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DESIGN FOR *INVISIBILITY*

DESIGNING A PLACING SYSTEM
THROUGH THE STUDY OF USER-OBJECT RELATIONSHIPS
IN EVERYDAY LIFE

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Abstract

The world we live in is a place where people are influenced by designed objects, often without noticing their presence or the fact that they have been designed at all. Although these objects are taken for granted their impact on our everyday life is immeasurable. By examining designed objects with regard to their relationship to users, this thesis attempts to rediscover the meaning of design in everyday life by encouraging a fluid user-object relationship, rather than a passive consumer-product relationship.

It is important to understand the everyday phenomena by which designed objects become *invisible* when they fit one's environment well. So many products that would claim to help us organize our stuff are actually incompatible with our behaviors. This thesis project seeks to introduce a new placing system that better responds to people's actual placing habits. In order to design this highly user-adaptable system, I will (a) exploit the space around and between objects, (b) rediscover and transform existing planes of the space, and (c) apply a minimalist philosophy to show the essence of an object and avoid secondary or ornamental elements.

This placing system resembles that of tinker toys in its modular frame assembly. This modularity encourages active user participation beyond what is required in existing products. The other important attribute it introduces is the affordance of *placing* as an organizing strategy. In the end, what will become more visible are the users' habits and personal surroundings, rather than the presence of a designed product. Such is the goal of objects designed for *invisibility*.

Key Words

Design, invisibility, everyday life, user-object relationship, designed object, man-made environment, designing, Aesthetics of Emptiness, minimalism, Taoism, negative space, placing, user, habits, environment

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1 INTRODUCTION

Think of where you are, who you are with and what you use everyday.

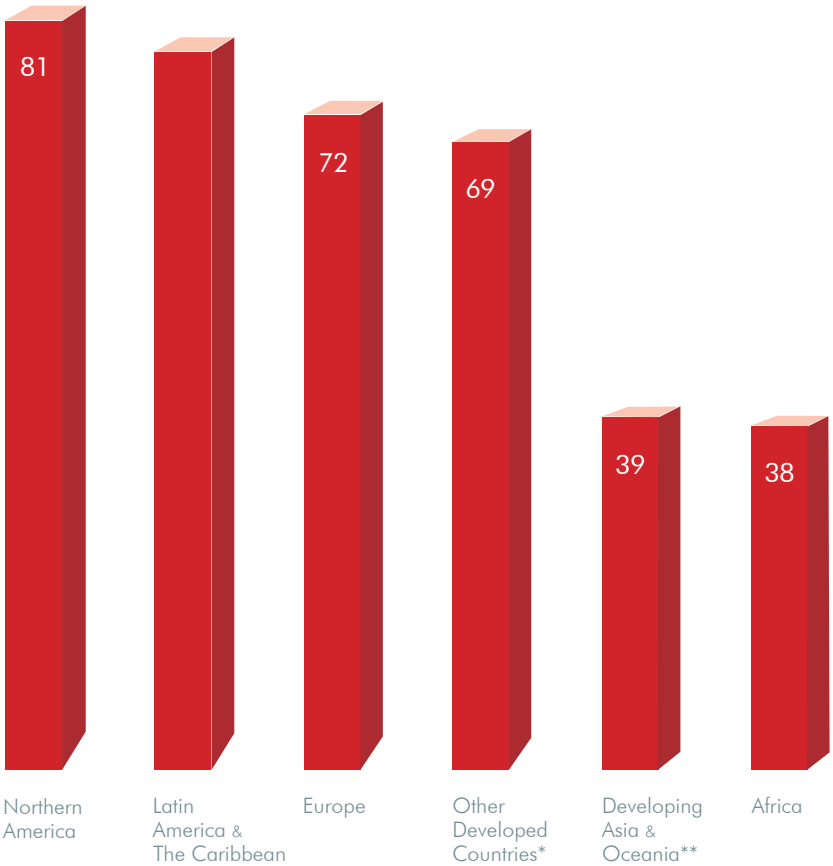
Situation

Have you ever questioned our human nature to use objects as representations? Take a minute to look around your room. Think of where you sit, what you use to eat, and where you sleep every day. You live with and are surrounded by man-made objects and environments. Even the garden in your backyard and the park near your home, we think of as natural environments; in fact they are designed by a landscape designer to provide men with simulated nature experiences. The produced goods we consume are processed and controlled by a few corporations. This artificial environment that humans have created in order to live better than animals, is our everyday life.

Most of us are too familiar with this built environment, and thus rarely question its artificiality. Despite our lack of awareness, our ways of living have been deeply affected and are gradually changed by design. The world we live in is a place where people are influenced by designed objects, often without noticing their presence or the fact that they have been designed.

According to the United Nation Human Development Report, 80% of the North American population (80.1% in the United States and 80.8% in Canada) resides in urban areas. Most urban dwellers live in a house or an apartment. Plates, silverware, furniture, and kitchen appliances, which we call everyday objects, are common today but were once very new and

2005
Urban Population
as percentage of
the total populations
United Nations



* Australia
New Zealand
Japan

** Excluding Australia
New Zealand
Japan

extraordinary design items. In the market we can find in different styles, and we often refer to these styles as "design."

Designing, in general, is perceived as a skill that makes products and services more visually striking or appears more valuable than that of competitors. This is a capitalistic view on design in this age, where making more money is valued the most. However, as we reside in a world surrounded by designed objects, design deserves to be more than a mere marketing tool.

In the film *Cast Away*[1], Chuck Noland, a FedEx employee accidentally floats to a deserted island after a plane crash. After several years, he finally escapes to make his way back home. At his welcoming party, he feels out of

[1] Cast Away, DVD Directed by Robert Zemeckis 20th Century Fox, 2000.

