space.”

“The art pieces feel very flowing and natural but the connection to the design is lost upon my interpretation. The design seems fairly static and the only correlation is a few similar curvilinear features.”

“The watercolor art has fluidity and movement, however, the design needs more of an organic feeling to reflect these characteristics. The arcs of trees are a geometric play on the organic strokes in the watercolor. I would have played more on the colors in the artwork.”



Figure 6-19 Printmaking informed design for the Campus Terrace (Author)

## THE CAMPUS TERRACE

The Campus Terrace received almost unanimous consensus from the evaluators that it was the most successful design concept, inspired by printmaking. The evaluator comments are as follows:

“This one was the strongest in incorporating the art piece. It takes the forms created in the art and translates them into the circulation and spatial organization of what looks like the amphitheater space. The design might also be able to incorporate the hatch pattern by using it to organize the vegetation.”

“The sense of place/experience depicted by the perspective nicely matches the feeling of the art piece.”

“The crescent, which was what the eye was drawn towards in the printmaking, inspired the form found in The Campus Terrace. The arcing form would create an engaging space for students to gather on campus.”

“The forms created in the prints clearly translate to the plan and the singular moves that occur in the design.”



Figure 6-20 Evaluator rankings for The Campus Terrace (Author)

“The noticeable correlation between the art piece and design is the curvilinear path which intersects the crescent moon shaped retaining wall. Placement of the trees seem to offset from both features. Overall, the art piece feels simple but not simplistic in influencing the design.”

“This design is successfully inspired by the art, specifically in the depth and texture radiating from the main arc and the intersecting axes.”

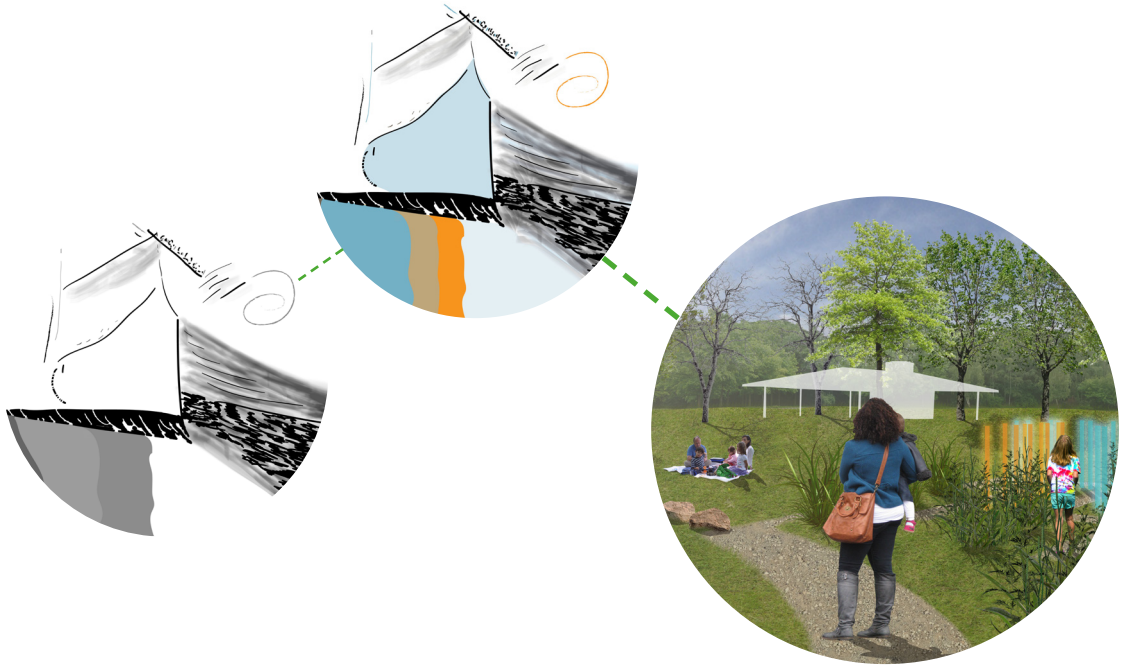


Figure 6-21 Digital Drawing informed design for the Natural Playground (Author)

## THE NATURAL PLAYGROUND

The Natural Playground received the most variant set of rankings. Though the average ranking was tied with the average ranking for the Urban Plaza, this project received a first-place ranking and therefore was ranked second overall. There were mixed comments from the evaluators:

“The part of the design that relates best to the art piece are the pathways and the colors. There seems to be more texture to the art piece that gets lost in translation in the design. For instance, it seems like the art piece incorporates wind, water, vegetation, and rocks, where the design has rocks and vegetation.”

