CREATIVITY, LANDSCAPE DESIGN PROCESS, MAURY ISLAND GRAVEL MINE

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Figure 1.1 A trail in Maury Island Gravel Mine site

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Chapter 1. Introduction

1.1 The beginning of this thesis

In the summer of 2007, I read a popular top-selling book by a Taiwanese playwright and theater director, Stan Lai (Lai Sheng-Chuan). This book, Lai Sheng-Chuan's Creativity, widened my vision and ignited my desire to explore creativity and innovation in the field of landscape architecture. He talked about perception, motivation, experience, habit, the ways to store memory, and the difference between method and wisdom. Together with a valuable experience to be a teaching assistant for planting design class, plant ID class, and studios in my undergraduate school, I set my life goal to become a landscape architecture design teacher in the future. In those classes that I assisted in Taiwan and the classes that I took in University of Washington, I have observed different styles of teaching, as well as the magical micro-moments when innovation and creativity emerges in students' minds.

After these years of observation, I am still curious about ways to teach creativity. Can we teach landscape architecture students to be more creative or innovative? Or Can we teach creativity?

I carried these questions to graduate school. I found that lots of landscape architecture design teachers teach methods and skills. Few teachers stimulate students to create their own design processes or encourage students to critique about the design processes that they read in landscape architecture history textbooks. Why? Why do landscape architecture design teachers tend to directly give out sites and spatial assignments to students? Can teachers train students to be innovative?

These questions gave birth to the ongoing idea of this thesis. This is a hybrid thesis comprised of part research/part design.

Perhaps it does not have the absolute answers to the questions above, but it digs into it. After exploring several literatures, I modified the typical landscape architecture design flow. By using this new design flow, I re-designed Maury Island Gravel Mine site, which I have already done once in a studio in University of Washington. I used this site to test out my design process, and compared to the process that I had in my previous studio.

Maury Island Gravel Mine Site is a site that has complicated ecological problems due to human developments. Industries excavated Maury Island because of a huge demand of concrete in Seattle and Tacoma area (King County, 2011) . An intrusion from human in this natural island surprisingly created several strange situations: one mine was transformed into a residential village, and some others were abandoned. This mine, where my site is located, was left with complex conditions which allowed Madrone forest to grow well. This site today has two abandoned gravel mine machines. Their cranes became a visual focus of the entire site. Invasive species, the view of Mt Rainier, and toxic soils are some hot topics of this site. It needs to be restored and designed with innovative and creative ways. I thought this complex site would be a good project to test out my findings.

Figure 1.3 Students brainstorming on trace in UWLA LARC 501 Autumn 2011 studio

1.2 Questions (why)

Often when landscape architecture students get their assignment sheets in the beginning of their studios, they receive about the same amount of information for their sites. Although students develop their design concepts from site conditions, they still usually generate a huge variety of design works. A key that makes these variations is creativity. When creativity occurs in design process, it usually dominates the whole design concept and leads designers to solve site problems innovatively.

The questions in this thesis is:

In a typical landscape design process, are there ways that we can change to stimulate designers to make more creative results?

This thesis will use the design of the Maury Island Gravel Mine site to explore the question, including the work and process of the LARC 501 Autumn 2011 studio.

Figure 1.4 Class member Leann Andrew discussed ideas in UWLA LARC 501 Autumn 2011 studio

1.3 Research and design methods (how)

In the research part of the thesis, there are two main sections of literature review. (see figure 2.17) First section is a literature review of creativity. At the end of this section, there is a conclusion about the findings and commonalities of these readings. Second section is a literature review of landscape design process. In the conclusion of this section, there is a common landscape design flow. With the research from these literature reviews, I try to make a critical stance. This critical stance suggests how I can modify a typical design flow. With this modified design flow, I am re-designing the Maury Island Gravel Mine site in Washington, USA. I will explore my design process with the work and process of LARC 501 Autumn 2011 studio. I will also interview studio members from LARC 501. Although it is subjective when people are asked to compare creativity and design process, the feedbacks and comments that I get will still be valuable.

Figure 2.1 Four books for literature review of creativity

Chapter 2. Literature review

There are three sections in this chapter. First, a literature review of creativity and innovation. There is a diverse range of literatures about creativity. Some are not directly related to the design field but are related to how we think philosophically and psychologically. In the second section, I review some literatures about landscape design process. I try to find a common design flow that has been developed in design field. In the third section, I discuss my findings from these two sections and establish a critical stance.

2.1 Literature review of Creativity

Lai, Sheng-Chuan (2006). *Lai Sheng-Chuan's Creativity*. Taiwan: 天下雜誌

Tharp, T., & Reiter, M. (2003). *The creative habit: Learn it and use it for life : a practical guide*. New York: Simon & Schuster.

Dacey, J. S., Lennon, K., & Fiore, L. B. (1998). *Understanding creativity: The interplay of biological, psychological, and social factors*. San Francisco: Jossey-Bass.

Torrance, E. P., Glover, J. A., Ronning, R. R., & Reynolds, C. R. (1989). *Handbook of creativity*. New York: Plenum Press.

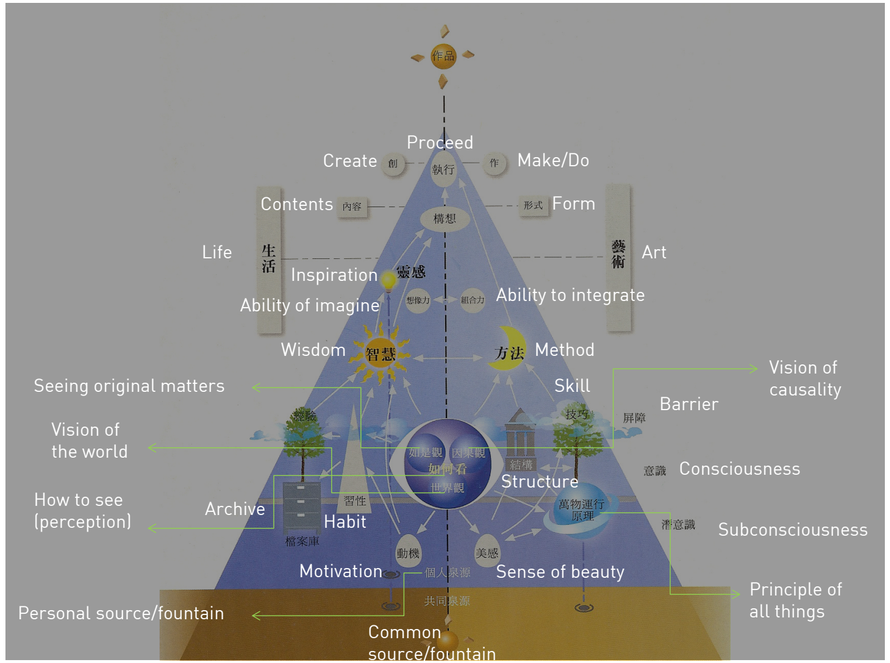


Figure 2.2 The Creativity Pyramid (Lai, 2006)
(vocabulary was self-translated)

Lai, Sheng-Chuan (2006). *Lai Sheng-Chuan's Creativity.* Taiwan: 天下雜誌
(All the quotations from this book are self-translated)

Lai's Lai Sheng-Chuan's Creativity had gained lots of respect from Taiwanese designers, artists, and other professions back in 2006 when it was published. (表演工作坊, 2011)

Lai received his Ph.D in Dramatic Art from University of California, Berkeley. He has been producing several excellent, deep, and impressive plays in Taiwan . He is also a Professor and Founding Dean of the College of Theatre at Taipei National University of the Arts. He is a professor, a writer, and a dramatist. Lai and his contemporary theatre group, Performance Workshop, had twice received Taiwan's highest award of arts, the National Arts Award.

Lai (2006) tries to find an answer for a question: Can we teach creativity? This is also a central thesis of his book. After reading this book more than 5 times, in my interpretation, Lai did not give a clear answer for this question. In my opinion, this question might still be answerless for a long time. However, Lai's research on the process of creativity is well done and explicit. He analyzed his thoughts and reflections from numerous drama art works, literatures, religions, and lectures.He introduced his invention, the Creativity Pyramid (Lai, 2006, p. 84), which illustrates the process of creativity in a diagrammatic way.

What are teachers teaching in design field?

In the Creativity Pyramid (see figure 2.2), we can see that there are two sides of the Pyramid. In the flow of idea generation, there is a sun that represents wisdom. There is a moon that represents method. As a landscape architecture student, I think that most landscape architecture schools train their students about "methods" and "skills" in at least half of their courses. Certainly, methods and skills play important roles in landscape architecture field, but what about creativity? Can we train students to have more inspirations, or to be able to imagine beyond limits?

Lai is a dramatic artist. His flow of idea generation might be different from the landscape architects. However, one might find elements in the Creativity Pyramid similar with landscape design process. Landscape architecture schools can teach some of the elements in the pyramid such as Sense of Beauty, Structure, Skill, Method, Combination, Form, and Make/Do (Lai, 2006, p. 96) to their students, but what about the rest of the elements in the pyramid? Students might need to learn the rest from somewhere else, perhaps from their lives.

The flow of ideas in the Creativity Pyramid

The Creativity Pyramid illustrates the flow of idea generation. The base of the Pyramid is a Common source/fountain. It represents knowledge among people, history, and the world. Above Common Source is a Personal Source/fountain. The Pyramid then is split into two sides. I call the left side "the Creation side", and the right side "the making/doing side".

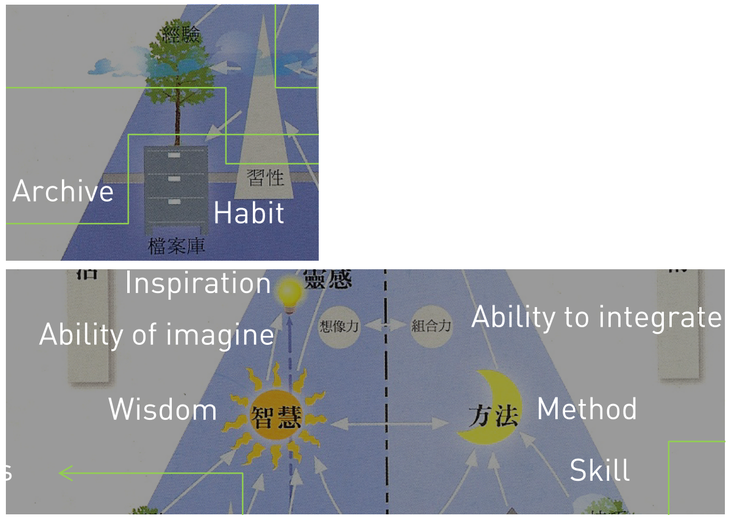


Figure 2.3 Elements in Creativity Pyramid (Lai, 2006)
(vocabulary was self-translated)

Starting from the bottom part of left side (the Creation side), there are Motivation, Habit, Archive, Perceptions (the eye of vision in the middle), Barriers, Wisdom, Ability of imagining, Inspiration, Life, Contents, Creation, and Proceed. Motivation is at the very bottom of the Creation side because a great work (on top) requires a right motivation. Take design field for example, if a designer's motivation is to earn lots of profits, the work (result) might be different than expected. Lots of details might be overlooked due to money-oriented motivations. On top of Motivation is an Archive. Lai talks about a Secret Computer (Lai, 2006, p. 74) that exists in everyone's mind. This computer has an operation mode that saves files in different personal styles that are composed by Perceptions and Habits. On top of Habit, there is cloud, which represents the Barriers. (see Three poison barriers) Ideas sometimes are block by Barriers. Those which pop out can be processed by Wisdom. Wisdom, a subject that people have been debating in history about whether it can be taught or not, is a core of the whole flow. Inspiration is a result of the processor. Inspiration then can be transformed into Concepts, Contents, and Creations.

Starting from the bottom of the right side (the Making/Doing side), there are Sense of Beauty, Principle of things, Structure, Skill, Perceptions, Method, Ability of Combination, Art, Form, Make/Do, and Proceed. Sense of Beauty can be trained or influenced easily. It is linked with Skills and Structures. There are also Barriers in this side. Those which pop out can be picked up by Method. Ability of Combination is a type of Method. Method then transfers works/ideas to Make/Do. Art and Form are in between. Combining with the result that the Creation side generates, a person makes his/her creative product.

Common source, Personal source, Archives

Common source, Personal source, and Archives are located at the bottom of the Creativity Pyramid. It means that they are the foundation of idea generation process. Intelligence might not be teachable, but expanding people's Personal source is possible. Inspirations are unpredictable sometimes, but the more books and cases that we study, the higher chances that these inspirations will occur.

Expanding Personal source and Archives may enhance the whole creative process. However, finding the appropriate and right way to do it correctly is more critical. Lai says: "Everything that we have lived, seen, thought, and concerned are the materials for creativity. Our thoughts, emotions, impressions, concepts, hates, loves, fears, and compassions are all saved in our Archives in our secret computers. This computer is constantly being updated." (Lai, 2006, p. 136) Lai indicates that the ways our computers save files probably need to be adjusted to the right mode. Because there is too much information that we receive every day, we need to filter them and determine what are useful for us. The ways that our computers save files are highly related to Perceptions and Barriers.