How do you make fire without using a lighter?

place. He not only feels odd to be surrounded by his old colleagues but also by buildings, furniture, plates, and home appliances. This designed or artificial environment, which became *invisible* to us, is strangely visible to his eyes as he was away from all these things for many years. Of course, he will soon get used to living around them like most of us do. Nevertheless, the impact of design never diminishes although designed objects seem to disappear into the background of our everyday life.

In 2007, an exhibition called *Super Normal: Sensation of the Ordinary* was held in Milan, Italy. Displayed objects included several works from internationally renowned designers to anonymous others. For instance, a paper clip is an ordinary artifact. However, in this show, there is a paper clip that has a tiny ball at the end of each tip to hold the paper tighter than the one without it; it is presented as the *Super Normal* object. Naoto Fukasawa and Jasper Morrison, who managed to bring this exhibition together, defined this idea as "noticing[2]." Users are reconnected to their everyday objects by noticing the *Super Normality* of them, and this reconnection promotes the user-object relationship as a more interactive one. Heiner Boehnke and Klaus Bergmann take a different direction from Fukasawa and Morrison on the same object. They say:

[2] Naoto Fukasawa, Jasper Morrison, *Super Normal: Sensation of the Ordinary* (Lars Müller Publishers,2008)

Super Normal Exhibition at Milan Italy, 2007.

> A paper clip can be used in all sorts of unintended ways: as a makeshift key ring, as a make-up utensil, for cleaning fingernails or, bent into the right shape, as a small universal tool."[3]

If Fukasawa and Morrison are talking about designer's interactions with the ordinary object, Boehnke and Bergmann are talking about that of the user and the object. Either way both viewpoints explain how mundane objects can actively communicate with users, thus becoming the *Super Normal* design.

[3] Borhnke and Bergmann, Die Galerie der kleinen Dinge. Ein abc mit 77 kurzen Kulturgeschichten alltaglicher Gegenstande cam Aschenbecher bis zum Zundhölz (Zürich 1987), 34-35 quoted in Board of International Research in Design: Uta Brandes, Sonja Stich, Miriam Wender *Design by Use; The Everyday Metamorphosis of Things* (Birkhäuser, 2009), 59

Problem Statement

Whenever I read design magazines or watch TV commercials, I get confused with and wonder about these designed products. Indeed, they look impeccable in magazines portrayed within a white studio background or with pretty people in perfectly created settings. I realize that there is a huge gap between the "everyday" we actually experience and "those beautified worlds" the media presents.

However, this conflict is predictable, because the media and actual users have different purposes for the same objects. The media advertises for companies who wish to sell more. Therefore they present things to look prettier and more unique than they really are to attract more consumers. Meanwhile prudent users might look for products that they can live with longer and more comfortably.

As consumers, we often regret purchasing things impulsively after some time, and realize how useless they are when they do not blend in within our living space or do not function well. In the end, it is not the surface elements of design such as colors, forms or materials that matters, but the harmony that the designed object creates within a user's living

Objective

Therefore, first and foremost, this thesis will try to rediscover the meaning of design. Second, the thesis will be an attempt to correct widespread misunderstandings and underestimations about design. Third, this thesis will focus on the side of users and their daily experiences, rather than on designed objects outside of an everyday context. Fourth, this thesis will bring attention to everyday artifacts that people have not appreciated or noticed before. Finally, the notion of *invisibility* will be explored in a project called "To Place Things Better," which will include daily observations, research, concept ideations nd user testing. Here are the three main objectives of this thesis:

1 To rediscover the meaning of design in our everyday life

2 To encourage a fluid user-object relationship, rather than a passive consumer-product relationship

3 To design a highly user-adaptable system that applies existing elements of the user's living sphere

Audience

The audience is comprised of those who live in modern domestic settings and hence understand the basic context of this thesis; namely, their everyday is built on and surrounded by designed objects.

Parks simulate the nature designed by humans. Photo taken in June, 2009 at the Palace of the Arts, San Francisco, CA

II DESIGN FOR *INVISIBILITY*

Introduction

When we use objects every day, we tend to notice them less. First of all, it is due to our frequent exposures to them that we cognitively recognize them less. In this case, psychological barriers between the self and one's surrounding slowly vanish. This section of the paper will redefine the term *invisibility* to explain this phenomenon and apply it to my project.

Invisibility of design is fulfilled when an object fits our living environment and habits well that it gradually disappears into the background of our everyday life, and that is the efinition of *invisible*. Here are three ideas that I would like to discuss in more detail:

1 The meaning of design and designing objects

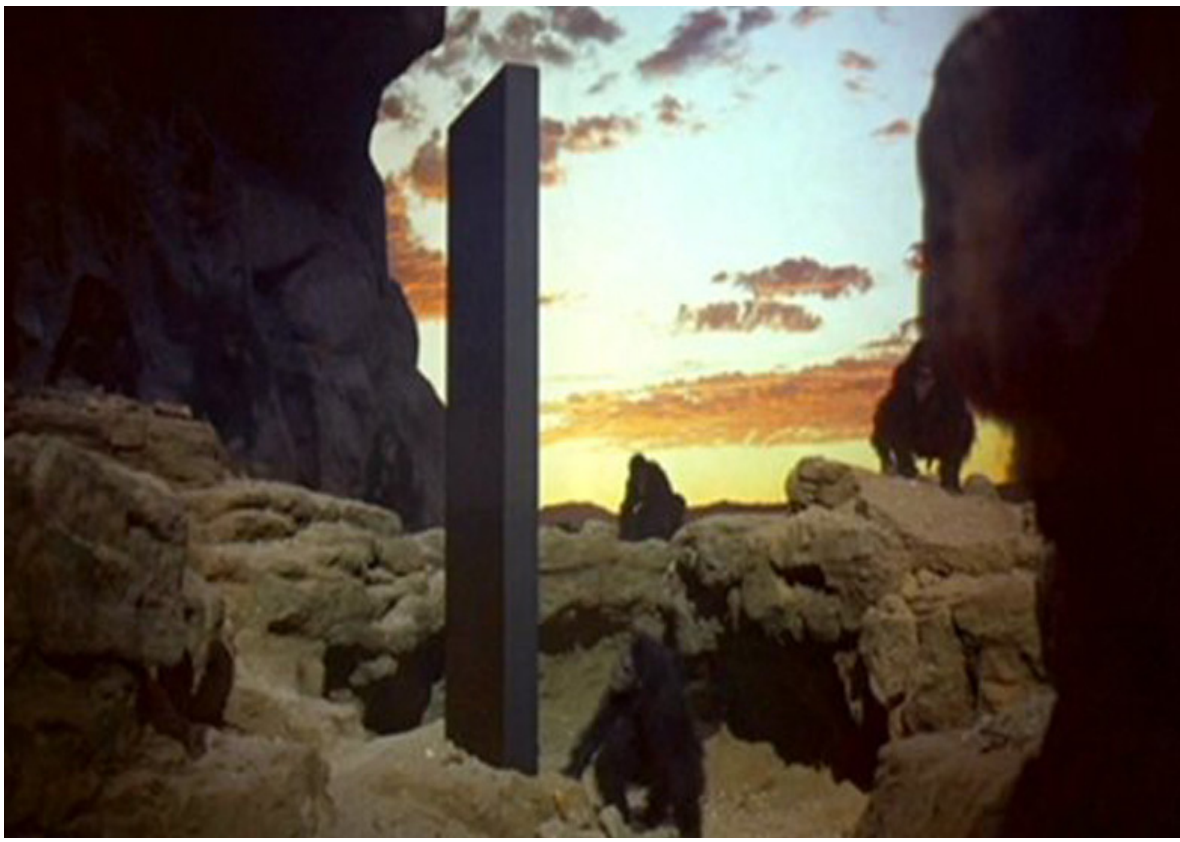
2 The fact that our everyday life is a designed world

3 The Design for *Invisibility*

When an object fits our living environment and habits well, it gradually becomes *invisible*.

Bathroom sink used as a shelf for bathroom products

"The Dawn of Man" in *2001: Space Odyssey*



Design and designing objects

The Dawn of Man

The history of design as a profession is rather short. However, if we consider man's tendency to find and make tools for the purpose of designing, we as humans have been designing since the beginning of our history. The film 2001: A Space Odyssey4 portrays this awakening moment of human consciousness in scenes of "The Dawn of Man."[4]

[4] *2001: A Space Odyssey* DVD, Directed by Stanley Kubrick,1968 Warner Home Videos 2007.

In this part of the film, it is before sunrise that a tribe of apes is shown as a group of vulnerable animals without having any distinctive power or intelligence to protect them. The only place they can hide from thunder and lightning is under the rocky cave. One morning, they find a black monolith in the midst of their habitat. They gather around and come closer towards this strange object with fear and excitement. There are transitions before and after the apes are exposed to the black monolith. Prior to the exposure, physical conditions of the apes change from *asleep* to *awake*, and the time of day shifts from *dawn* to *sunrise*. These pre-monolith transitions reinforce the post-monolith transformation of the apes from *animals* into *conscious beings*.

In the following scene a leader of the tribe picks up a bone, and kills a leader of the opposing tribe who has not yet found the use for weapons. He has recognized himself as a powerful being that can change his surrounding by using an object. This part of the movie symbolizes the first step of a human becoming a conscious being evolved from a mere animal; the dawn of man has begun. The French sociologist, Henri Lefebvre has said in his book *Dialectical Materialism*:

> For man is not only a being of Nature, he is also human.
> He forms himself and grasps himself as a power by creating objects or 'products'. He progresses by resolving in action the problems posed by his action.[5]

[5] Henri Lefebvre, "*The Total Man*" in *Dialectical Materialism* (Jonathan Cape Ltd., 1968),118

"The Dawn of Man" in *2001: Space Odyssey*

According to Lefebvre, man becomes human as he creates and progresses with its creations. Acts of making objects and resolving problems of his prior experiences differentiate human beings from other animals, and are also the very act of design. In this way, the first moment of human awareness towards his surrounding is the beginning of our history and also that of design.

Designing

What is designing? It is an act that can be interpreted into many daily activities: thinking, solving problems, making and changing things to improve one's current state. Kenya Hara, the Japanese graphic designer, puts it this way:

> Design refers to the will to interpret the meaning of human life and existence through the process of making things…The essence of design lies in the process of discovering a problem shared by many people and trying to solve it.[6]

[6] Kenya Hara *Designing Design* (Lars Müller Publishers 2007), 24

In the sense that we all participate in the processes of designing, everybody is a *designer*. The act of design does not only apply to professional designers but to all of us. In his book *Designing Design*, Hara contrasts design with art in order to clarify a common confusion. He asserts that design is different from art in that "the essence of design lies in the process of discovering a problem shared by many people," while art is a means to self-expression of the individual.

Actual users often repurpose designed objects or environments for their own needs. As an example, if an architect designs a house, a dweller of the house fills the house with furniture and other designed objects, and lays them out within the space in a way that reflects her lifestyle. To fulfill the owner's needs, these designed objects are often used differently from their original purposes. For instance, a chair is used as a clothes rack or a

By flipping the hammer upside down, the greater surface area of the top of the hammer's claw can be used to break and grind the coffee beans.

bookshelf, and refrigerator doors are used like a corkboard for tacking up a schedule or recipes. In *Design by Use; The Everyday Metamorphosis of Things*[7], Uta Brandes offers a study of this use-related behavior. She and her co-authors named it Non Intentional Design (NID). Users take the main role in this "non intentional designing" process. According to the book, the major difference between design activities of professional designers and NID is that "designers follow a process that leads from the concept to product, and users participate in the opposite dynamic: they look for a particular concept and on the way they will find products that best match this concept."[8]

When a coffee grinder is broken, a user, under the throws of caffeine addiction, will find another object to grind the coffee beans. Let's say she has a hammer and sees its concept as "to crush things into small pieces." Although the hammer is originally designed to drive nails, in this case, it can be repurposed to crush coffee beans. By flipping the hammer upside down, the greater surface area of the top of the hammer's claw can be used to break and grind the coffee beans.