“The colors made the connection to the art piece apparent, but the shape continued the understanding of connection.”

“The art does not seem to relate directly to the overall design. There is almost too many moves going on in the art piece (too many types of stroke patterns and clashing forms).”

“The variety, texture, and composition of the digital drawing seems to work together in a way that I also see in the design. I appreciate that nothing is literally translated from the art to the design but they still have a similar attitude.”

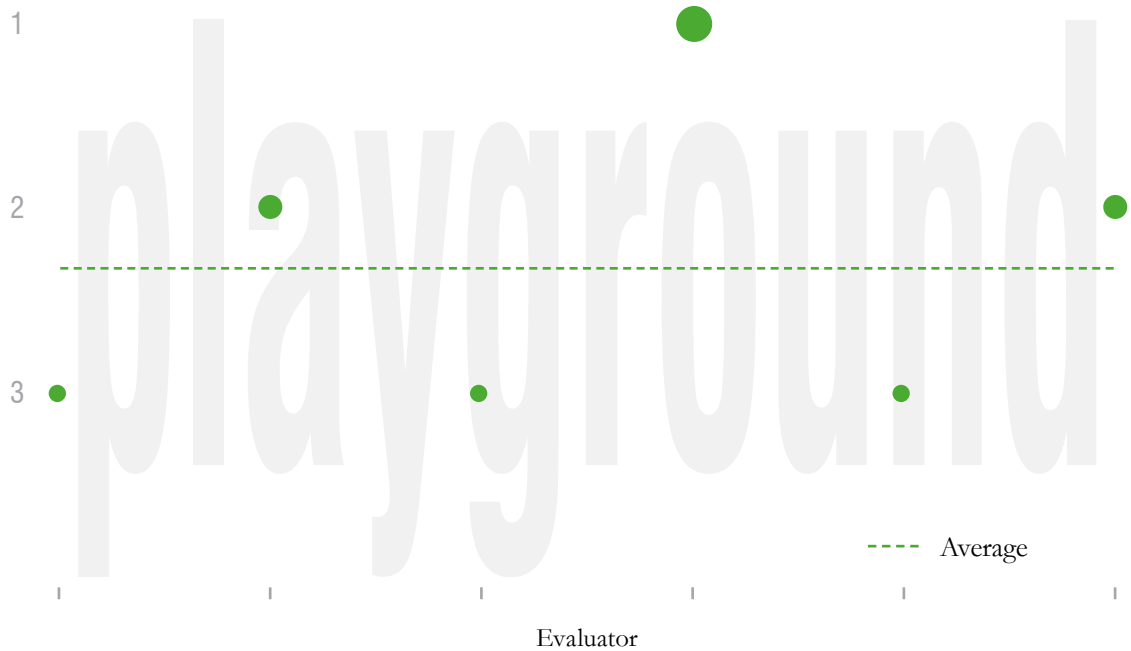


Figure 6-22 Evaluator rankings for The Natural Playground (Author)

“The art piece feels very busy and I can’t see how it’s influencing the design other than the color. The design feels busy as well and perhaps that is the design intention.”

“I think this project was moderately successful in being inspired by the art. The overall shape of the space sparks from the light blue shape and swirl in the artwork. I like the use of the light blue and yellow-orange lights to reflect the colors in the art.”



07



Landscape is the hidden art. It's everywhere and it's part of everyone's life"

- Susan Herrington, 2009

# Conclusions

INTENT

METHODS

KEY FINDINGS

LIMITATIONS & FURTHER EXPLORATION

IMPLICATIONS FOR LANDSCAPE ARCHITECTURE PRACTICE

SUMMARY

# Intent

The ideal design process is an elusive path for most creative people. Designers often face creative blocks despite the time and energy they invest in their work. Many successful landscape architects go beyond creative stimuli like sketching and precedent studies by incorporating art-making into their design process. This project began as an endeavor to strengthen creative potential, and through measurements of flow and evaluation from peers, may serve as motivation for designers to employ art-making to generate concepts for design solutions.

# Methods

## LITERATURE REVIEW

A literature review focused on four themes: idea generation and development, art-making and creativity-stimuli, flow theory, and problem solving in design practice.