Perceptions

"Our eyes only can see the things that our minds are willing to take." –Henri BergsonIn. (Lai, 2006, p. 147)

Figure 2.4 (up) 赖声川王伟忠携《宝岛一村》 directed by Lai in 2010. source: 旅人旅游新闻 http://news.lvren.cn/html/wenhuashenghuo/2010/0921/45703.html

Figure 2.5 (right) Lai on television show in 2008. source: 鳳凰衛視 http://big5.ifeng.com/gate/big5/phtv.ifeng.com/program/lyyy/xxz/200802/0227_1619_415099.shtml

The middle of the Creativity Pyramid, there is an Eye of Vision that represents people's perceptions. There are three aspects: Seeing Original Matters, Vision of Causality, and Vision of the World.

Seeing Original Matters means to unlabel things. "When look at an object, before we recognize it, it is itself. It is simple. But for so long, we are used to label objects at the very moment that we see them." "Can we watch sunset, not immediate say it's beautiful, not immediately take a picture with your camera? Can we purely, freely, look at it? Not associating with something, not label it" (Lai, 2006, p. 151). Seeing original matters makes more possibilities for creativity. This is not only about creativity field, but also about life. One might find life is open when he/she does not have strong bias. When we open our lives and our visions, we can link matters and elements smoothly. Therefore it will be easier to generate ideas. This also may be applied to personal philosophy.

Vision of Causality is to remind thinkers to re-exam and focus on cause and result. Lai thinks that we need to have abilities to analyze causes and results all the time. "If we lack of this ability, the world that we see is usually built by our bias." (Lai, 2006, p. 168). Another mysterious aspect of Causality is to enter the present (Lai, 2006, p. 185). It is difficult for people to be in present. We always live in the past or in the future. Lai has studied Buddhism philosophy in Tibet for years. He thinks that if thinkers can enter the mysterious space of "present", creativity will happen anytime. The ability of associate will be increased at the time.

Vision of the World includes lots of deep aspects. It is not only about expanding personal world visions but also about philosophy. That includes, thinking about death. Through changing the way we think about the world, we can have more new interpretations about matters and consequences. With these, it gives our works depth.

The three poison barriers

Experience, Habit, and Motivation are three poison barriers that Lai mentions in his book. "If you operate them well, they will be your helpers. In general, they are not operated in a fine condition. They are usually the barriers of creativity." (Lai, 2006, p. 128)

Experience is an accumulation that cannot be stopped. We have experiences, but they sometimes miss-lead us and create blind spots for us. This also occurs in landscape architecture field frequently. How to remind ourselves and pull ourselves out of boxes are important issues.

"Habit is the most powerful silencer." –Samuel Beckett. (Lai, 2006, p. 135) Habit makes our lives safe but it also makes our lives monotonous. Our secret computers are not only accumulating files, but also accumulating modes of operation. Habits may damage the health of our perceptions. Therefore kill lots of potentials and opportunities for ideas to come out.

Motivation determines everything. With the right motivation, we can make right things. Lai says that a tip is to ask ourselves all the time about our motivations. He used an example that happened in his studio: asking a student what does he want in his life. His student first said "saving the environment and making contributions to our society". He asked again. His student

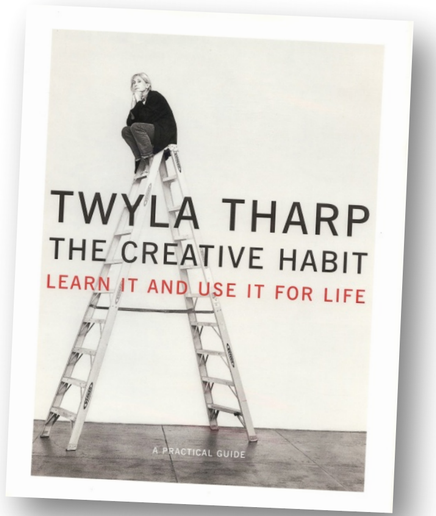


Figure 2.6 Cover of Tharp, T., & Reiter, M. (2003). *The creative habit: Learn it and use it for life : a practical guide.* New York: Simon & Schuster.

then confessed to him that he just want to earn money and someday buy a car and a house. (Lai, 2006, p. 217-224) Being honest to ask these types of questions are not easy. However it is significant to exam them frequently.

Lai: design beyond design, design in life

"Intelligence is definitely one key of creativity. However, the intelligence you need for creativity cannot always be found from your profession. Instead, it is usually from our lives." (Lai, 2006, p. 77) Thinking beyond our profession is a key of creativity. Picking materials from our daily life has always been a great method. Lai thinks if one can think deeply about small details in his/her life, he/she might be able to produce more creative works.

Tharp, T., & Reiter, M. (2003). *The creative habit: Learn it and use it for life : a practical guide.* New York: Simon & Schuster.

Twyla Tharp is one of America's greatest choreographers. She began her career in 1965. She has created more than 130 dances for her company as well as for the Jeffrey Ballet, the New York City Ballet, Paris Opera Ballet, London's Royal Ballet, and American Ballet Theatre. She is a pioneer in melding modern dance and ballet with popular music. She directed Baryshnikov by Tharp, which won two Emmy awards. In 2003, she won the Tony Award for Movin' out, which she conceived, directed, and choreographed to the songs of Billy Joel. In 1997, she was made an honorary member of the American Academy of Arts and Letters. (Tharp, 2003, p. front flap and back flap)

In this book, Tharp writes about the lessons she learned in her remarkable 35-year career. She writes "All it takes is the willingness to make creativity a habit, an integral part of your life: In order to be creative, you have to know how to prepare to be creative." (Tharp, 2003, p. 29-30). When Tharp is at a creative dead end, she relies on a lifetime of exercises to help her get out of the rut, and The Creative Habit contains more than thirty of them to ease the fears of anyone facing a blank beginning and to open the mind to new possibilities.

"Where is your pencil?" : Be prepared all the time

Tharp uses a story (Tharp, 2003, p. 29-30) about novelist Paul Auster's eight-year-old childhood experience in New York City. Paul went to a baseball game and met his favorite baseball player, Mr. Mays, but he forgot to bring a pencil to get his autograph. From that day on, he made it a habit to never leave the house without a pencil in his pocket. "I did not want to be unprepared." He says. "If nothing else, the years have taught me this: If there's a pencil in your pocket, there's a good chance that one day you'll feel tempted to start using it." Tharp then asks: "What is your pencil? What is the one tool that feeds your creativity and is so essential that without it you feel naked and unprepared?"

Figure 2.7 The Golden Section by Twyla Tharp. Clifton Brown and Glenn Allen Sims. Photo by Paul Kolnik.
source: http://www.robertaonthearts.com/dance/idOnstage23.html

Solitude

Tharp talks about working alone. She thinks that solitude is an unavoidable part of creativity. Being patient and knowing how to deal with loneliness is important. She points out that alone and lonely are not the same thing. “Alone is a fact, a condition where no one else is around. Lonely is how you feel about that. Think of five things that you like to do all by yourself. It could be a hot bath, a walk up a favorite hill, that quiet moment of sinking into a chair with coffee when the kids have left for school. Refer back to the list whenever the aloneness of the creative process seems too much for you. The pleasant memories will remind you that alone an lonely are not the same thing.” (Tharp, 2003, p. 30-31)

Face your fears

Tharp in this chapter talks about a creative person should know extremely well about himself/herself, including knowing how to deal with his/her fears. She thinks that creative process requires lots of self-meditations. In some deep meditation stages, one might encounter with fear. “Fear of empty space affects everyone in every creative situation. Where there was nothing, there will be something that has come from within you. That’s a scary proposition.” (Tharp, 2003, p. 31-32)

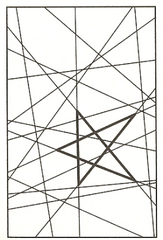
“Give me one week without Mirrors, Clocks, Newspapers, and Speaking: cleaning your perceptions.” (Tharp, 2003, p. 32-33) Tharp points out that our everyday is strongly shaped by the media and the social rules around us. Distractions appear all the time. This one-week exercise might help thinkers to come up with new perceptions. It also stimulates thinkers to think beyond their typical everyday philosophies. “Stop reading newspapers and magazines for a week. I don’t recommend this as a permanent diet; it eventually breeds ignorance. But one week won’t do much damage. It’s like going on vacation to a remote island, cut off from the usual media clutter. You may have done that already in your life. What have you lost? More important, what have you gained?” Tharp says.

Play twenty questions

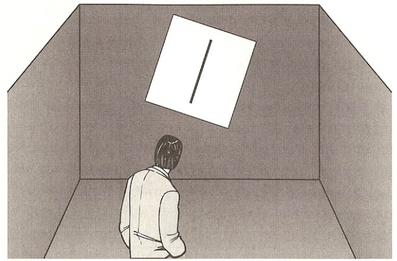
Tharp thinks by asking questions, people may expand their scopes. This is a way to make the foundation in creativity process more solid. “The asking of the questions, however, sets you the task of learning as much as you can before you start putting paint to canvas, chisel to stone, finger to keyboard. And this questioning process doesn’t stop once you’ve begun. The more you know, the better you can imagine.” (Tharp, 2003, p. 176-177)

Take away a skill

Tharp thinks that taking away an essential skill from a person might force him/her to think beyond the typical box. Thus create innovative results. This creativity exercise is unique in all the books that I have reviewed. “Take away a skill, a vital one.



Source: *Dacey, 1989b.*



Source: *Dacey, 1989b.*

Figure 2.8 Association tests (Dacey et al., 1998)

Would you still be able to create? How would you overcome the loss? How would you compensate? What skill would come to the fore to rescue your work?" (Tharp, 2003, p. 179-181)

Ruts and grooves

Tharp writes entire chapter about "think beyond the box" (Tharp, 2003, p. 184-202). She thinks that in order to be innovative, people should think outside of their boxes. People have habits, and habits make people's lives efficient and fast. However, a creative thinker should see things differently. Having different perceptions is critical in creativity process. Lai Sheng-Chuan also talks about similar idea in his Unlabeling and How to see chapter. Tharp says: "First, you have to see the rut. Second, admit you're in a rut. The third step is getting out of the rut." "We get into ruts when we run with the first idea that pops into our head, not the last one." She also sets some steps that people can use to help them think beyond the ruts. They are:

1. Identify the concept that isn't working.
2. Write down your assumptions about it.
3. Challenge the assumptions.
4. Act on the challenge.

Twyla Tharp provides significant thoughts about creativity process. Her creative exercises are valuable suggestions for creative thinkers. Her Ruts and Grooves chapter and several other chapters discuss a lot about how perceptions can change people's ways of thinking.

Dacey, J. S., Lennon, K., & Fiore, L. B. (1998). *Understanding creativity: The interplay of biological, psychological, and social factors.* San Francisco: Jossey-Bass.

Understanding Creativity was published in 1998, written by psychologist John Dacey and philosopher Kathleen Lennon. There are five parts in this book: introduction, social factors, psychological factors, biological factors, and integration. The authors think that inborn conditions of people affect their creativity ability, but some creativity abilities can also be acquired. This book talks about how physiology is connected to psychology mostly. However, in Chapter 8: Creative Cognitive Processes, the authors discuss about how creativity can be acquired through training.

Associationism

The authors of Understanding Creativity suggest that in creativity process, the ability to associate takes an essential part. (Dacey et al., 1998, p. 153-171) "Associationism was the dominant model of the mind for many years, dating back to the Greek philosophers. This model postulated that ideas in our minds are associated with other ideas and that thinking is simply a process of moving from one idea to another by way of a chain of associations." They say. They demonstrate a series of association tests and exercises (Some of them were invented by other scientists in history.) These questions and exercises can be vocabularies or graphics, which stimulate and trigger the test takers to brainstorm subjects in a chaining way.

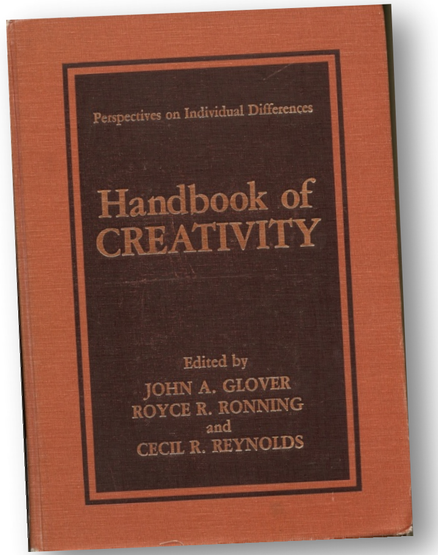


Figure 2.9 Cover of Torrance, E. P., Glover, J. A., Ronning, R. R., & Reynolds, C. R. (1989). *Handbook of creativity.* New York: Plenum Press.