There are many other NID examples that we as a user subconsciously do every day. Simultaneously there are a lot products, which we cannot use outside of their given functions. If designers accept the everyday problem-solving behaviors of NID to improve existing products, the user and the object will interact more actively, and this relationship will help people to create the better every day.

[7] BIRD: Uta Brandes, Sonja Stich, Miriam Wender *Design by Use; The Everyday Metamorphosis of Things* (Birkhäuser, 2009)

[8] Ibid.,184

Our Everyday; a designed world

Many question what it is, but nobody gets the same answer. It is a subjective yet abstract term. Jamer hunt has described it, “One person’s everyday is irrelevant, and everybody’s everyday is unimaginable.”[9] Accordingly, everyday continuously transform its meaning and purposes within one’s life. I believe it is the job of designers to help people to shape their everyday life by designing objects that users themselves can create something new out of. In this section, I will discuss how designing and designed objects shape our everyday life.

[9] Jamer Hunt, "*Just re-do it: tactical formlessness and everyday consumption*" in *Strangely Familiar: Design and Everyday life*, (Walker Art Center 2003), 58

An outdoor kitchen at a small town of Zambia, Africa

Our everyday is the *site* and the continuous *moment* of our activity; it is the time-space in which human activities occur. Space is a substantial concept while time is not, but neither of them can be separated from one another to fulfill the condition of the everyday life. Jamer Hunt said everyday does not exist. *It is the space of becoming, not being.*[10] In other words, it flows and moves on. We build up daily habits that again gradually change people over time creating a new everydayness. These new actions require further objects to support them. We as human beings repeatedly attempt to evolve in the course of using our designed objects and environments.

[10] Ibid., 61

A typical indoor kitchen that we cook, wash dishes and do other things in our spare time.

Barbara Kirshenblatt-Gimblett states:

> Activities produce distinctive spatial forms, some of which acquire independent architectural manifestations.[11]

I agree with her statement that an activity decides a character of a space and objects used within. As cavemen, humans did not have a kitchen but were still able to cook and eat. Modern men, however, desire a proper place equipped with various objects in order to respond to the more sophisticated needs of cooking and the "new" activities born from it: Cups, plates, silverware, a dinner table to place these things on, chairs to sit on, and table manners to boot all maintain the "civilized" activity of dining.

[11] Barbara Kirshenblatt-Gimblett, *Performing the City: Reflections on the Urban Vernacular trans.*,62 quoted in Christopher Alexander, Sara Ishikawa, Murray Silverstein. *A Pattern Language:Town, Buildings, Construction,* 39, (Oxford University Press; Later printing edition, 1977), 390

A small town in Zambia is one place where less modern infrastructures exist. For people who live there, washing dishes on a tin vessel and drying them outdoors on a wooden rack is not an unusual thing. On the other hand, for those who are used to having an indoor kitchen sink and aluminum or a plastic dish rack, the outdoor "kitchen" and the wooden rack of a Zambian seem odd and exotic. This is so despite the fact that their objects and space involve the same concept of "washing and drying dishes in a specific space," and are both man-made products.

There are two points to make out of these compared examples; first, we humans live by designed environments no matter where and how we live. Second, invisible design in 'the context A' may become visible in 'the context B' because of different social backgrounds. If I restate what Kirshenblatt-Gimblett said above, characteristics of a place produce distinctive forms of everyday life, some of which acquire independent cultural manifestation. Therefore, in my thesis, I will design a system that exploits the difference in users' habits and surroundings as the most important elements. It will also be important to build user scenarios, and conduct user testing to understand user interactions with the system.

Children using a XO computer in South America, designed by Pentagram

Designing with responsibility

As always, people still follow their own traditions and customs. However, nowadays their daily lives are changing faster than before due to the radical development of technology. For instance, there is a project called One Laptop Per Child (OLPC). Its mission is "to empower the children of developing countries to learn by providing one connected laptop to every school-age child."[12] This design project is driven by good will to enhance educational conditions of children in developing nations. However, its impact on their lives is uncertain in the long run. The only sure outcome is that this specially designed laptop computer will shape their daily lives differently from that of their parents. This example shows the importance

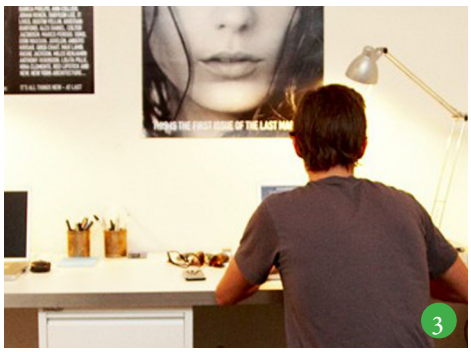
[12] Nicholas Negroponte. *"Mission," One Laptop Per Child (OLPC)* http://laptop.org/en/vision/mission/index.shtml (accessed January, 2009).

of a designers' practicing attitude, in that they need to understand how significantly a single product or a service influence people's thoughts and lives.

Advanced technology is becoming an important element for many products, especially electronic appliances and cool gadgets that sell well in the market. These days people admire the iPhone, which for them appears to be a magic tool. It not only makes phone calls and sends text messages, but it also identifies songs from a radio or connects you to the Internet anywhere you go. These "additional" features are realized by the combination of hi-technology, interactive design and product design. Designers need to acknowledge this synergetic value of balancing between technology and design, without their idea being overtaken by the technology.