## ART-MAKING

Three methods of art-making were completed to study flow and inspire design solutions: watercolor, printmaking, and digital drawing. These art-making methods were chosen for their different media and processes, differences that may correlate with flow measurements and provide for a comparative study. The art-making was filmed to be reviewed by peer evaluators.

## DESIGN PROJECTS

Each art-making method inspired a design concept for three unique design projects. The design projects have simple program requirements and are similar in scale and complexity. Each project begins with art-making and

## RESEARCH QUESTION

How do various art-making methods affect a designer's flow and influence conceptual design?

continues through concept development to 3D modeling and communication.

## FLOW MEASUREMENT

One-minute segments of the filmed art-making experiences were viewed by six fifth-year landscape architecture students at Kansas State University. Each evaluator measured flow for 18 video segments from each art-making method by completing Likert-scale ratings for seven questions. The same six students also provided commentary and ratings on which art-making method they believed best inspired the design solution.

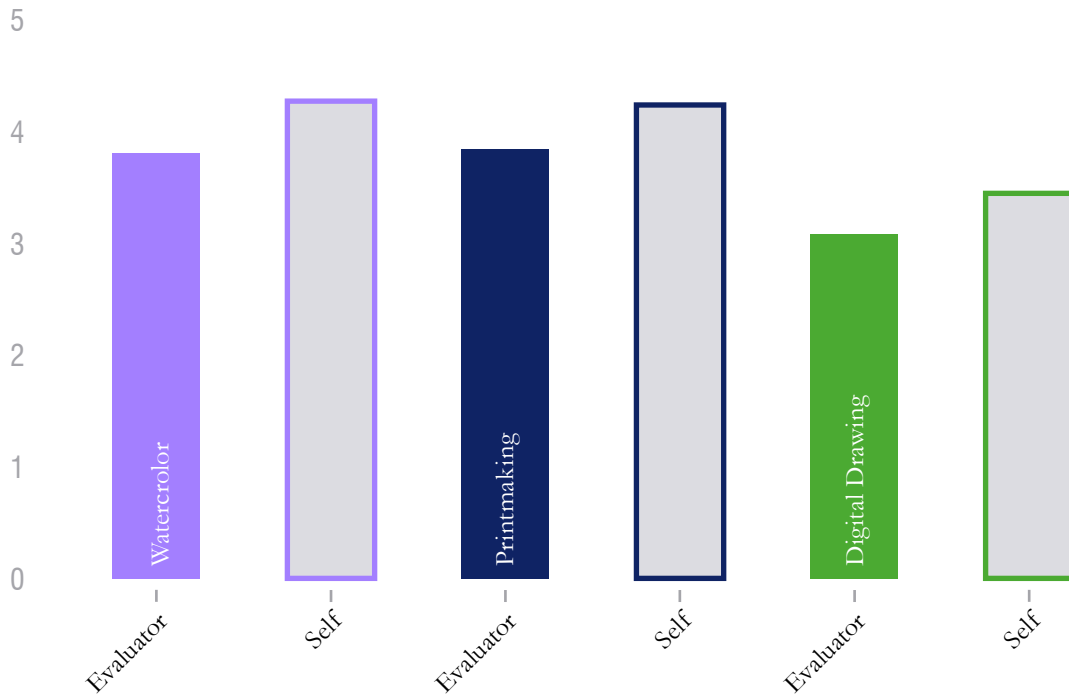


Figure 7-01 Average flow measurement for each art-making method (Author)

## Key Findings

### FLOW AND CONCEPTUAL DESIGN

The same art-making project that elicited high flow ratings from evaluators most successfully inspired a design concept. From comments provided by the evaluators, it is clear that the defining qualities of an art piece can inspire form, texture, and color factors in conceptual design proposals.

Flow components, all positive characteristics of people and environments, can help design professionals prevent creative blocks and promote creative confidence. People experiencing flow can complete good work with fluidity and through intrinsic motivation.

### ART'S PLACE IN DESIGN PROCESS

Both watercolor and printmaking elicited high averages of flow measurements from evaluators and my self-assessment. I considered watercolor to be more flow-inducing, but the evaluators considered printmaking to elicit stronger flow ratings. The evaluators and I agreed that digital drawing was least likely to promote a flow state. On average, I rated myself higher than the evaluators rated me for every art-making method. Figure 7-01 represents the average of evaluator and self flow ratings.