The educational system

In the Role of the Social Context, the authors think that schools suppress creativity. (Dacey et al., 1998, p. 69-78) They use a research that was done by Gardner in Harvard's Project Zero to show as an example. "The period from age two to about age seven is a crucial time for creativity and artistry to be unleashed or blocked. After children have attended school for a while, most become more cautious and less innovative. Worst of all, they tend to change from being participators to being spectators." (Dacey et al., 1998, p. 69). Teachers' gender bias also affects students' performance. There are several scientific graphs that show how schools and teachers can shape students.

Torrance, E. P., Glover, J. A., Ronning, R. R., & Reynolds, C. R. (1989). *Handbook of creativity.* New York: Plenum Press.

Handbook of Creativity is an older book. It was published in 1989, edited by three psychologists, John A. Glover from Ball State University, Royce R. Ronning from University of Nebraska, and Cecil R. Reynolds from Texas A&M University. There are three parts in this book: The nature of the beast, Cognitive models of creativity, Personalogical variables and creativity, and Applications. This book has 400+ pages and 24 chapters in total. The authors try to be holistic. They focus less on traits and other inborn qualities. In fact, more than half of its content is talking about how acquired characters affect creativity process.

The contents are: 1: What are we to measure? 2: Psychometric Issues in the Assessment of Creativity. 3: A Taxonomy and Critique of Measurements Used in the Study of Creativity. 4: Individual Differences in Creativity: An Interactionist Perspective. 5: The Nature-Nurture Problem in Creativity. 6: Creativity and Intelligence. 7: Cognitive Processes in Creativity. 8: Creativity and Perception. 9: Memory and Creativity. 10: Metacognition in Creativity. 11: The Creative Construction of Rationality: A Paradox? 12: Dialectical Thinking and Adult Creativity. 13: Personality, Situation, and Creativity. 14: The Self and Creativity: Several Constructs in Search of a Theory. 15: Creativity and Psychopathology: Gamboling at the Seat of Madness. 16: Examining Counselors' Creative Processes in Counseling. 17: Foundations for Creativity in the Writing Process: Rhetorical Representations. 18: Cognition and Writing: The Idea Generation Process. 19: Creating the Conditions for Creativity in Reader Response to Literature. 20: Learning via Model Construction and Criticism: Protocol Evidence on Sources of Creativity in Science. 21: Analogical Reasoning and Problem Solving in Science Textbooks. 22: Toward a Model of Creativity Based upon Problem Solving in the Social Sciences. 23: The Teaching of Creativity to Preschool Children: The behavior Analysis Approach. 24: Mental Management and Creativity: A Cognitive Model of Time Management for Intellectual Productivity. (Torrance et al., 1989, p. xv-xxi)

Figure 2.10 Table of contents in *Handbook of Creativity* (Torrance et al., 1989)

Memory and Creativity

Barry S. Stein points out in Memory and Creativity (Torrance et al., 1989, p. 163-175) creative ideas and discoveries often provide new information and perspectives that were not apparent in the past. In contrast, the concept of memory is typically associated with ideas that are not novel or original. But he also thinks that creative behavior also involves elements of memory. “Many creative works are based on the personal experiences of the artists and writers who produce them.” “Creative behavior can also involve more abstract types of knowledge and skills. For example, a writer’s linguistic skills or an artist’s drawing skills reflect knowledge that is acquired through experience and represented in memory.” (Torrance et al., 1989, p. 163)

Creativity and Perception

In Creativity and Perception (Torrance et al., 1989, p. 147-159), John Flowers and Calvin Garbin dig into how perceptions can affect the result of creativity. They think that individual perceptions control the Selection for worthwhileness. After Spontaneous insight & Imagery is generated, it flows to the Pool of Novel Representations. And individual perceptions determine which to discard and which to select. Therefore, having a diverse perception could help one to see different possibilities beyond their expectations.

Summary: Commonalities of these four books

There are similarities of these four books. In general, Handbook of Creativity and Understanding Creativity talk about how genetic and inborn intelligence influence creativity process for several chapters. These two books are written by scientists and psychologists. Inborn qualifications and how brains function are two emphasizes. However, when they dig into creativities that can be acquired, they have similarities. All these four books talk about the following influential aspects: memory/knowledge/pool/source/cognitive models, motivation, perception, the ability to associate, and the ability to make combinations/the ability to integrate.

Memory/knowledge/pool/source/cognitive models

Lai (2006) writes that everyone has a knowledge fountain in the base in Creativity Pyramid. In Harness your memory (Tharp, 2003, p. 62-73), Twyla Tharp thinks that the more knowledge you have the bigger chance that innovative inspiration pops out.

For landscape architects and landscape architecture students, expanding knowledge is definitely a doable method to make depth of their works. In fact, in typical design studios, students are commonly asked to do precedence studies/case studies to expand their scopes. Precedence studies are helpful and essential, but they might shape students’ perceptions and thus limit creativity.

Figure 2.11 Gravel crane structure in Maury Island Gravel Mine site in 2011

Both Lai and Tharp think that the ways that people receive knowledge are linked to perceptions. Lai uses a metaphor of "secret computer" to describe it. "People have computers in their minds. These computers are set to have a default operation mode, which helps to determine which knowledge, memory, or experience to store or save." (Lai, 2006, p. 76). Tharp thinks people should digest and think through the knowledge and information they receive first. Their ideas are similar.

Sometimes we might not be able to predict when inspirations will pop out in our minds, but we can expand our knowledge to provide our mind materials for generating inspirations. Unlike intelligence, wisdom, or other inborn criteria, this is a criteria that anyone can work on to improve. It means reading books, surfing on internet, and experiencing in actual design projects will help to improve.

Motivation

Lai (2006) thinks that motivation determines the succession of one's work directly. Dacey (1998) thinks that creativity is related to intrinsic motivation. Lai stresses the importance of motivation by asking his students who have troubles to perform well. He found out that some students' motivations of working in the Performance Art field are "once day I can earn money, have some savings, buy a house, or buy a car." (Lai, 2006, p. 223) This might limit their creative minds.

Motivation also affects Perception. It shifts what people can see and what people can receive. Lots of materials for creativity are from daily life. Seeing different possibilities all the time is an important concept. When people only see what they want to see, they will not be able to see other possible elements that may turn into great innovative works. Seeing other possibilities expands their knowledge.

Perception

In Runts and Grooves (Tharp, 2003), and Unlabeling (Lai, 2006), both authors talk about the importance of having different perceptions. In Handbook of Creativity and Understanding Creativity, scientists also use some tests and researches to support the idea about how creativity process is shaped by perceptions.

In landscape architecture field, often time designers and planners start their design from problem-solving. And sometimes these "problems" that they receive from site observation and site analysis carry some perceptions. They are either from clients or users, or from incomplete self-observations. These perceptions might lead designers through the whole project. In fact, one might already know what a project will shape like, if they know what perceptions designers receive.

Therefore, being able to jump out of the box and see beyond typical scope is critical for landscape architects. Having different perceptions usually makes a project unique. Lai and Tharp both suggest that people should be able to ask themselves lots of questions. Some questions might be hard to answer, but people might find surprises.

Figure 2.12 An excavated slope in Maury Island Gravel Mine site in 2011

Changing habits, either for a short time or for a long while helps people to jump out of their boxes too. Designers, artists, and lots of other people who are working in the creative field should seek for change once a while. Daily details matter. Lai calls Habit one of the Three poison barriers. Habit makes lives safe, and keeps society in order. But it also eliminates the chance for people to see different perceptions.

The ability to associate

Lai's book, Tharp's exercises, Handbook of Creativity, and Understanding Creativity all talk about the ability to associate. Associating and making combinations are two key concepts in creativity process. Take landscape architecture design process for example, once landscape architects get their information about a site, drawing Conceptual Diagrams is just like associating and recomposing. Sometimes they generate their ideas from associating site conditions and surroundings. Material selection is also about association and combination. Some projects might not be influenced by surrounding conditions but might be influenced by designers' ability to associate images to their experience and knowledge.

The ability to make combinations/to integrate

One might find interesting when watching children playing LEGO. Creativity happens when they are making combinations. Being able to make combinations and to integrate different elements and thoughts is essential for designers, artists, and other people who work in creativity field. Lai thinks that the ability to make combinations controls some parts of creativity process. Being able to integrate different elements in an innovative way is essential for designers, architects, and landscape architects.

Conclusion

Lai and Tharps are artists. Threfore their creativity processes focus much on ways to stimulate ideas or ways to make creative products deep and meaningful. In landscape design process, designers sometimes weave problems, solutions, and innovations together when they are making design concepts from their site analysis. The flows of thinking between artists and designers are different but similar in some ways. Lai and Tharps' flows of thinking are still valuable when examing the defects of a typical landscape design flow.

Understanding Creativity and Handbook of Creativity are both scientific. Dacey et al. (1998) discussed about inborn wisdom and the creative mind, which might lead readers think successful creative works come from smart brains. However, both books mention about the ability to associate and the ability to integrate, which are valuable when examing a typical landscape design flow.

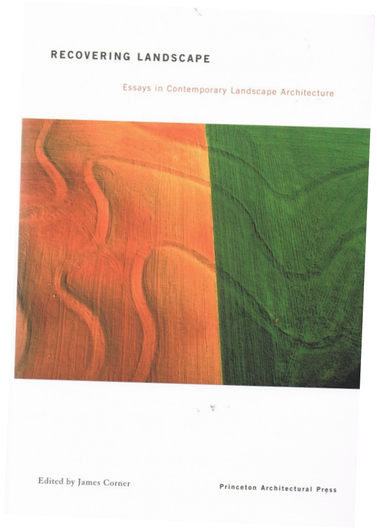


Figure 2.13 Cover of Corner, J. (1999). Recovering landscape: Essays in contemporary landscape architecture. New York: Princeton Architectural Press.

Knowledge, motivation, perception, the ability to associate, and the ability to integrate are five essential aspects in creativity process. They are certainly essential in landscape architecture field too. Expanding knowledge and being holistic can make landscape projects rich and considerate. Motivations shape designers' projects directly. Being able to have different perceptions makes designers to explore possibilities. Having a good ability to associate expands project scopes. Being able to integrate landscape elements, solutions, and programs well makes a project innovative. These five aspects are the fundamental findings of this chapter.

2.2 Literature review of Landscape design process

In this section, I am reviewing two publish: a classical one, and a practical one. The classical one is a chapter in Corner, J. (1999). *Recovering landscape: Essays in contemporary landscape architecture.* New York: Princeton Architectural Press. This chapter is Four Trace Concepts in Landscape Architecture by Christophe Girot. The practical one is the recent published professional guide book: Waterman, Tim (2009). *The Fundamentals of Landscape Architecture*. Switzerland: AVA Publishing SA. In the reviews, I try to summarize the typical design flow that scholars and professions suggest.

Girot, Christophe. (1999) Four Trace Concepts in Landscape Architecture in Corner, J. (1999). *Recovering landscape: Essays in contemporary landscape architecture.* New York: Princeton Architectural Press.

Christophe Girot is a landscape architect born in Paris. He was educated in UK and United States. He has been practicing internationally since 1986. His projects have been published and exhibited in amongst others at the Groundswell exhibition at the MoMA, Harvard, and in Essen Germany. He is now the chair of Landscape Architecture at the ETH Zurich. ()

Christophe had written down some notes of the observations he had done in teaching and working experience in the past. He organizes and meditates through them, and calls them Trace Concepts. "In the course of my own work I have unraveled four operating concepts that serve as tools for landscape investigation and design, especially with regard to recovering sites. These I call trace concepts because they cluster around issues of memory: making, impressing, and founding." He says. "How can outsider designers acquire the understanding of a place that will enable them to act wisely and knowledeably? This is the question my four trace concepts address; landscape grounding, finding, and founding each focus on particular gradients of discovery, inquiry, and resolution." (Atelier Girot, 2012)

Landing

Christophe thinks that designers should start their design process from exploring their sites. "Landing invokes the pas-

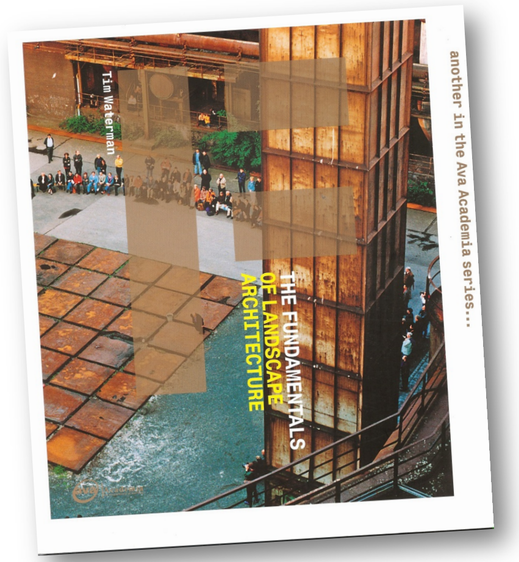


Figure 2.14 Cover of Waterman, Tim (2009). The Fundamentals of Landscape Architecture. Switzerland: AVA Publishing SA.

sage from the unknown to the known, from the vastness of the outside world to the more exact boundaries of a specific project." He says. "Landing thus requires a particular state of mind, one where intuitions and impressions prevail, where one feels before one thinks, where one moves across and stalks around before seeking full disclosure and understanding." (Corner et al., 1999. p. 61) He uses human conversation as a metaphor to describe the relationship of landscape architect and site. A person who wants to know another person should directly greet him or her. Having direct eye contact is better than spying on him or her from far.