1


2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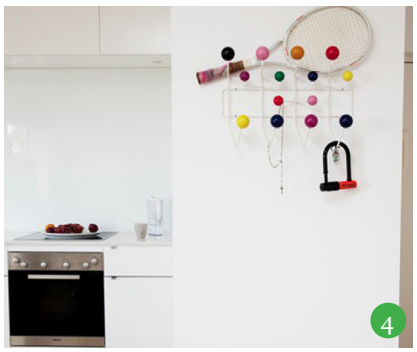
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Designers should educate themselves about new technologies and what they bring including negative side effects. For instance, plastic was assumed to be a dream material but later found to be harmful to our body and the earth; we use bottles made of plastic every day and some release BPA (Biphenyl A: environmental estrogen) when exposed to hot water. Like plastic, there are many products or technologies that cause or may cause physical and psychological problems to us, gradually changing our living habits and perception of the world. Designers are creators of the products that are widely used and distributed, and thus they should be careful of what materials or technologies they are using. Once products are put out into the world, the impact will go beyond the control of the designers.

Examples of *Invisible* design

Drink

Drink water out of a glass/mug/cup

1

Grab for change

Use a tool to fix and improve present conditions

2

Stay up late

Extend hours to work and stay up with a help of safely designed electric system

3

House and organize

Use architectural elements (walls/ floor/ windows) to organize things

4

Let's look at some of our everyday activities that are possible because of the designed objects. First, we can drink water without wetting our hands or dripping water through our fingers because of the existence of cups. Second, we can stay up longer in the bright environment at night because of the invention of electricity and the creation of safe and user-friendly lighting design. Third, we can stay warm disregard to the outside weather condition because we have a place with walls, floors and windows, which creates a cozy space apart from the outside. If these designed objects did not surround our life, we would not know that our everyday life without them was inconvenient. The cup, the electric light, and the house are only a few *invisible* design examples out of many which enable most of our everyday activities, and hence are so intimate to our lives.

A precise stapler
by Joonhyun Kim

Design for *Invisibility*

As a designer, designing unique forms or eye-popping functions of an object is as tempting as it is to the customer buying a product with cool features, pretty colors, and interesting shapes. However, if the product only offers momentary pleasure but lacks usefulness in our life, it will be easily abandoned soon after that instant sweetness has gone. When the functions and ability of the product better meet the user's habits and surroundings, the usefulness of the product will likely to increase.

The ultimate goal of my thesis is to design a system that will be completed by end users. The crux of "Design for *Invisibility*" is its embrace of people's everyday life. In order to explain this idea of invisibility, I will discuss three shared but distinctive notions applied to designed objects. These are normal, familiar and *invisible* design.

Normal Design

Normal[13] *adjective*
usual, regular, or typical, conforming with, adhering to, or constituting a norm, standard, pattern, level

[13] Dictionary.com. s.v. "Familiar," http://dictionary.reference.com

Normal objects are often overlooked. Think about paper clips, chairs, forks, and even personal computers. They were once unusual and amusing designs when first introduced, but gradually became normal. As mentioned earlier, a designed object is called the *Super Normal* for two reasons: (a) Originality of the *Super Normal* object surpasses ordinary objects, or (b) the object expresses the very normality of the object. Kenya Hara claims:

> Design is not the act of amazing an audience with the novelty of forms or materials; it is the originality that repeatedly extracts astounding ideas from the crevices of the very commonness of everyday life.[14]

[14] Kenya Hara, *Designing Design,* (Lars Müller Publishers 2007), 24

"Ideas from the crevices of the very commonness" may sound unexciting but we need to understand that we get closer and closer to the original idea when it is not interfered with by the "novelty of forms or materials." In this way of designing that extracts common beauties, the excitement and creativity lays rather in its simplicity and banality. Henri Lefebvre asks us the same question:

> Why wouldn't the concept of everydayness reveal the extraordinary in the ordinary?[15]

[15] Andrew Blauvelt, *Strangely familiar: Design and Everyday life,* (Walker Art Center 2003), 34

Here, Lefebvre's "extraordinary in the ordinary" can be read as the *Super Normal* of Fukasawa and Morrison. Think of a normal stapler. Then imagine that it has a perpendicularly cut edge where you staple the document at the corner. This makes the job of stapling the same spot of the paper faster and more precise. This simple feature adds a smart detail to the stapler, and that makes the ordinary into the extraordinary, and the normal as the *Super normal*.

Familiar Object

[16] Dictionary.com. s.v. "Normal," http://dictionary.reference.com

Familiar [16] *adjective*

1 often encountered or seen

2 having fair knowledge; acquainted, *synonym* common

A living room designed with Neo-Baroque style furniture.