I attribute the success of printmaking, as a means to elicit flow and inspire design con-



Figure 7-02 Average design efficacy measurement for each project (Author)

cepts, to the permanence of the actions. Etching, inking, and pressing ink onto the paper resulted in more permanent marks than both watercolor and digital drawing. The success of printmaking in inspiring the design for The Campus Terrace was clearly supported by evaluators, as you can see in Figure 7-02.

### FEASIBILITY

My reflection of the art-making methods, beside measurements of flow and design efficacy from evaluators, provides a basis for which practitioners can explore art-making on their own terms. Each method had positive and negative factors that contribute to their overall feasibility.

Watercolor painting is an activity that many design professionals already incorporate into their process. The method requires few materials and takes as much time as you wish to allow. It successfully elicited high levels of flow; however, the ambiguous quality of the print was not able to translate into a design concept as well as other methods.

Printmaking received the highest ratings for flow and design efficacy. Unfortunately, this method is also the most time and resource-intensive of the three explored. Professionals may not have access to a printing press and may be unable to afford the more expensive

materials needed for it. Printmaking is a subtractive art method, differentiating it from the others explored in this project. Perhaps other subtractive art-making methods could also successfully inspire flow and design concepts.

Digital drawing, as I anticipated, received the lowest flow ratings from myself and the evaluators. The activity took considerably less time than the other methods, and resulted in art that was less apt to inspire a design concept. However, pen tablets are widely usable in design practice. Many professionals would find varying uses for them in addition to art-making.

# Limitations & Further Exploration

## 3D ART-MAKING

Future studies may incorporate art-making projects that go beyond two dimensional, visual art. Based on the strong evidence that printmaking, which involved a subtractive method, art-making methods that involve sculpting and carving may also encourage flow. Activities outside of art - like playing music and exercise - are often measured by people that study flow. A future study may consider those kinds of activities in relationship to design practice and conceptual thinking.

## TIME & DESIGN DEVELOPMENT

A major limitation of this project was the lack of time spent on design development. A mid-critique of design with evaluators or professors might have afforded me the opportunity to strengthen and elevate the level of design.

## EVALUATOR PARTICIPATION

Participation from more than six peer-evaluators might have strengthened the statistical validity of the study. There were some instances in the study where additional evaluators would have more clearly differentiated the flow and design efficacy measurements.

# Implications for Practice

## SUSPENDED JUDGMENT

Art-making can be used to suspend judgment on design problems, ultimately allowing for free-flowing ideas and positive feelings towards potential design solutions. I felt more confident in my design decisions because they were informed by an outside source. In this case, that source was art that I created.

## INSPIRATION

Designers naturally look for inspiration in art and precedent examples. Employing art made by the designer would inspire creative confidence. Art made between the acceptance of a design problem and development of design concepts would serve as a cognitive artifact - a referent to ideation and a wealth of potential concepts that creative people typically have before they start weeding them out.

## INTRINSIC MOTIVATION

Intrinsic motivation is a more powerful quality than extrinsic motivation like pay and acceptance from colleagues. Art-making that involves deliberate making propagates flow, a state founded by intrinsic motivation. It is in the best interest of design practices to encourage designers to make intrinsically motivated design decisions

## Summary

I hope to encourage the use of art-making in design practice by employing it as a professional landscape architect. As a practice that creates rich places and experiences, landscape architecture must be concerned with artful processes and results. Design practices are complex environments where artistic visions and reality often collide. It is the landscape architect's responsibility to carry a visionary concept through to completion. A concept generated, crafted, and communicated through art can be the difference between satisfactory design and excellent design.



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## Figure Citations

## INTRODUCTION & BACKGROUND

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## METHODOLOGY

*No Tables Included*

## THE URBAN PLAZA

*No Tables Included*

## THE CAMPUS TERRACE

*No Tables Included*

## THE NATURAL PLAYGROUND

*No Tables Included*

## FINDINGS

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# Measuring Flow

ORDER	SEGMENT IDENTIFIER	TIME STAMP
1	A3	0:09
2	A2	0:56
3	A1	1:17
4	A4	1:20
5	A7	2:43
6	A8	2:59
7	A6	3:07
8	A5	3:17
9	A12	4:21
10	A11	4:33
11	A10	4:51
12	A9	5:33
1	B3	0:06
2	B2	0:20
3	B1	0:47
4	B4	0:57
5	B6	1:18
6	B5	1:25
7	B7	2:03
8	B8	2:10
9	B9	2:21
10	B11	2:26
11	B10	2:34
12	B12	3:29
1	C4	0:10
2	C2	0:12
3	C1	0:16
4	C3	0:30
5	C5	0:38
6	C7	0:41
7	C8	0:52
8	C6	0:55
9	C9	1:05
10	C11	1:06
11	C10	1:10
12	C12	1:19