Grounding

Christophe thinks designers should visit their sites constantly. In this step, he asks designers to do a process implying successive layers, both visible and invisible. He asks landscape architects to do a complete site research. "Grounding is the second step in landscape discovery and understanding. Grounding has to do with orientation and rootedness, both in the literal and figurative sense of the word. The difference between landing and grounding is essentially linked to time and moment. Landing only happens once, at the beginning immediate and distinct, whereas grounding recurs indefinitely." (Corner et al., 1999. p. 62-63)

Finding

Christophe thinks that findings escape design invention and import. This step is more like conceptual design stage in a project timeline. "Finding entails the act and process of searching as well as the outcome, the thing discovered. It is both an activity and an insight. What is found can result from either a surprise discovery or some painstaking, methodical quest. Thus, it is rather difficult to speak of a method of finding because different activities yield different discoveries." He says. "What is found is an open question, an open possibility." "Finding is the alchemical component in the design process; it may be permanent or impermanent." (Corner et al., 1999. p. 63-64)

Founding

Christophe calls design development Founding. He says: "A well-founded project remains clear in its approach and resolution, extending the legacy of a place toward a productive future. Founding is probably the most durable and significant of the four trace acts. It comes at the moment when the prior three acts are synthesized into a new and transformed construction of the site. Founding can be also understood as bringing something new to a place, something that may change and redirect a particular site. Examples range from the placement of a new object, to the framing of some new point of view, to simply changing the use of a particular place." (Corner et al., 1999. p. 64-65)

Waterman, Tim (2009). The Fundamentals of Landscape Architecture. Switzerland: AVA Publishing SA.

Tim Waterman is a lecturer in Writtle School of Design. He got his Master degree from Rhode Island School of Design. His primary interest is in urbanism, especially how individuals use

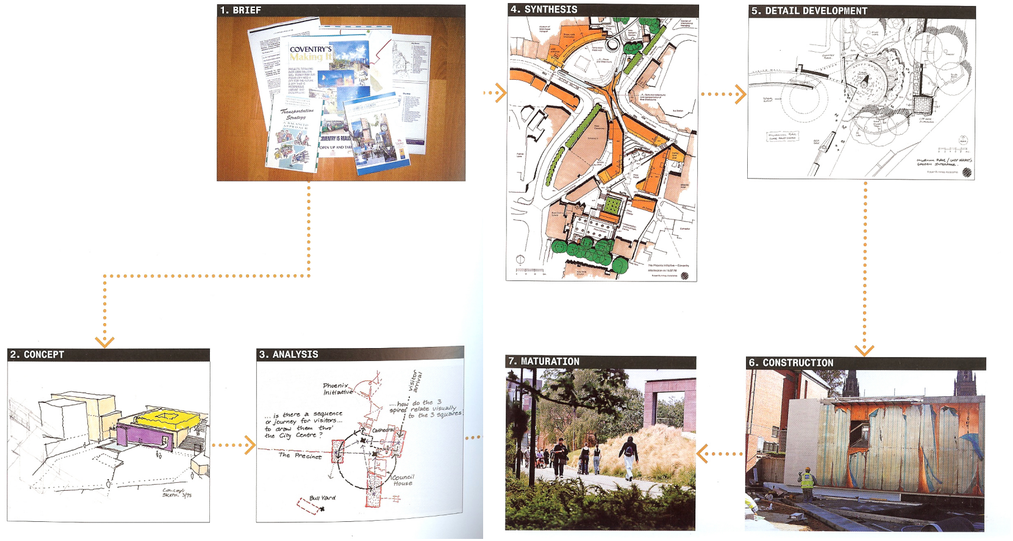


Figure 2.15 Project flow in Waterman, Tim (2009). The Fundamentals of Landscape Architecture. Switzerland: AVA Publishing SA.

their imaginations to form a comprehensible image of the city. Tim is also a writer, an artist, a community activist, and Now Urbanist. He now works and lives in London.

In The Anatomy of A Project (Waterman, 2009, p. 140-145), Tim points out that design process is both subjective and objective. But he thinks when designers see a project as a sequence from beginning to the end, it is all relatively straight-forward.

He thinks that there are 7 stages in project timeline. They are :
1. Brief
2. Concept
3. Analysis
4. Synthesis
5. Detail development
6. Construction
7. Maturation
I am reviewing the concept generation sections from 1 to 4.

Brief

Tim thinks that in the profession, designers should begin with a site observation. For professional purposes, designers usually make briefs. Briefs are tools for proposal. “A brief is the initial description of the project problem that defines the parameters within which the designer will work. It then forms the basis for the work once a suitable firm is selected.” He says. (Waterman, 2009, p. 146) The site observation in this stage is an overall observation.

Concept

Tim thinks that in the Concept stage, designers start to make initial thoughts of possible ways to solve the problems in a site. “The concept provided a framework for understanding each site in the context of a progression, providing cues for design. Further, it allowed a simple and elegant logic to be applied to the site, which artists could work within and the general public could grasp in an instant.” (Waterman, 2009, p. 148). Concepts are usually prepresented in diagrams: bubbles, circles, lines, and circulations.

Analysis

In Analysis stage, designers dig into detail aspects of a site. It is an essential process that designers encounter with small detail problems of a site. They expand their findings from lots of da-tas and information that they aquired, and they dig deeper.

Synthesis

This stage is a stage where creativity takes lots of control. A creative project requires innovative ways to sythesize different possible solutions, landscape elements, programs, and other aspects all together. Tim thinks that this stage is the stage where projects start to grow and mature. General concepts of a project are mostly done in this stage.

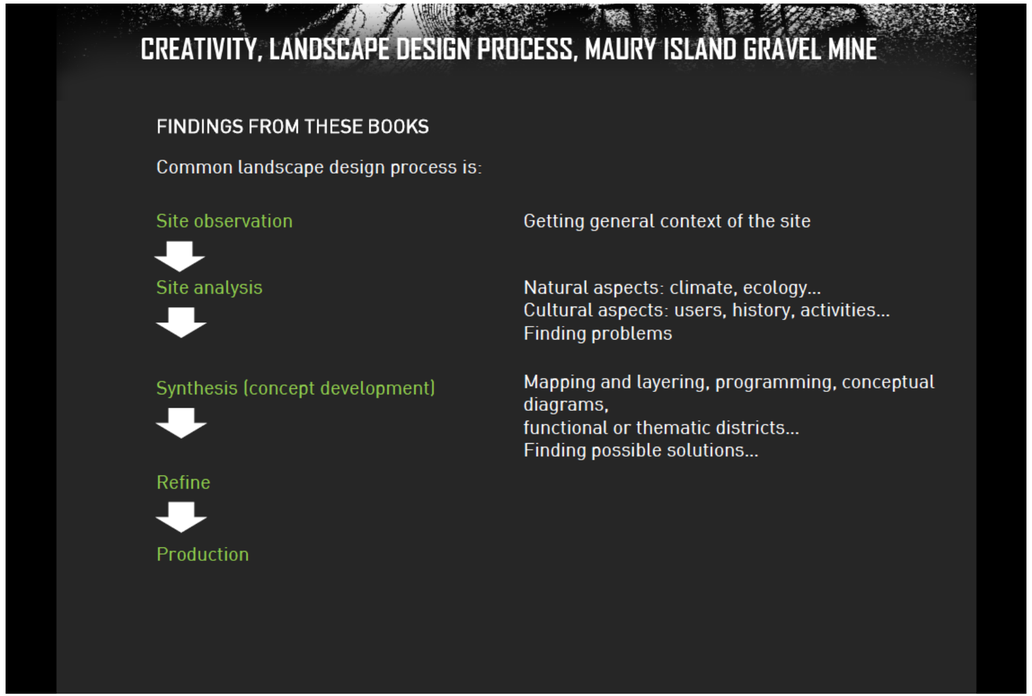


Figure 2.16 Presentation slide of a typical landscape design flow

From these studies, I find the following stages commonly occur in landscape design flow. This design flow may be considered as typical.

1. Site observation.
2. SIte analysis.
3. Synthesis (concept development)
4. Refine
5. Production

Note that designers commonly loop back to 2. Site analysis and 3. Synthesis stage when they are in the refining stage of their projects. This flow is not only a linear process but also a circular loop.

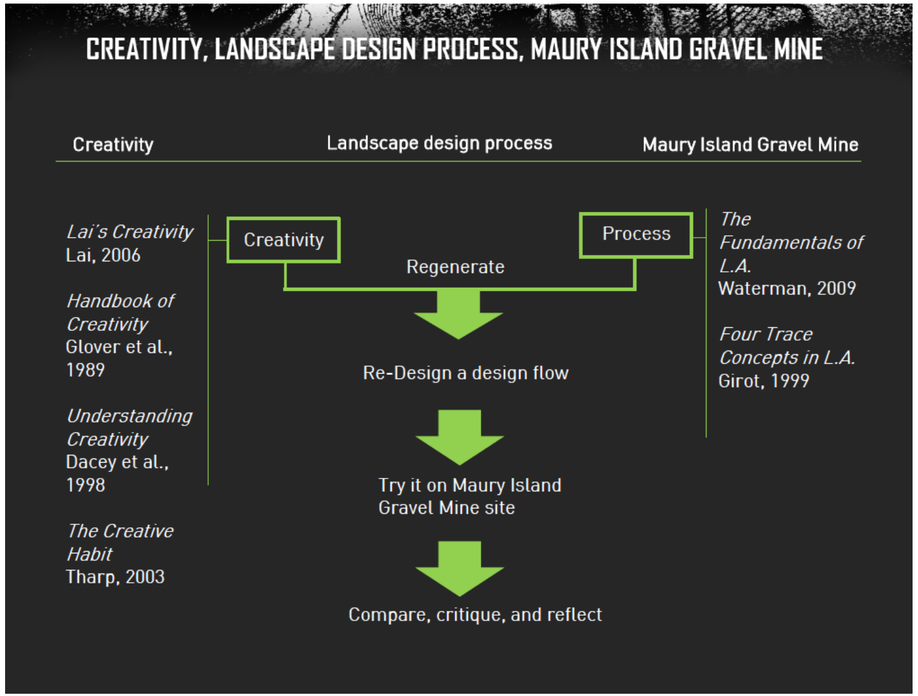


Figure 2.17 Presentation slide of the structure of this thesis

2.3 Critical Stance: Modified landscape design flow

What are missing?

Association and integration
From the reviews of creavity and landscape design process, I find that a typical landscape design flow lacks stimulations. To produce an innovative product, designers not only need to transform site data well, but also need to be able to generate inspirations. However, having lots of ideas at the same time might not always work well. Designers also need to integrate them well. Constantly making combinations makes designers to see different possibilities during their design processes.

Motivation and perception
The typical landscape design flow looks very commercial-like. It might look like it was created for digesting projects and making profits. In order to make good work, designers should always exam their motives. Motivations do not always have to be grand, but by listing them out, designers might sail their boats more smoothly in their design flows.

Modified landscape design flow

Combining the findings from the literature review of creativity and landscape design process, I try to modifiy the design flow to help designers to make more creative products.

Between site analysis and synthesis stage, I propose adding 3 parts of exercises. (see figure 2.19) They are:

1. Exam motives and think from different perceptions.
2. Association exercise
3. Integration, brainstorm for combination.

Examing motives means designers should constantly ask questions to themselves. Knowing what they want help them to understand how their projects might shape. Thinking about different perceptions means to be considerate to all different types of users, communities, issues, natural conditions, habitats, animals, social justice and so on.

Association exercise provides designer chances to explore more possibilities. This exercise can be simply done with drawing lots of clusters. Associating subjects to other subjects will expand the scope for designers. These subjects can be possible landscape elements, possibile solutions, possible programs, and all other related objects.

Integration exercise is to re-combine the ideas, elements, and issues that designers have done in association exercise. Designers can explore different possibilities to integrate these elements and design thoughts. This exercise can also be beyond shapes and forms. Designers can think beyond limitations and boundaries.

After plugining these three parts, the design flow plugs back to refinement. During refining projects, more inspirations, questions and issues might pop out. Designers may enter/use these three parts again to enhance their products.