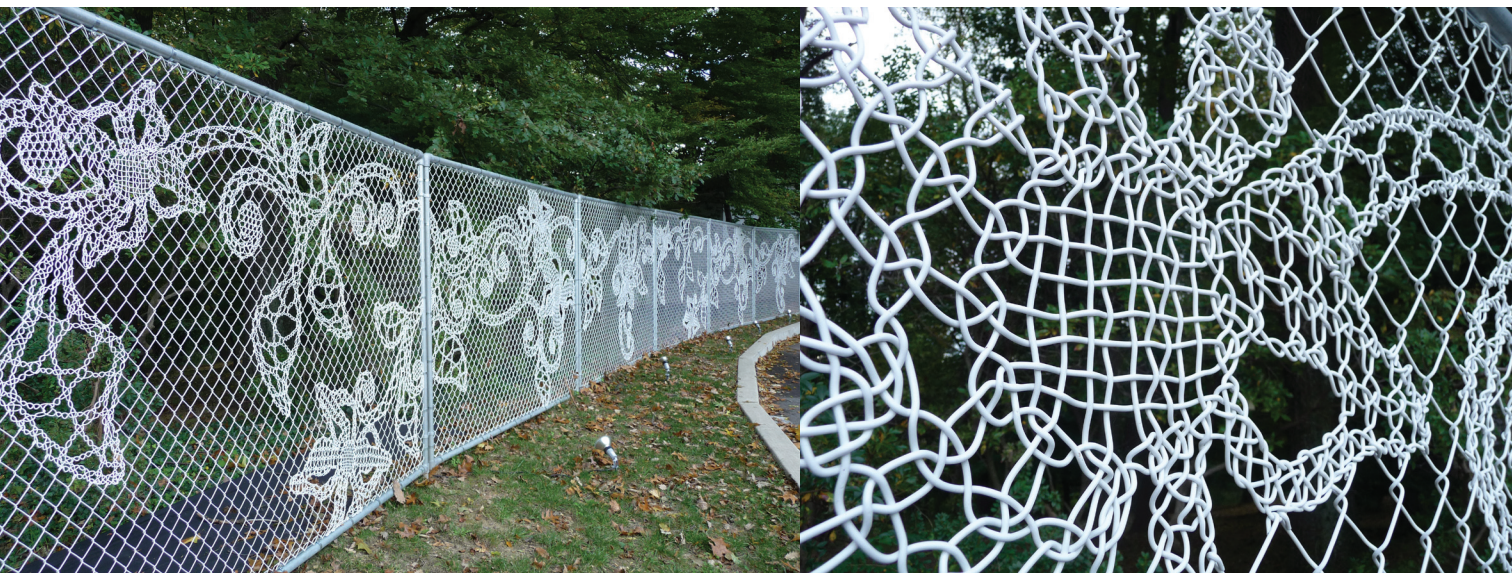
A lot of people are familiar with Baroque-style furniture. It provides a proper function as a sitting device but not every aspect of it is practical. People value this style of furniture other than that of perfectly useful normal furniture. The users find a history or tradition of western culture from a certain period of time to be precious. It also may speak to their personal memories if their parents or grandparents owned this style of furniture. These objects attract people because of the particular cultural or personal value, even if they are not the most comfortable furniture design available.

Frequent exposure to the object increases both the familiarity and normality of objects, and because of this these two concepts are often confused with one another. Nonetheless, the familiarity of the object essentially comes from seeing personal value in it, while the normality of the object is built upon its representational proximity to the object's archetype.

Will this iconic chair be invisible?

The French designer, Philippe Stark, revisited the Baroque-style in his *Louis Ghost* armchair design, manufactured by Kartell in 2002. It looks ghostly invisible as if he tried to capture the long gone spirit of Louis xv. The advancing technology and the material, a single injection-molded durable polycarbonate, employed to create this chair has made it an iconic piece in addition to the designer's brand premium. In a way, the Louis Ghost is a *familiar* object that reminds people of its historical context yet remains *unfamiliar* because of the new cultural value it has created.

The Lace Fence project designed by the Dutch design studio *Demakersvan* plays with industrial fences and the lace patterns from the Dutch culture. By translating the delicate lace patterns into the industrial chain link fence, which are both familiar but represent different cultural contexts, *Demakersvan* tries to wake our dull senses to the everyday environment by rendering the banal anew.



Lace Fence by Dutch design studio Demakersvan is inspired by patterns of lace fabric.

Invisible Design

There are at least three reasons for an object being *invisible*:

1 The nature of an object: its size is too small to be seen or it is colorless.

2 Changes of a physical state: things are visible when they are put out on a counter top but invisible when they are put under a cabinet.

3 Changes of a mental state: People unconsciously ignore their environment when they are used to it, or they know nothing or little about it.

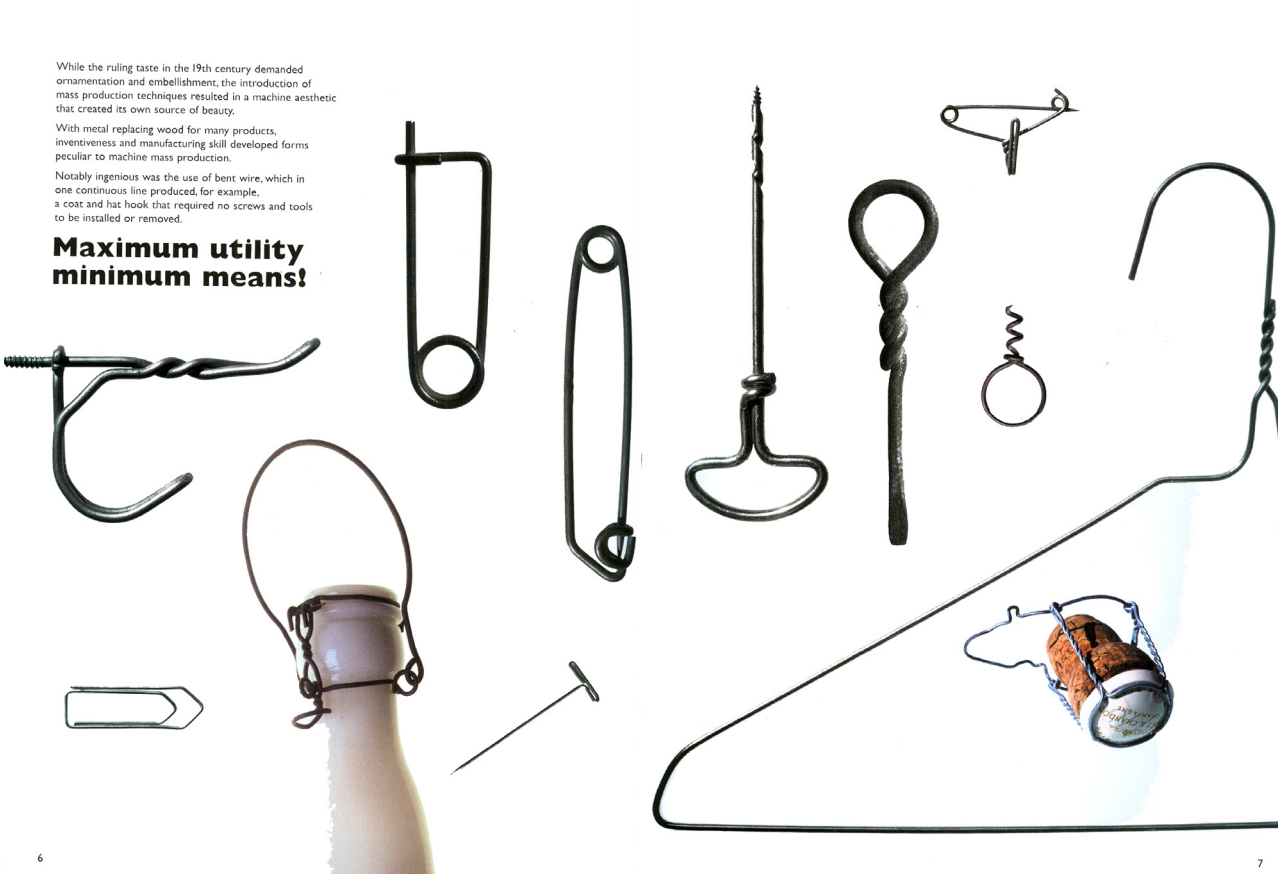
However, none of them explains best what *invisibility* means for the main claim of my thesis. As stated before, this claim is, when an object fits to one's living environment and habits, it gradually becomes *invisible* and disappears into the background of the everyday life. The graphic designer George Tscherny designed a book called *Where would the button be without the button holes?* (Cary press, 2009) that rediscovers the beauty of the unsung heroes, which he found unappreciated and underestimated for its value in our everyday life. Each page of the book shows examples of hardware designs such as pins, hooks, nails, and clothes hangers.