Table A-01 Segment order and identifiers (Author)

01	02	03	04	05	06
A9	B7	A11	A5	A6	B8
C9	A11	A7	B9	C2	B7
C3	C6	B4	B6	B9	C11
B12	C8	A8	C12	A10	C12
B1	A7	B3	B7	A3	B4
A2	A2	B1	C10	A12	C8
A8	B3	C10	A3	B1	A10
A3	B11	C5	C5	B3	B11
B10	C9	B6	B5	A5	B6
B11	B9	B10	A11	B10	C6
C5	B4	C7	B12	B8	C7
A1	C4	C2	A1	C3	B12
C4	B2	A12	C2	C10	A1
A6	A6	A5	A8	C8	C9
B5	C12	C3	C1	A4	A7
C1	C1	C4	B8	C7	A12
B2	A10	A2	C11	C11	A9
C6	A9	B5	A4	B2	A4

Table A-02 Evaluator video assignments (Author)

ORDER	SEGMENT	FLOW MEASURE			AVERAGE	SELF	DIFF.	MEAN	
								AVG.	SELF
1	A3	24	22	23	23	28	+5	3.29	4
2	A2	28	32	26	28.667	34	+5.333	4.1	4.86
3	A1	30	20	32	27.333	27	-0.333	3.9	3.86
4	A4	32	35	28	31.667	33	+1.333	4.52	4.71
5	A7	33	19	23	25	33	+8	3.57	4.71
6	A8	24	30	26	26.667	32	+5.333	3.81	4.57
7	A6	32	19	31	27.333	31	+3.667	3.9	4.43
8	A5	30	21	26	25.667	32	+6.333	3.67	4.57
9	A12	33	33	25	30.333	30	-0.333	4.33	4.29
10	A11	22	21	25	22.667	26	+3.333	3.24	3.71
11	A10	21	31	12	21.333	26	+4.667	3.05	3.71
12	A9	29	23	31	27.667	25	-2.667	3.95	3.57
1	B3	27	20	29	25.333	30	+4.667	3.62	4.29
2	B2	29	24	20	24.333	32	+7.667	3.48	4.57
3	B1	34	34	27	31.667	34	+2.333	4.52	4.86
4	B4	33	20	17	23.333	24	+0.667	3.33	3.43
5	B6	33	25	24	27.333	26	-1.333	3.9	3.71
6	B5	30	25	26	27	31	+4	3.86	4.43
7	B7	33	17	29	26.333	29	+2.667	3.76	4.14
8	B8	31	33	23	29	28	-1	4.14	4
9	B9	29	20	17	22	26	+4	3.14	3.71
10	B11	30	19	25	24.667	31	+6.333	3.52	4.43
11	B10	33	26	25	28	32	+4	4	4.57
12	B12	34	26	34	31.333	32	+0.667	4.48	4.57
1	C4	17	21	18	18.667	30	+11.333	2.67	4.29
2	C2	31	24	24	26.333	31	+4.667	3.76	4.43
3	C1	26	25	25	25.333	33	+7.667	3.62	4.71
4	C3	22	26	20	22.667	20	-2.667	3.24	2.86
5	C5	26	23	18	22.333	23	+0.667	3.19	3.29
6	C7	26	33	22	27	29	+2	3.86	4.14
7	C8	18	26	20	21.333	21	-0.333	3.05	3
8	C6	23	18	13	18	20	+2	2.57	2.86
9	C9	27	8	15	16.667	11	-5.667	2.38	1.57
10	C11	22	24	21	22.333	27	+4.667	3.19	3.86
11	C10	24	22	19	21.667	24	+2.333	3.1	3.43
12	C12	25	10	12	15.667	20	+4.333	2.24	2.86

Table A-03 Overall flow measurements (Author)