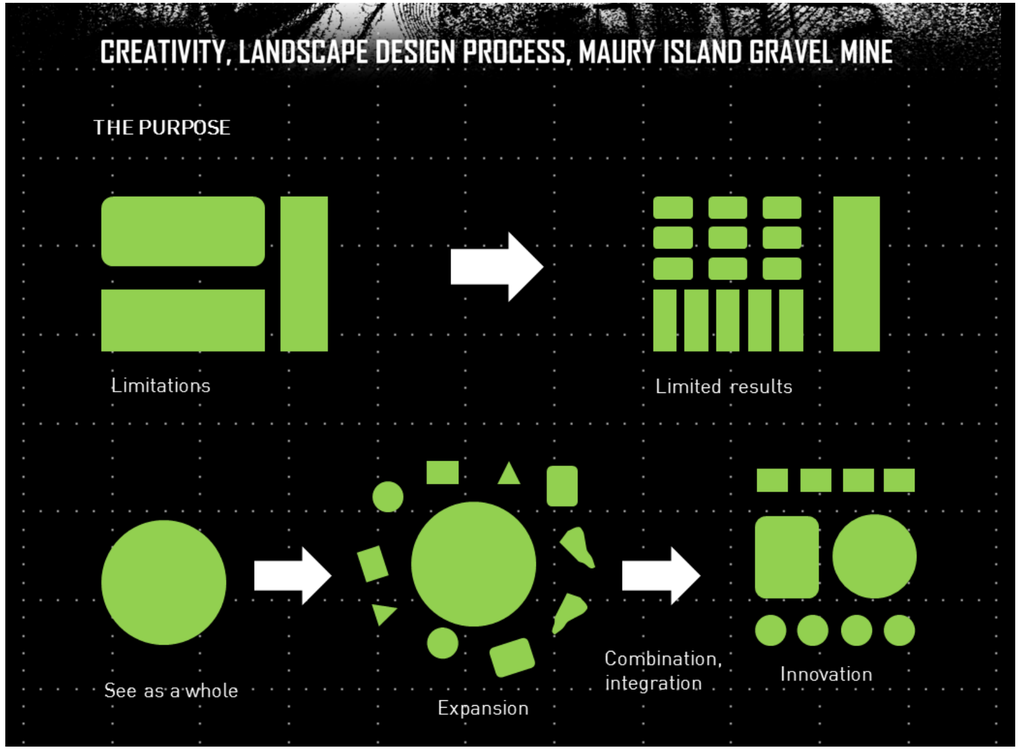


Figure 2.18 Presentation slide of explaination diagram of the association exercise

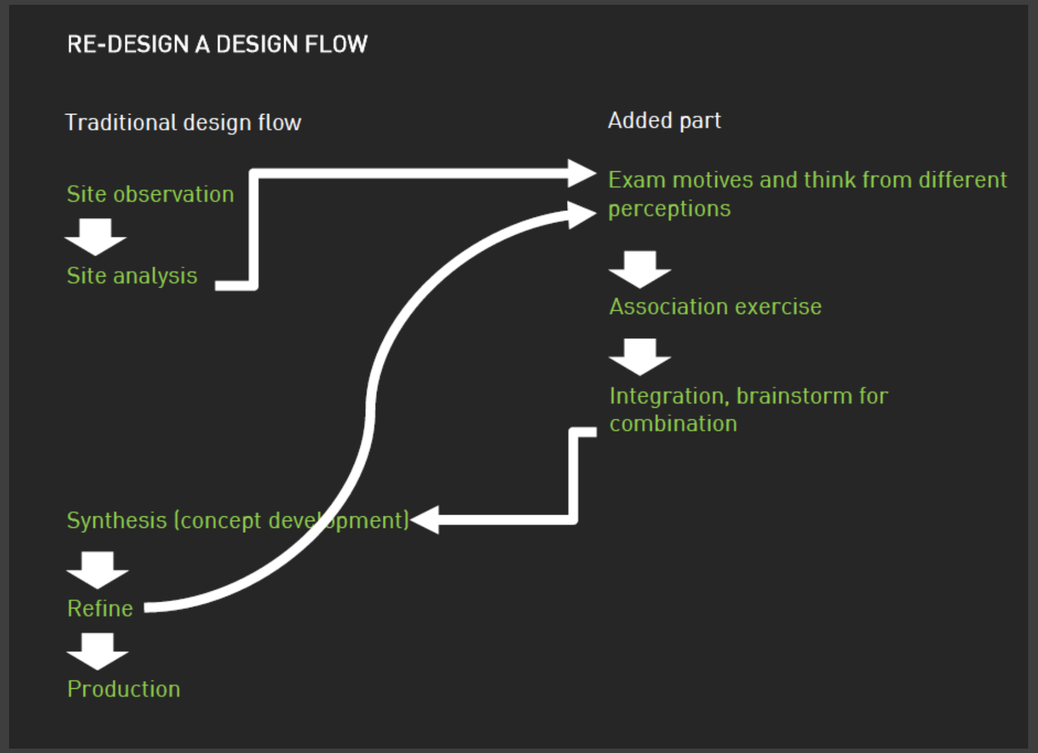


Figure 2.19 Presentation slide of the Added part (right side) of the Modified design flow

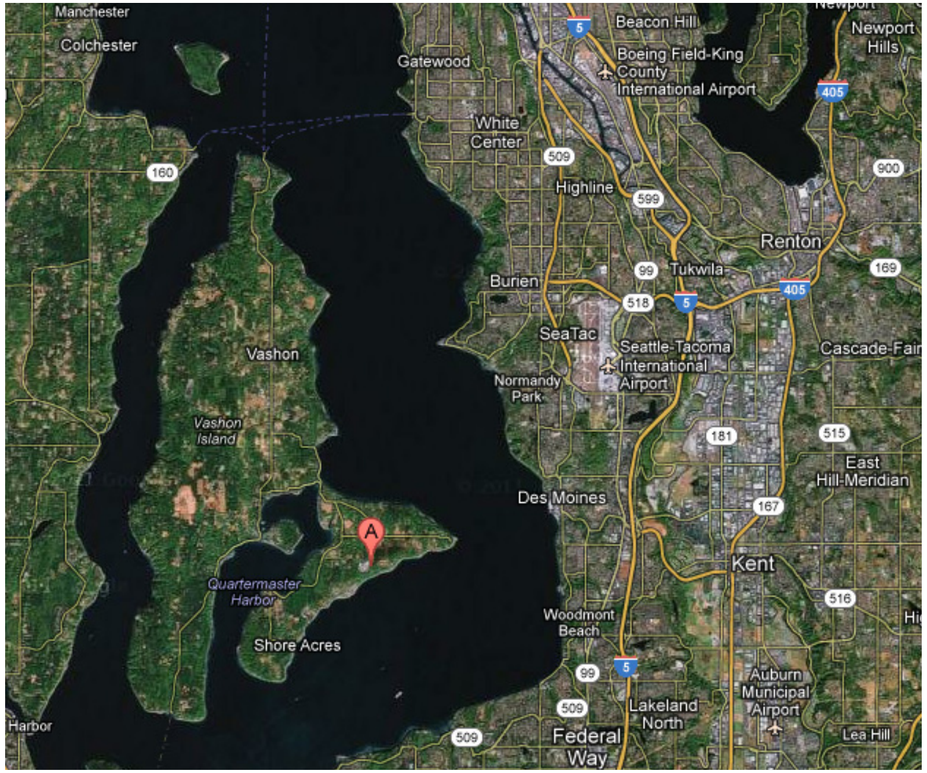


Figure 3.1 Orientation of Vashon Island, Maury Island (red pin A) and Tacoma area in Washington State (Source: Google Map 2012)

Chapter 3. Site analysis

3.1 Orientation

Maury Island Gravel Mine site is located at the southeast of Maury Island, Washington State. Maury Island is the south part of Vashon Island. The most common way that people enter and exit the island is through Vashon-Lincoln Park Ferry, which carries people between Fauntleroy (south park of Seattle, between Seattle and SEATAC) and Vashon. There is another Ferry terminal, Tahlequah, at the south end of the island. There is also a harbor and a Municiple airport. The island is mostly residential, with some mining industries, a small portion of farming, and some functional commerce.

3.2 History

Native American had lived on Vashon Island for centuries. Some hunting activities were here. There were frequent hostilities between tribes from Vancouver Island and local tribes.

In 1792, Captain George Vancouver named Vashon Island after his friend Captain James Vashon. Later in 1841, Lt. Charles Wilkes named Maury Island after William A. Maury, a member of his crew. (Stein Alan J. , 2002)

In 1852, pioneers of Seattle logged lots of trees here. They exported the logs to San Francisco. Within a few years, they forced the Indians to move elsewhere. All native Americans on the island were gone. The first land claim was 80 acres by Andrew J. Pope and William C. Talbot in 1864.

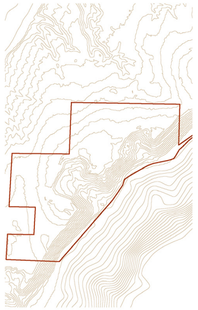
In the next few years, fishing, logging, brick baking, shingle making, and farming activities occured in the island. Ferry service was activated in the late 1880s.

In late 1890s, Steilacoom gravel mine was opened at the southeast part of Maury Island. By 1960s, there were at least three gravel mines operating. They supplied the large need of gravel and concrete aggregates in Seattle and Tacoma area. The excavation company is Glacier Northwest. (Glacier Northwest, 2007)

Figure 3.2 Aerial photo of Maury Island Gravel Mine site in 2006 (source: http://seattletimes.nwsource.com/html/opinion/2003383113_vashon10.html)

A

B



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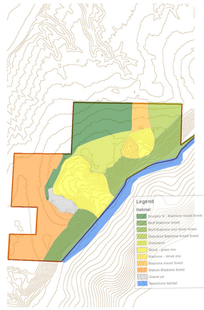

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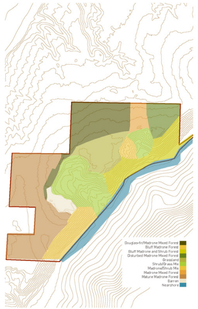

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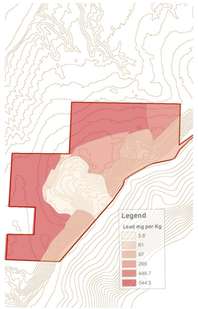

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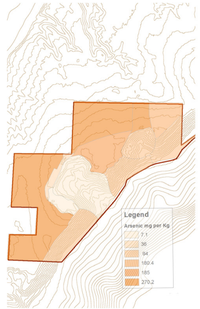


H

Figure 3.3 Site analysis maps. A: Aerial photo B: 20 feet countour lines C: Property line of King County Parks D: Habitat map
E: Invasive plants map F: Vegetation variety map G: Polluten survey map: Lead H: Polluten survey map: Arsenic
Maps credit: UWLA LARC 501 Autumn 2011 studio members and CDM. (2011). Remedial Investigation
Maury Island Glacier Pit, Maury Island, Washington [Electronic version]. *King County.*

From the 1990s to 1985, the ASARCO Smelter, a copper and lead smelter located at south of Maury Island had been emitting heavy amout of arsenic and lead into the air. These heavy pollutions had been settled on the soil of Maury Island. In 1985, it was finally decommissoned due to health concerns. (King County, 2011)

The Maury Island Gravel Mine site is one of the five mines that Glacier Northwest company had excavated. The excavation of this mine was stopped due to environmental concerns. King County purchased this property in December 2010 for further planning. Currently, the excavated part of the property contains less pollution than other parts. It is because the action of excavating and digging in the past removed these pollutants. (King County, 2011)

3.3 Natural conditions

Vegetation
Because of the special conditions of the site, Maury Island Gravel Mine's natural landscape was shaped by the intrusion of human activities in history. The original major vegetation here was Douglas Fir, a coniferous tree. This type of tree exists in a lot of places in the American Northwest landscape. However, in this site, there is a large Madrone Forest that grows well because of the excavation of the mine. In the habitat here, Madrone trees compete with Douglas Fir. The intrusion by the mine company destroyed a portion of the original Douglas Fir forest, which allowed Madrone trees to grow in a significant speed. Today, the site has some Douglas Fir Forests, some Madrone Forests, a large quantity of invasive species including Scotch Broom and Blackberry.

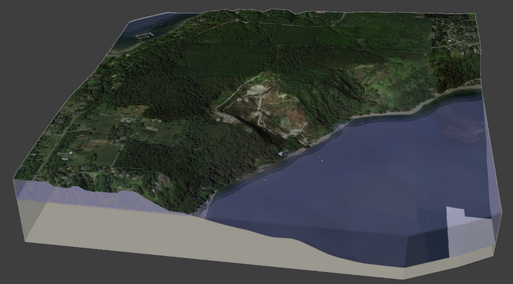


Figure 3.4 Digital terrain model of Maury Island Gravel Mine site.
(Model credit: UWLA LARC 501 Autumn 2011 studio members)

Animals
Salmon swim through the coast of the site every year. Orcas have appeared here several times in the past decade. The animal diversity in the shoreline here is very rich. In fact, the this was one of the major reasons that King County decided to re-plan this site. The excavation caused lots of sediments and thus affected shoreline habitat in the past. On the land, birds, squirrels, and deers live in shrubs and trees in the site.