These hard ware objects are good examples of the *invisible* design. They are lightweight, inexpensively designed, and can be applied to various settings. For example, a wire hanger can be hung on a bar, nail or a hook. Its shape can be easily adjusted by hand to satisfy different purposes since it is made of wire. You can hang pants, sleeveless dresses, shoes and many other things on it. Spatial elements such as walls and windows are also the *invisible* design. They already exist in the space, and thus there is no need to add new things to your environment.

Why *Invisibility*

Design for Invisibility aims to design the "very commonness of everyday life." I want to put an emphasis on the disappearance of everyday objects by using this word, *invisible*, which indicates gradual fade out. This is because of my design philosophy, namely that design should make itself transparent in not drawing unnecessary attention to itself. In this respect, design becomes *invisible* as it accords with the self and the environment, and that is the goal of my thesis.

Where would the button be without the button hole?
by George Tscherny
(Cary Press, 2009)



III TO PLACE THINGS BETTER

Dialogues on Everyday Tasks

There are many ways to demonstrate the idea of invisibility in design; my research focuses on activities and the impact of design on people and their everyday rather than high lighting on the individual objects. I previously talked about actions, behaviors, and habits of our daily life. To specify the topic, I chose three random activities among them all. I figured it would be more reasonable to move the project along with limited choices for such a general theme of design and everyday life. In the end, I was able to synthesize them into a single theme of the project, "To Place Things Better."

Elisa Nalin, a stylist in her apartment in Paris, France using her attic as a closet.

TOP
Stylus from 1st to 10th century.

BOTTOM
Color pencils

Dialogue 1: A User-Object Relationship

Among many, my first choice is the act of writing. This action reminds me of the pencil, which has evolved throughout history. Its closeness to our fingers and interaction with our hand movements are also something to think about in regards to relationships between a user and an object. Although the main purpose of writing devices is to write, it is interesting to find out about all kinds of different habits built around this object. You hold it, grab it, chew it, roll it, spin it and write words down with it.

You hold it, grab it, chew it, roll it, spin it and write words down with it.

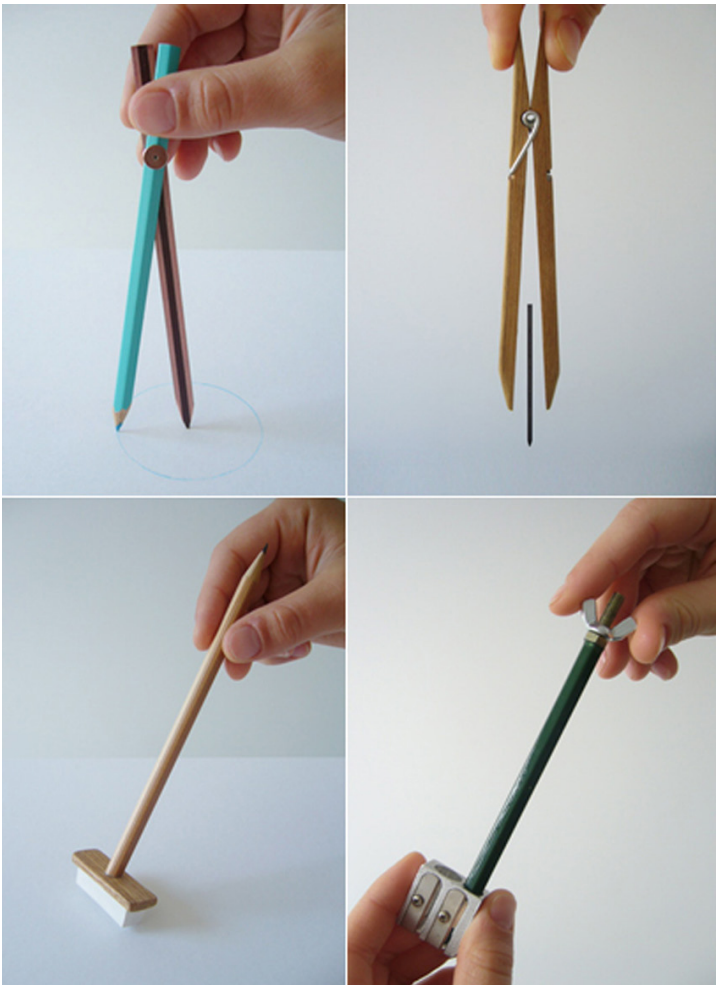
A portrait of Sappho the Greek poet. She is chewing the pencil tip.