Order	Segment	CONCENTRATION		ABSORPTION		SPONTANEITY		FLUIDITY	
		avg.	me	avg.	me	avg.	me	avg.	me
1	A3	3.667	5	2.667	4	3.333	3	3.667	4
2	A2	4.333	5	4.667	5	3	4	3.667	5
3	A1	4.67	5	4	5	3.667	2	3.667	3
4	A4	4.667	5	4.667	5	4.333	5	5	4
5	A7	4	5	3.667	5	3.333	5	2.333	4
6	A8	4.333	4	4.333	5	3.333	5	4	4
7	A6	4	4	4	5	4	4	3	5
8	A5	4.667	5	3.667	5	3	4	3.333	5
9	A12	4.667	5	4.333	5	4.667	3	4.333	4
10	A11	3	4	3.333	5	3	2	3.333	4
11	A10	3.333	4	2.667	5	3.667	3	2.667	2
12	A9	4.667	5	4.667	4	3.333	2	4.333	3
1	B3	4.333	4	3.667	5	2.667	3	3	5
2	B2	4.333	5	4	5	2.667	4	3	5
3	B1	5	5	4.667	5	4	5	4.333	4
4	B4	4	4	3.333	5	3	2	3	3
5	B6	4.667	5	4.333	5	4	2	3.333	3
6	B5	4.667	5	4.667	5	3	3	3.333	4
7	B7	4	5	3.667	4	3.333	4	3.667	3
8	B8	4.667	4	4	5	3.667	2	4	3
9	B9	3	5	3	4	2.333	2	3.333	4
10	B11	4.667	5	3.667	5	2.667	3	3	4
11	B10	5	5	4.667	5	2.667	3	4	5
12	B12	4.667	5	4.333	4	4.667	4	4.667	5
1	C4	3.333	5	3	4	2.333	5	2	5
2	C2	4.333	5	4	5	2.667	5	3.333	4
3	C1	4.667	5	3.667	5	2.667	5	3.667	5
4	C3	3.667	4	3.667	2	3.667	2	2.333	1
5	C5	3	5	3.333	4	3	2	3	3
6	C7	4	4	4	5	3.667	3	3.667	4
7	C8	3.333	2	3.333	3	3.333	3	3.333	2
8	C6	3	4	3.333	2	1.667	2	2	3
9	C9	2	1	2.333	2	2.667	1	2	1
10	C11	2.667	4	3.667	3	3.667	3	3	4
11	C10	4	5	2.667	3	3	2	2.667	3
12	C12	2.333	3	2	4	3.333	2	2.333	2
<b>AVG. DIFF.</b>		+0.463		+0.648		-0.083		+0.352	

Table A-04 Individual trait measurements (Author)

CONTROL		DISTRACTION		ENJOYABILITY	
avg.	me	avg.	me	avg.	me
3.667	4	3.333	4	2.667	4
4	5	5	5	4	5
3.333	5	4.667	5	3.333	2
4	5	4.667	5	4.333	4
3.333	4	4.667	5	3.667	5
3	5	3.333	4	4.333	5
4.333	4	3.667	5	4.333	4
3	4	5	5	3	4
4.333	5	5	5	3	3
3	3	3.667	5	3.333	3
3	4	3.333	5	2.667	3
3	5	5	3	2.667	3
3.667	4	4.667	5	3.333	4
4.333	5	3.667	4	2.333	4
4.333	5	5	5	4.333	5
3	4	3	3	4	3
4	4	4.667	4	2.333	3
4	5	4.333	5	3	4
4.333	4	4.667	5	2.667	4
4.333	5	5	5	3.333	4
4.333	5	4	4	2	2
3.667	5	4.667	5	2.333	4
4.333	5	5	5	2.333	4
4.333	5	4.667	5	4	4
2.667	4	3.667	5	1.667	2
4	4	4.667	5	3.333	3
3.667	5	4.667	5	2.333	3
3.333	3	3.333	5	2.667	3
3	4	3.667	2	3.333	3
4.333	4	3.667	4	3.667	5
2.333	3	3	3	2.667	5
3	3	2	4	3	2
3	2	2	2	2.667	2
3.333	5	3.333	4	2.667	4
2.333	4	4.333	4	2.667	3
2.333	3	1.333	2	2	4
+0.695		+0.324		+0.528	