Figure 3.5 The view of Puget Sound and Mt Rainier from Maury Island Gravel Mine site

Figure 3.6 The view of the Maury Island Gravel Mine site from its upper flat area that has been graded

Figure 3.7 The view when visitors walking on a major graded and unpaved road in the site

Topography
The Maury Island Gravel Mine Site has a dramatic terrain. With the elevation change of over 200 feet from sea level, visitors can experience some excitements when they hike throught the site. Because of the need of space for mining facilities, Glacier Northwest has left some graded areas in this site. There are: a huge flat land on the west top, an upper basin on north top, and a lower flat on the east bottom.

Aresnic and Lead
The soil is almost clean within the mine. However, there is a large area that is still polluted around the site. Direct contact with Aresnic and Lead will cause body damage. Most polluted areas are in the surrounding forest. (King County, 2011)

Views
Maury Island Gravel Mine site has spectacular views of Mt Rainier and Puget Sound. The view of remaining gravel machine (like a landmark) in the site and the view of Mt Rainier compose an unique and integrated view that constantly changes when visitors walk through the site.

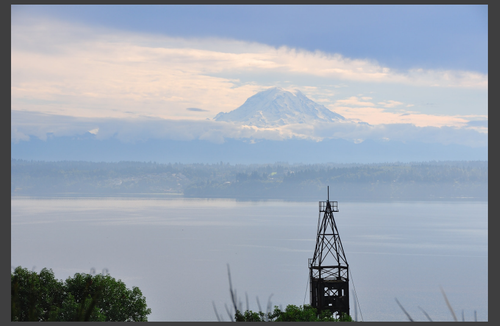


Figure 3.8 The view of Mt Rainier and the remaining structure of gravel machine

Figure 3.9 Google Map Aerial photo of Gold Beach community (this community sits in a former gravel mine now.)

Figure 4.1 The view of the playground area in Richmond Beach Saltwater Park

Figure 4.2 The view from the upper parking lot of Richmond Beach Saltwater Park

Figure 4.3 Photo of Chenshan Quarry Garden from MLBURG

Figure 4.4 Photo of Chenshan Quarry Garden from MLBURG

Chapter 4. Case study

4.1 Transformation of similar mines

Richmond Beach Saltwater Park (Shoreline City Hall, 2011)
Located 11 miles north of Seattle on Puget Sound, Richmond Beach Saltwater Park provides an example of a former gravel mine being repurposed as a public park. The Richmond Beach Sand and Gravel Company mined the area for a decade in the early 1900s. After its closure, the land was purchased in 1952 by King County to be used as a regional park. Jurisdiction of the park was handed over to the City of Shoreline after its incorporation in 1995. Between 1998 and 2002 a series of park improvements were constructed including two picnic structures, a play ground and trail reconfiguration. Not until 2007 was an actual master plan created by Hewitt Architects to guide short and long-term capital improvements as well as programming opportunities for Richmond Beach Saltwater Park. Over the last three years, the University of Washington, as part of its REN Capstone course, has led a series of restoration projects focused on stabilizing the mine slopes, removing invasive plants, and introducing native species.

Situated within the city of Shoreline, Saltwater Park is a 42-acre island surrounded by residential neighborhoods. The park offers a diverse range of ecosystem types including grass/shrub lands, forested wetlands, and sandy beaches. Steep slopes along the edge of the site grade out to a sandy beach on the Sound.

Chenshan Arboretum Quarry Garden, Shanghai, China
The Arboretum project was a part of improvement works by the government for the 2010 EXPO. The design slogan of Chenshan Arboretum is “Plants and health”. “It is both a plant science research and education base, but also for the general public it provides a blooming flowers, flying birds, fun and a desirable place to visit” (Zu, 2010).

Quarry garden is a distric/theme area in Chenshan Arboretum, located at the northwest corner of the Arboretum. It is designed by Professor Yu-Fan Zhu and his team. The design team designed some landscape elements such as waterfalls, natural moat, decking, and water curtain caves by fully using the existing terrain and the remaining water of the quarry. The designer combined Chinese historical philosophy of “Tao Yuanming’s In End of the Peach Forest, a hermitage theory” with the original physical site conditions, the need of ecological remediation, and considerations of potential risks of the quarry structure into the design language. The designer used the current appearance of the quarry, the seam-looking texture as the design language to express the image of Chinese ink and wash painting. Overall, Quarry Garden is not only a remediation-focused garden, but also a top-ranking garden in all of China.

Figure 4.5 Photo of Chenshan Quarry Garden from MLBURG

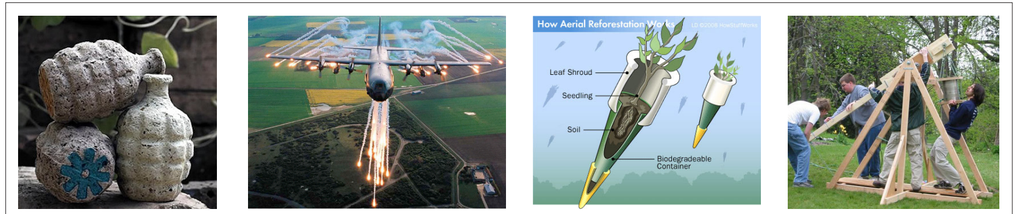


Figure 4.6 The variety of seed bombing methods (source: http://justlive.us/featured-posts/bombs-away-make-seed-bombs-for-an-environmentally-friendly-form-of-civil-disobedience)

Figure 4.7 Goats as biological plant control. source: Rent-A-Ruminant, LLC. (2011)

Figure 4.8 Jute cloth for restoration. source: http://chandrashekharasandprints.wordpress.com/2012/05/11/restoring-an-urban-river-bed-to-its-natural-eco-system-a-singapore-experiment

4.2 Bioremediation methods

Goats as biological plant control (Rent-a-Ruminant LLC., 2011)
Goats are not normally thought of as a key method for disposing of unwanted foliage and plants, but more and more of these animals are having a revolution in the field of brush control and invasive plant management. Nationally, various rent-a-goat companies have cropped up over the last ten years and are used in a wide variety of settings, including: homeowners, large and small properties, companies and commercial entities, universities, municipalities, such as roads and parks, government agencies, including military facilities. As ruminants, goats have a four-chambered stomach which allows them to digest a wide variety of vegetation. Their size and nimbleness makes them the perfect small plant removal system. Goats are well-known to eat almost anything, including invasive species such as Himalayan blackberry, Scotch broom, Kudzu, knotweed, and English ivy. A local example of a goat rental company is Rent-A-Ruminant LLC, located on Vashon Island. This business carries about 120 goats and operates all over King County. Rent-a-Ruminant has been hired by a wide range of clients, including local municipalites, the Kitsap Naval Base, as well as individual homeowners.

According to Rent-a-Ruminant, 60 goats can clear about 1/4 acre of moderately dense brush in 3-5 days. The size of the herd and time desired to clear the land are factors to take into account when hiring goats for vegetation management.

When working, the goats are confined to the desired browsing space with a temporary fence which is moved around as needed until the goats have cleared all the vegetation. While the goats are working, a goat herder remains on site at all times, including overnight. Rent-a-ruminant charges a $725 daily minimum, plus a $325 one-time transportation fee.

Seed bombs
Seeds bombs are small balls used for re-establishing ecologies in human-made deserts such as urban lots and mining sites. They are typically formed from a mixture of seeds, clay and nutrients. Some variations include biodegradable plastic pods or paper-maché shells containing seeds and humus or compost.

The Maury Island Site might begin to utilize seed bombs asa way to encourage healthy plant growth within the mined areas on steep slopes that may be difficult to reach using conventional planting techniques. Seedbombing events could occur seasonally and generate revenue through sales of bombs for volunteer “bombing” events using slingshots, water balloons, or a trebuchet for large-bomb deployment.

Jute cloth
Jute cloth is a restoration material. It not only helps greening the landscape but also helps stablizing slopes. Plants grow on jute cloth and their roots can extend beneath the cloth to soil. It is a common greening method for highway constructions.

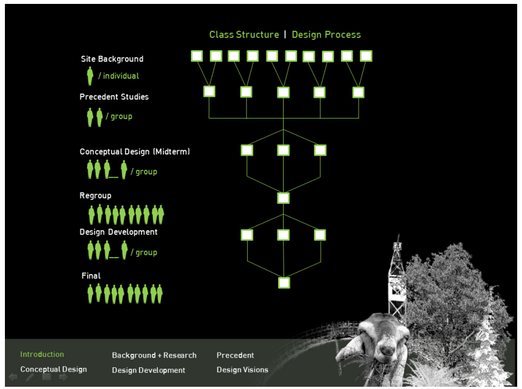
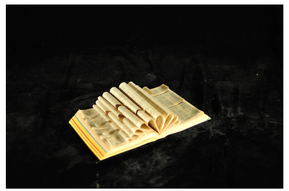


Figure 4.9 Presentation slide of the design teamwork arrangement of LARC 501 Autumn 2011 studio

Figure 4.10 Student's project expressing the experience and perception of first site visit in LARC 501 Autumn 2011 studio



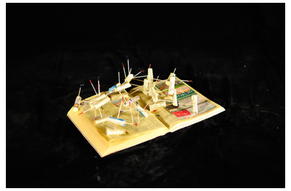


Figure 4.11 (Right top 3 photos) Students' work of Phonebook exercise in LARC 501 Autumn 2011 studio

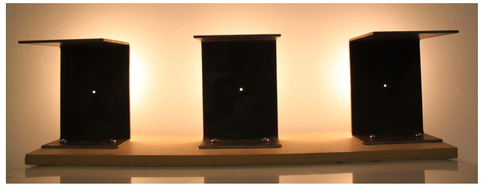


Figure 4.12 Student's project expressing the experience and perception of first site visit in LARC 501 Autumn 2011 studio

4.3 LARC 501 Autumn quarter 2011

3 introductory exercises

The instructor of LARC 501 Autumn quarter 2011 in the master program of landscape architecture in University of Washington was Ken Yocom. In the beginning of the studio, he asked students to do 3 introductory exercises. They are: telling a story about man and nature with sketches, phonebook exercise to illustrate environmental crisis and ecological planning & design, and using any media to express the experience of first site visit. These introductory exercises might have sparked students creativities. Students produced a variety of creative and innovative works. However, in my opinion, it was hard to see the connection between these exercises and students' own design processes.

These three exercises might have helped students to think deeply about the relationship between man, nature, and landscape architects/ecological planners. However, from my perspective, students spent more time brainstorming about the selection of materials or medias that they wanted to use to illustrate their ideas than the relationship itself.

The third exercise about the site visit experience was perhaps the most critical exercise that I consider. Rhythm, landmark, cover and open, hidden and occured, complexity, and heartbeat are some common experience that students picked up. In the midterm (3 teams, 3 themes) design development, it was clear that all 3 groups have used and stressed some of these experiences that they picked up from site visit. This transforming exercise emphasized on experience. During the early presentation, when students were watching other people's projects, they might have increased their impression of the site. Thus they did not forget to reinforce or discuss about the existing visitor experience in the middle part of the design process.

3 teams + three themes

Professor Yocom asked students to split into 3 teams to develop their own design themes. These 3 teams presented 3 different versions of design concepts in midterm presentation. Expanding and exploring scopes are good. They perhaps provided more possibilities and inspirations for the final product.

Base on comments, split into 3 aspects

After midterm presentation (students got feedbacks from critics), professor Yocom split the class into 3 teams to do brainstorming exercises for 3 aspects: educational landscape, recreational landscape, and ecological landscape. This stage seemed successful. Students were pushed to brainstorm in detailed directions. They generated some ideas without much limitation. Their scope was expanded, once again.

Combining into one product

This stage seemed like the most difficult stage for students, especially when a 10-person studio tried to agree with several design aspects together. It took much longer time than everyone expected. It furthermore compressed some time that students were supposed to use to render their final products.

Overall, the exercises and design process of this studio had its pros and cons. Some stages of design might make students exploring more possibilities, but when integrating, it took a long time and perhaps decreased efficiency.

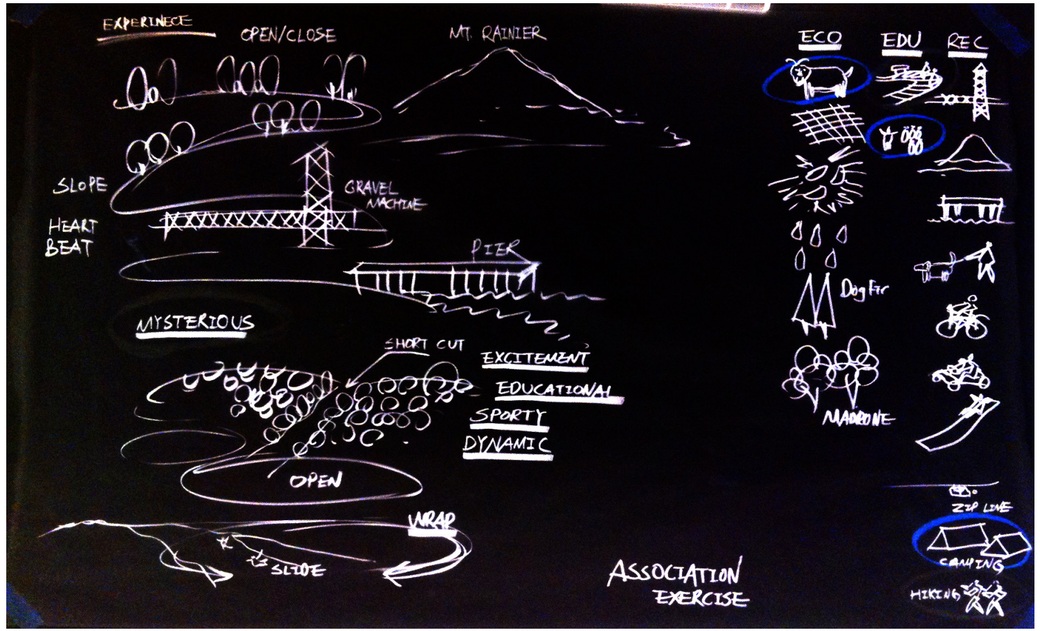


Figure 5.1 My sketches of association exercise on trace. This list includes design possibilities, major existing conditions, and major visitor-experiences

Chapter 5. Design development

5.1 Concepts

With the information I gathered from site analysis and case studies, I try to start my initial concepts by doing 3 exercises in the Modified design flow that I proposed in my critical stance.