## EVALUATOR 01

Segment	Concentration	Absorption	Spontaneity	Fluidity	Control	Distraction	Enjoyability	Total	Mean
A9	5	5	3	5	5	5	3	31	4.43
C9	2	2	2	2	3	1	3	15	2.14
C3	4	4	4	2	4	4	4	26	3.71
B12	5	4	5	5	5	5	5	34	4.86
B1	5	5	4	5	5	5	5	34	4.86
A2	5	5	3	4	5	5	5	32	4.57
A8	5	5	3	5	5	2	5	30	4.29
A3	4	3	3	4	4	2	3	23	3.29
B10	5	5	1	4	5	5	1	26	3.71
B11	5	4	3	2	5	5	1	25	3.57
C5	4	4	3	3	3	3	3	23	3.29
A1	5	5	4	5	4	5	4	32	4.57
C4	4	4	2	2	3	4	2	21	3
A6	5	5	4	3	5	4	5	31	4.43
B5	5	5	3	3	4	4	1	25	3.57
C1	5	4	2	4	4	4	2	25	3.57
B2	4	3	2	2	5	2	2	20	2.86
C6	3	3	1	1	1	1	3	13	1.86
Avg.								25.889	3.698

Table A-05 Evaluator 01 measurements (Author)

**EVALUATOR 02**

Segment	Concentration	Absorption	Spontaneity	Fluidity	Control	Distraction	Enjoyability	Total	Mean
B7	3	2	1	2	3	4	2	17	2.43
A11	2	3	1	4	4	4	4	22	3.14
C6	3	4	1	2	4	2	2	18	2.57
C8	3	4	2	3	4	2	2	20	2.86
A7	3	2	4	1	2	4	3	19	2.71
A2	4	4	4	4	4	5	3	28	4
B3	4	2	2	1	4	4	3	20	2.86
B11	4	2	2	3	2	4	2	19	2.71
C9	1	1	1	1	1	1	2	8	1.14
B9	3	3	1	4	4	3	2	20	2.86
B4	4	3	2	3	2	2	4	20	2.856
C4	3	3	2	2	3	3	1	17	2.43
B2	4	4	2	3	4	4	3	24	3.43
A6	2	2	4	2	3	2	4	19	2.71
C12	2	1	2	2	1	1	1	10	1.43
C1	4	4	4	3	4	5	2	26	3.71
A10	2	1	2	2	1	2	2	12	1.71
A9	4	4	2	3	3	5	2	23	3.29
Avg.								19	2.714

Table A-06 Evaluator 02 measurements (Author)

## EVALUATOR 03

Segment	Concentration	Absorption	Spontaneity	Fluidity	Control	Distraction	Enjoyability	Total	Mean
A11	4	5	4	3	2	4	3	25	3.57
A7	4	4	2	2	3	5	3	23	3.29
B4	3	2	2	2	2	3	3	17	2.43
A8	4	4	3	4	3	4	4	26	3.71
B3	5	4	3	4	4	5	4	29	4.14
B1	5	4	3	3	3	5	4	27	3.86
C10	3	2	3	2	2	5	2	19	2.71
C5	2	2	2	3	2	4	3	18	2.57
B6	4	4	3	2	3	5	3	24	3.43
B10	5	4	2	3	3	5	3	25	3.57
C7	3	3	2	3	4	4	3	22	3.14
C2	4	3	2	3	3	5	4	24	3.43
A12	4	3	4	3	3	5	3	25	3.57
A5	4	4	4	3	3	5	3	26	3.71
C3	4	3	4	2	2	3	2	20	2.86
C4	3	2	3	2	2	4	2	18	2.57
A2	4	5	2	3	3	5	4	26	3.71
B5	4	4	2	3	4	5	4	26	3.71
Avg.								23.333	3.333

Table A-07 Evaluator 03 measurements (Author)

## EVALUATOR 04

Segment	Concentration	Absorption	Spontaneity	Fluidity	Control	Distraction	Enjoyability	Total	Mean
A5	5	3	1	3	2	5	2	21	3
B9	2	2	1	2	4	5	1	17	2.43
B6	5	4	4	3	4	4	1	25	3.57
C12	2	1	3	2	2	1	1	12	1.71
B7	4	4	4	4	5	5	3	29	4.14
C10	5	3	2	3	1	4	4	22	3.14
A3	3	2	3	4	3	4	3	22	3.14
C5	3	4	4	3	4	4	4	26	3.71
B5	5	5	4	4	4	4	4	30	4.29
A11	3	2	4	3	3	3	3	21	3
B12	4	4	4	4	3	4	3	26	3.71
A1	4	3	2	2	1	5	3	20	2.86
C2	4	4	1	3	4	4	4	24	3.43
A8	4	4	4	3	1	4	4	24	3.43
C1	5	3	2	4	3	5	3	25	3.57
B8	4	3	2	2	4	5	3	23	3.29
C11	2	3	4	4	3	2	3	21	3
A4	4	4	4	5	3	4	4	28	4
Avg.								23.111	3.302

Table A-08 Evaluator 04 measurements (Author)

## EVALUATOR 05

Segment	Concentration	Absorption	Spontaneity	Fluidity	Control	Distraction	Enjoyability	Total	Mean
A6	5	5	4	4	5	5	4	32	4.57
C2	5	5	5	4	5	5	2	31	4.43
B9	4	4	5	4	5	4	3	29	4.14
A10	3	2	4	3	4	3	2	21	3
A3	4	3	4	3	4	4	2	24	3.43
A12	5	5	5	5	5	5	3	33	4.71
B1	5	5	5	5	5	5	4	34	4.86
B3	4	5	3	4	3	5	3	27	3.86
A5	5	4	4	4	4	5	4	30	4.29
B10	5	5	5	5	5	5	3	33	4.71
B8	5	4	4	5	5	5	3	31	4.43
C3	3	4	3	3	4	3	2	22	3.14
C10	4	3	4	3	4	4	2	24	3.43
C8	3	2	3	3	2	3	2	18	2.57
A4	5	5	4	5	4	5	4	32	4.57
C7	4	4	4	4	4	3	3	26	3.71
C11	3	4	3	3	4	3	2	22	3.14
B2	5	5	4	4	4	5	2	29	4.14
Avg.								27.667	3.952

Table A-09 Evaluator 05 measurements (Author)

**EVALUATOR 06**

Segment	Concentration	Absorption	Spontaneity	Fluidity	Control	Distraction	Enjoyability	Total	Mean
B8	5	5	5	5	4	5	4	33	4.71
B7	5	5	5	5	5	5	3	33	4.71
C11	3	4	4	2	3	5	3	24	3.43
C12	3	4	5	3	4	2	4	25	3.57
B4	5	5	5	4	5	4	5	33	4.71
C8	4	4	5	4	1	4	4	26	3.71
A10	5	5	5	3	4	5	4	31	4.43
B11	5	5	3	4	4	5	4	30	4.29
B6	5	5	5	5	5	5	3	33	4.71
C6	3	3	3	3	4	3	4	23	3.29
C7	5	5	5	4	5	4	5	33	4.71
B12	5	5	5	5	5	5	4	34	4.86
A1	5	4	5	4	5	4	3	30	4.29
C9	3	4	5	3	5	4	3	27	3.86
A7	5	5	4	4	5	5	5	33	4.71
A12	5	5	5	5	5	5	3	33	4.71
A9	5	5	5	5	1	5	3	29	4.14
A4	5	5	5	5	5	5	5	35	5
Avg.								30.278	4.325

Table A-10 Evaluator 06 measurements (Author)




B

# IRB Exemption

TO: Laurence Clement  
LARCP  
302 Seaton

Proposal Number: 8057

FROM: Rick Scheidt, Chair   
Committee on Research Involving Human Subjects

DATE: 12/24/2015

RE: Proposal Entitled, "Art-Making in Practice: Achieving Optimal Creativity During the Conceptual Design Process"

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is EXEMPT from further IRB review. This exemption applies only to the proposal - as written - and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, 45 CFR §46.101, paragraph b, category: 2, subsection: ii.


Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.



University Research Compliance Office

TO: Lorn Clement  
LARCP  
302 Seaton

FROM: Rick Scheidt, Chair   
Committee on Research Involving Human Subjects

DATE: 03/14/2016

RE: Proposal #8057.1, entitled "Art-Making in Practice: Achieving Optimal Creativity During the Conceptual Design Process."

A MINOR MODIFICATION OF PREVIOUSLY APPROVED PROPOSAL #8057,  
ENTITLED, "Art-Making in Practice: Achieving Optimal Creativity During the Conceptual Design  
Process"

The Committee on Research Involving Human Subjects at Kansas State University has approved the proposal identified above as a minor modification of a previously approved proposal, and has determined that it is exempt from further review. This exemption applies only to the most recent proposal currently on file with the IRB. Any additional changes affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Unanticipated adverse events or problems involving risk to subjects or to others must be reported immediately to the IRB Chair, and / or the URCO.

It is important that your human subjects project is consistent with submissions to funding/contract entities. It is your responsibility to initiate notification procedures to any funding/contract entity of changes in your project that affects the use of human subjects.