Starting perceptions, I listed and drew a variety of user experiences on trace. There are mainly 3 user types in this site: residents from the nearby communities, visitors from outside of the community (visitors that do not live on Maury Island), and wild animals (none-human users but are a type of users too).

There are some visual objects that are stimulative for all types of visitors. A clear view of Mt Rainier and a view of the the remaining structure of gravel machine sometimes appear and sometimes disappear when visitors walk on the major trail in the site.

Other two main sensations that visitors receive are: the soft touch of the loose semi-gravel surface when they are stepping on the trail, and the bending and twisting feeling when they wander through the curvy trail.

The curvy trail, the vegetation of Madrone trees and other trees (block some views in different parts of the trail), the view of Mt Rainier and abandoned gravel machine create an unique sense of the site: they make the site mysterious. When visitors wander through this site, they will have lots of questions. “What’s the history of this place?” “Why is there an abandoned machine here?” “Wow, what a great view of Mt Rainier!” “Why is there an abandoned pier?” “Can I walk off-trail here?” They might ask.

Therefore, when designing this site, integrating the valuable user experience with restoration methods is important. I, then include all the elements that create these experiences in association exercise.

Examing motives

Different motivations matter. Different users, organizations, designers, and scientists who concern about this site have different motives. In general, residential users want this place to be recreational and perhaps a little educational. Visitors who are from outside of the island might as well want this space to be recreational and educational. Ecologists want to restore this site. (Their motives might relate to research funds.) Landscape architects ,planners, and Washington Parks want to create a win-win solution. Animals want habitats to live. By listing all the motives, designers can remind themselves the importance of satisfying different needs throughout the design process.

Association exercise

There are mainly three parts in my association exercise at this stage. They are Ecological, Educational, and Recreational. I listed appropriate restoration methods here, including goats, jute cloth, and seed bombs. Other aspects in ecological section are rain, Madrone forest, and Douglas Fir forest. In Educational section, there are educational programs (including public classes, public tours, and summer camps), information boards

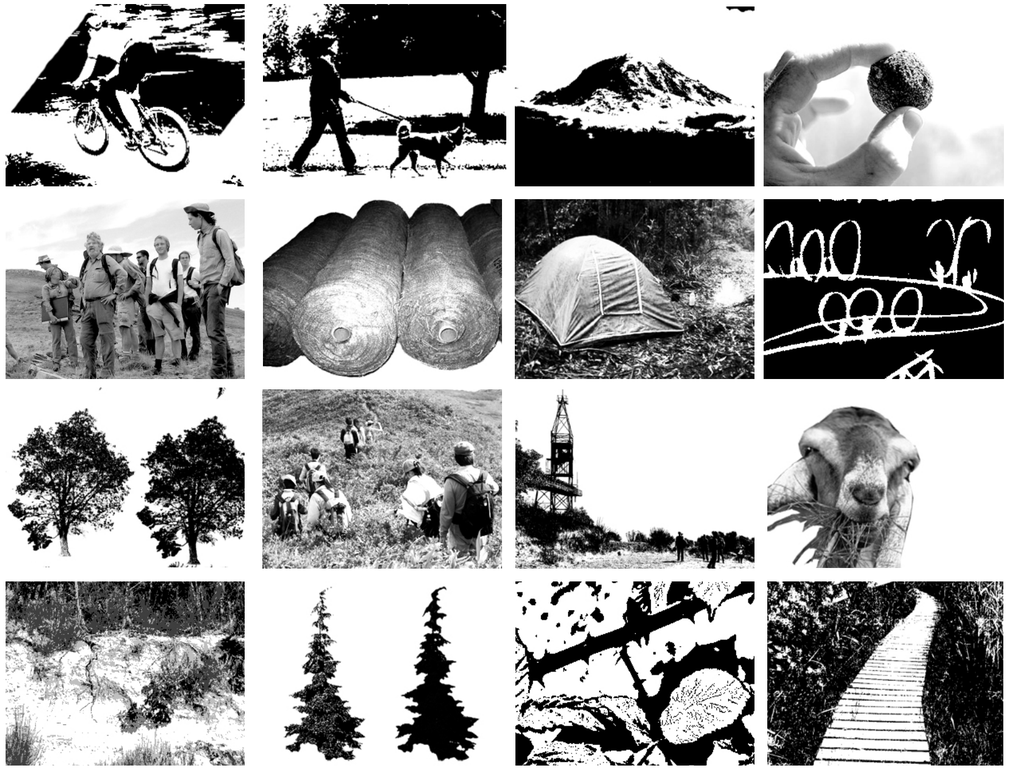


Figure 5.2 Association and integration exercises of design concepts

and signs, and educational trails. In Recreational section, thre are a huge variety of possible recreational designs. They are re-enhancethe pier, re-enhance the abandoned gravel machine, dog-friendly place/trail, bikable space, slides, camp grounds, zip-lines, and friendly place for hiking and jogging. Figure x.x on left is a graph to illustrate this association exercise- exploring possibilities.

Combination and Integration

By listing out different possibilities in association exercise, as a designer, it is more clear for me to start integrating different elements, aspects, and posibile design schemes together at this stage. Comparing to staring at a piece of trace, this exercise pushes me and makes my design flow fluent. As a result, I came up with four major schemes. (see figure 5.3)
They are:

1. Experiencial and educational hiking trail system that keeps the original “curvy” and “mysterious” experience.

2. “Play in historical space”- using the abandoned gravel machine structure to create a scheme that integrates history, educational programs, restorational demonstration, and recreational uses.

3. “Play and have classes in the upper basin”- using the wrapping-and-enclosure atmosphere in upper basin to create an outdoor classroom for geology classes and ecology classes. The roots of trees are exposed here. Students can learn about plants, sediments, the history of glacier, and at the same time they might be able to watch goats eating invasive species here.

4. Community participation- restoration works such as installing jute cloth or activities for spreading seed bombs are fun. Letting the residents from the communities nearby may be a good idea. Community participation can build recognition and local identity. When they see their restoration efforts bare fruit, they might feel satisfactory and thus help the community to maintain the condition of this site.

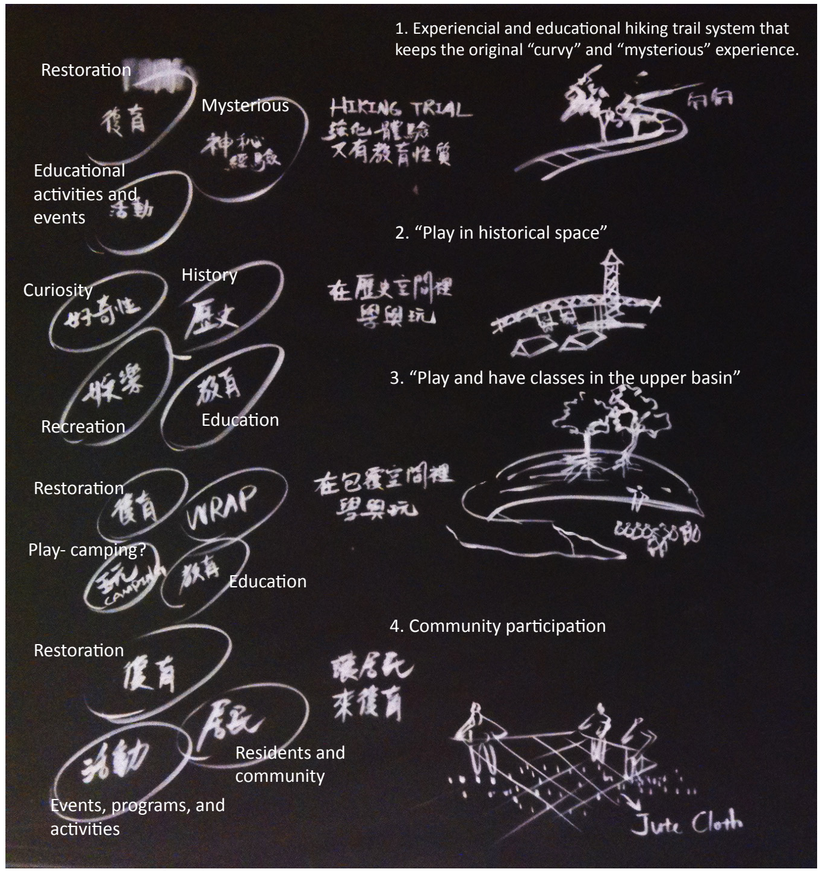


Figure 5.3 Four sets of combinations

Figure 5.4 Collage of experiencial and educational hiking trail system that keeps the original “curvy” and “mysterious” experience.

Figure 5.5 Collage of “Play in historical space”

Figure 5.6 Collage of “Play and have classes in the upper basin”

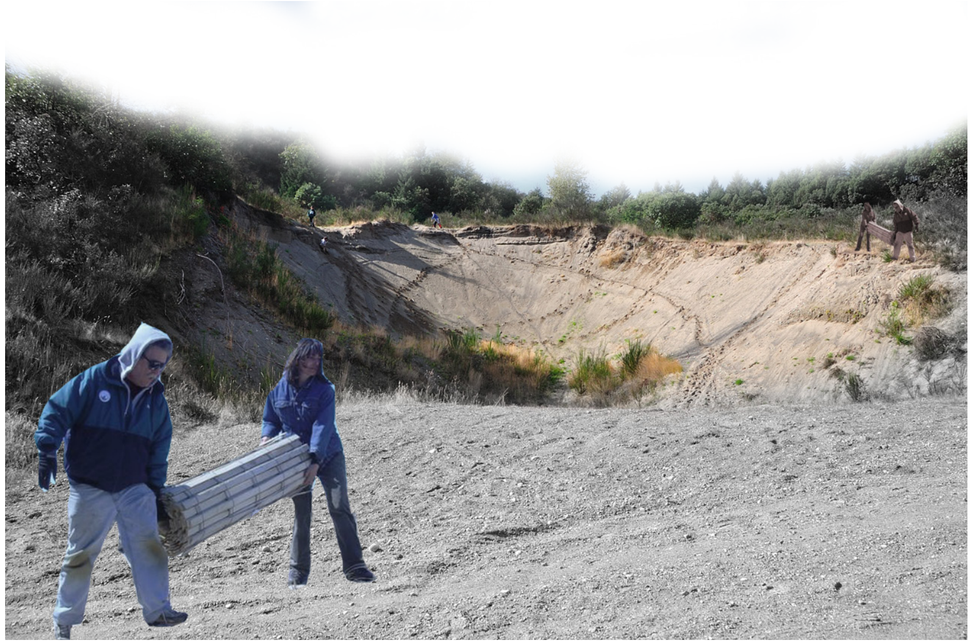


Figure 5.7 Collage of community participation event

Maury Island Gravel Mine Site is a site that will take a long time to be cured. These initial schemes are proposed to help this site in the following ways:

1. To get public's attention and concerns about the urgent need of re-designing/re-planning this site. "Public" here includes people in Maury Island and the nearby communities, and people outside of the island.

2. To gain the communities' trust and recognition, and thus to build local identity and reputation.

3. To demonstrate methods and ease of restoration to the public. Public might not recognize the importance of ecology and restoration. With the special potentials in this site (easy-accessible), inviting people (both in the island and outside of island) to the site to have recreational and educational activities may help the public to understand more about restoration.

4. To provide a native and local habitat for animals. To restore the site in a long term goal. To restore habitats in sustainable and organic methods

5. To provide spaces for recreational needs of residents and none-residents.

Phase 1: 3 Cores

Phase 2: Plug in

Phase 3: Restore and wait

Phase 4: A matured and coherent site

Connection/circulation

Utilities

Recreational and educational core

Restoration- early stage: remove invasives

Restoration- mature stage: plant natives

Figure 5.8 Phasing diagrams

5.2 Design, Programs and Phases

Phasing (see figure 5.8)
3 Cores

The design initials with 3 Cores. They are The Upper Basin Core, The Middle Leftover Core, and The Lower Leftover Core. Each core is multi-functional, and has multiple goals in the long term. There are educational, recreational, and ecological functions in all three cores. While the ecological goal takes a long time to see the result, the educational and recreational goals can be achive relatively quickly.

Plug in designs to satisfy immediate needs

There are some design works that can be done in short term period. They are:
1. Enhance public facilities: in the current graded parking area, a huge area has potential for the installation of public facilities such as toilets and shelters.
2. Enhance the educational trail: the mysterious and educational trail needs to be reinforced.
3. Provide safe place for camping, jogging, walking dogs, and biking.
4. Start building educational boards and signs in a systematic way.
5. Start programing activities and events such as summer camps, outdoor classes, or camping events: to invite people in, so they can learn.

Restore and wait

Starting from 3 Cores, with community participations, people can all together restore the site. I propose using these major methods:
1. Using goats to remove the invasive species as the first step. (Area by area, step by step.) Starting with the nearby area in each Core. Visitors to the site can also interact with the goats.- It's always fun to watch and observe animals.
2. Hosting seed bombing events. Invite communities to play and restore together by playing games that use seed bombs in the removed-invasive areas.
3. Installing jute cloths with the community.

A matured and coherent site

In final phase, visitors can expect a transformed site that has native plants, wild habitats, easy-to-walk paths, easy-to-use gathering sapces and campgrounds. Restoration that initialed in 3 Cores will be 90% done at this stage. 3 Cores will be reinforced and connected with well-designed facilities. At this stage, the site is mature, and can be seem as a whole, which creates a coherent theme for its identity. Communities can host events frequently in limited areas that will not disturb wildlife. And they can all together name a new theme for this site, thus build a good reputation for it.

Figure 5.9 Phasing collage of “Play in historical space” area

Figure 5.10 Phasing collage of experiencial and educational hiking trail

In phasing schemes on left: restorations are done area-by-area, step-by-step. During the restoration period in the Middle Leftover Core, visitors and residents can interact, watch, and observe the goats, which are removing the invasive species.

In the Educational Trail, people can also watch the goats doing their jobs. In final phase, native plants grow back and provide habitats for wildlife to live and hide.

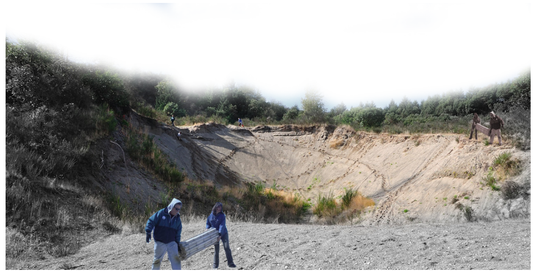


Figure 5.11 Phasing collage of “Community participation events and activities

Chapter 6. Conclusion + Reflection

6.1 Results and findings

LARC 501 Autumn 2011 design process comparison:

A. Products
A group product and an individual product
The design result produced by LARC 501 Autumn 2011 studio members was diverse and rich. Yet because the main purpose of the studio was to provide different ideas to King County Parks, the final product was open with no absolute decisions or firm design concepts. On the other hand, the final product of this thesis stresses on integrating different problems, possible solutions, design elements and methods together. It provided a relatively complete product but it might not be as diverse as LARC 501 studio. However, the exploration of design process that I got during designing was rich and significant.

B. Process
My findings and explorations of design process when designing the site in this thesis were rich and firm. I am listing the design process of LARC 501 studio here. There were 7 parts in the process. They were:
1. Three introductory exercises of the studio (drawing stories about ecological design and the environment, the phonebook exercise, and using any media to present the first site visit experience).
2. Site analysis
3. Precedent studies
4. Conceptual design (3 groups, 3 themes)
5. Re-group to modify or re-direct concepts (with the feebacks that we got from midterm presentation)
6. Split into 3 groups with 3 aspects (working landscape, recreational landscape, and educational landscape). Students were asked to create 3 levels of strength (high, mediem, and low).
7. Produce final product

The design process in LARC 501 was a comprehensive but complicated approach. (see Chapter 4.3) There were 10 members in the studio, so a large amount of discussions occurred in design process. The advantages of this studio are: 1. in site analysis and precedent studies, the studio can product large quantity of information. 2. During concept development section, students from different majors (forestery major, ecology major, L. A. major, and botany major) can provide their expertise, which made the design comprehensive.

However, because of the diverse mix, the design process was relatively slow. And because this project was a idea-generation type of design, students tend to leave ideas open. It was difficult for students to make decisions when they had too many opened ideas on the table. In the situation of lacking an organizer, students spent much time on debating and discussing. The design process was not efficient.

On the other hand, with the Association exercise, the design process in this thesis was efficient.

The modified design flow made design process efficient, and it functioned as a reminder.

The association exercise made the design flow in this thesis smooth. It also functioned as a pusher and a reminder. Com-

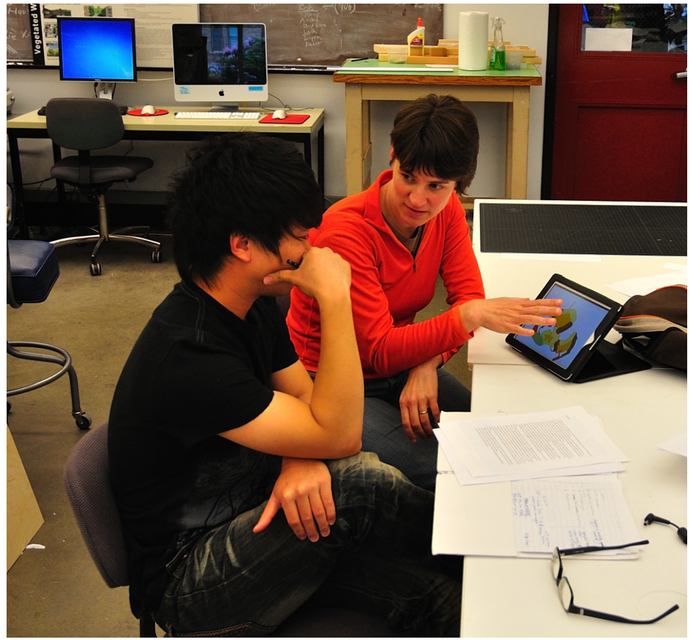


Figure 6.1 Interview process

pare to drawing bubbles and diagrams on trace, the association exercise provided a list of methods, issues, and forms which made designer to think clearly. When it functions as reminder, it makes designers not to forget aspects that are essential, thus saves much time for re-modifying the concepts in later part of the project.

Comparison of typical design flow

Comparing to traditional landscape design flow, the modified design flow can remind designers to think creatively. The Association exercise lists all the elements and issues that designers might face. Therefore when designers enter the concept development stage, they will not be too solution-oriented or technique-oriented.

Interviews of LARC 501 members

I interviewd Jordan Bell, Tianwen Zhou, and Andrea Slusser about the comparison of these two projects. In order to start with the similar perceptions, I picked these people who were members of LARC 501 class.

Overall, interviewees think that the association exercise might make the project more efficient, but it might also limit creativity. Interviewees commonly think that a traditional design method, which designers brainstorm on trace and add in aspects step-by-step, can result in slower or inefficient process, but the fact that it does not box up designers' thoughts is an advantage. Two interviewees even think the fact that designers often struggle in concept generation stage on trace might be good because it forces and pushes different issues to be weaved in their brains. Perhaps I did not explain Association exercise well. I consider Association exercise a clear way for designers to weave their concepts.

Interviewees also agree the fact that association exercise functions as a reminder is positive for designers.

In terms of innovation of the products, interwiewees commonly think that it is hard and difficult to compare these two products. A 10-people project and a 1-person project certainly have different fundations. The amount of Knowledge (Lai, 2006) was already different in the beginning. Thus the diversity of two products are not comparable. Two interviewees pointed out that the site has complex ecological issues. Therefore two design approaches are both solution-oriented. Identifying the methods and possible design elements then phasing the design are two major concepts of both projects. However, they think their efficiency and their design processes have a big difference.

Interviewees commonly like the 3 Cores concept that I proposed. They think the 3 Cores that initial community participation is relatively stronger than some aspects in LARC 501's final product.

Conclusion

The result was not necessarily more creative, but the process was relatively more efficient.

The product of LARC 501 was perhaps more diverse, but the process certainly took longer time that the members weren't

Figure 6.2 Discussion of design concepts in UWLA LARC 501 Autumn 2011 studio

originally expected. The product of this thesis focused more on phasing. It is perhaps not as diverse as LARC 501, but the Association exercise made the process clear and efficient.

6.2 Feedbacks and difficulties

How to judge "which is more creative"?

The research part and the design part of this thesis both got a substantial amount of feedbacks from the midterm review and the final review in Spring quarter, 2012. In general, there are questions and critics about "judging creativity" and "how to get the results and answers".

Reviewers commonly think that creativity is hard to be evelu-ated. One might call a design creative, others might think it's not creative. Reviewers constantly questioned my thesis "What am I trying to answer?"

In fact it is usual that they asked those questions because the original question that I wanted to ask before I started this thesis was: "Can we make landscape architects more creative?" or "Can we teach landscape architecture students creativity?" As I dug deeper and the time passed by, the question was shifted to "How can we improve or modify the landscape design flow to make our designs more creative?" Then because it is hard to judge "which is more creative", the question was shifted to "Can we make landscape design flow more fluent so it can make a diverse range of concepts?" In the end of the thesis writing, I think the question is now changed to: "How do we teach designers to produce their design concepts creatively and efficiently?" As readers can see, all these changes actually try to answer a similar question, but I have to avoid using "creative" and "innovative" these two terms in the question. I was not surprised that reviewers kept asking about my research methods.

Creativity cannot be judged or evaluated easily because it is very subjective. However, In the reflection here I still would like to point out that I think people do have a common evaluation standards in their minds. Yet this standard is hard to be described. Judging whether a subject is creative or not becomes a matter of statistic percetage. If I ask a hundred people the same question, I will likely get an amount of disagreements.--we cannot call a subject creative with 60% of the agreement, nor 80%, but we can state "there are large amount of people consider this work creative".

Methods of site analysis

In my thesis midterm review and final review, reviews in both presentation suggest that this thesis should dig more into methods of site analysis. Some pointed out that American landscape architect Lawrence Halprin dug into similar things, and he furthermore dug into scoring methods and created The *RSVP Circles* with his wife, Anna Halprin. Certainly, the information that landscape architects collect in site analysis mainly shape their projects, but the transformation between datas and concepts plays an important role as well. This thesis emphasizes more on the transformation aspect, just like its title: Creativity, landscape design process, and Maury Island Gravel Mine.

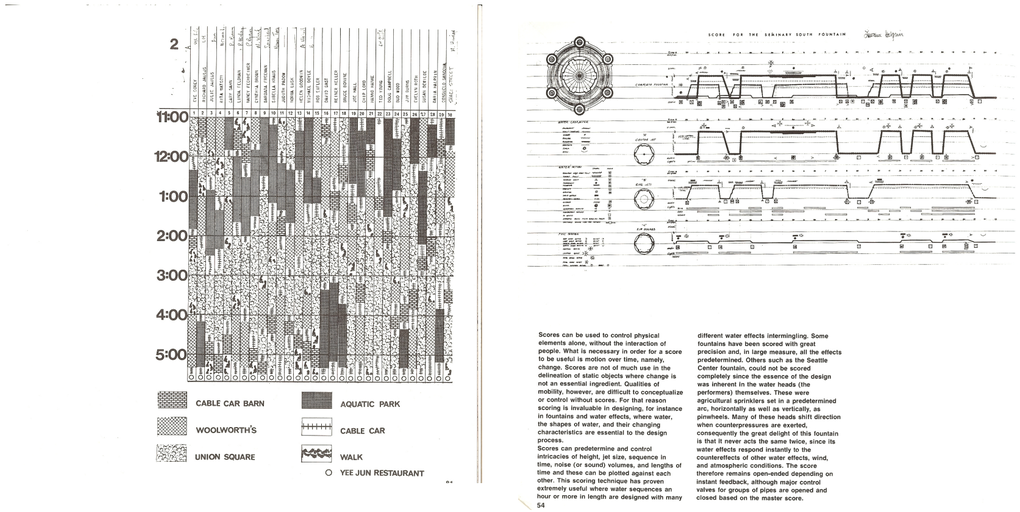


Figure 6.3 Lawrence Halprin's scoring notes. (Halprin, 1970)

6.3 Next steps

Test it, a couple times more

It will be interesting if a landscape studio in school or a designer in profession can try to apply the modified design flow when they enter the conceptual development stage in their projects. It might not shape their projects to be more creative or innovative, but I expect it helps them to smooth their conceptual development stage, or makes their design process more efficient.

Need a different site analysis

When Lawrence Halprin dug into creativity, he and his wife dug into scoring methods and analysis methods. Perhaps a more creative or innovative design project fundamentally needs an unique site analysis, because inspirations are usually generated during transformations of site data and design concepts. Having a unique way to gather site data might significantly expand the personal source (archive). This is what my exploration is lacking of.

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