A stylus has been a very common shape for a writing device for centuries. However, my exercises will not be about inventing new style for the pencil but rather about investigating the user-object relationship that has been built up over time, and within various cultural and social contexts. The following experiments will be based on "the very commonness of everyday" actions and thoughts that we are usually unaware of, such as our daily habits.

Creating emotional relationship

Users experience an obejct differently depending on how they use it or the period of time they spend with it. Senses of touch (texture), sight (colors and shapes, materials), and smell (odors of materials) decide whether the experience will be pleasant or not. These ssensual factors help you to like the object and provide you with a new kind of experience. Let's assume that a pencil with no distinctive color or shape. It does not reflect any personal memories, so you do not feel any emotional attachment to it. When you keep that pencil for a while, however, you grow to like the pencil.
This relationship is based on emotional aspects of an object.

Yuta Watanabe who is a London based designer, focuses on creating this emotional relationship between people and their objects. His pencil project shows his interpretations on people's experiences and habits around the object. There are two methods he uses to design a series of pencils; (a) bringing in common behaviors of people when they are interacting with a pencil to create a new value in the pencil and connect people to it, (b) finding common objects with similar shapes to a pencil, and then applying habits of using them into the pencil. For example, he increased the bulkiness of a pencil tip by observing people's habits of chewing it. This visual representation of a common behavior surrounding pencils draws the users' attention to that behavior. It might stop people from chewing, or just make them smile by reminding them of their unconscious interactions with the object. If his approach was sensitive and insightful to translate our daily habits into the pencils, the following example will explore different ways from it to connect people with the designed object.

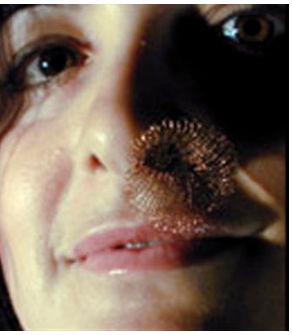


Peg pencil and a series of pencils by Yuta Watanabe, 2007

Blurring cognitive boundaries between you and an object

Spring, 2008, Museum of Modern Art held a design exhibition called Design and Elastic Mind. Among others, *Nanotopia; The Future Farm Project* (Michael Burton, Design Interactions Department, Royal College of Art, UK) caught my attention. Its quirky future depiction and physical intimacy to a human body made me think about relationships between an object and a user as his project explored physical and cognitive boundaries between a human body and a designed object.

1-2



In this world, people grow spare body parts on fingernails or install perceptive devices in their nostrils for aesthetic or functional reasons. Nanotechnology stimulates organic self-reproduction of viruses, cellular automata and self-replication to make these devices work. Michael Burton's future projection is engaging in that it sees possibilities of designed objects physically becoming part of our body.

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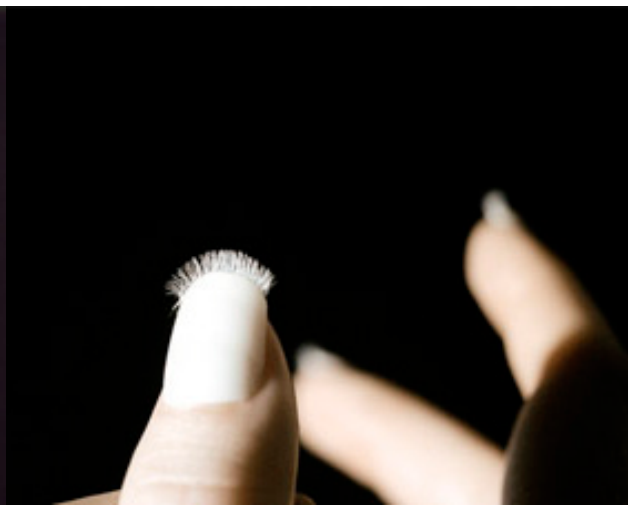
However, I have concerns about it. For instance, in the *Race Project*, multiple nails are implanted on your fingernails to encourage the habit of biting nails, which increases contact with bacteria. Mr. Burton claims that this change of behavior is "to boost health and well-being."[17] I understand his criticism of our highly hygienic lifestyle, in that we fear to co-evolve with dirt and bacteria, and that this lifestyle may threaten our natural immune system. Mr. Burton maintains that our ancestors from as little as 150 years ago, had much higher contact with bacteria and microbes, and so had a healthier percentage of the gut microbiota.

[17] Burton, Michael. "Commensal Bacteria," *The Race*, entry posted June 18, 2007 http://mkburton.wordpress.com/ (accessed November 2008).

Even so, he needs to acknowledge that his new manipulation of our bodies can be another potential threat to modern people, since our human environment has evolved differently from those who lived centuries ago.

Design presumably improves people's life by bringing these new technologies into their homes. Despite that, the professional fields of sciences and design lack constructive studies about the impact of technology and designed objects on our lives. Since what designers create is directly related to our everyday life, more research and analysis needs to be done before products are put into the market and actual life.

3-4



1-4
The Race by
Michael Burton

Genetic Trace: New
Organs Of Perception

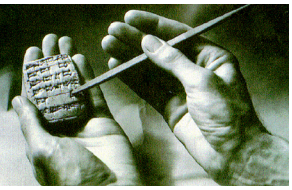
Nanotopia
Future Farm Project

Genetic Trace: New
Organs Of Perception

Exercise 1

This exercise takes inspiration from Burton's *Nanotopia; The Future Farm Project*. I want to conduct this exercise without its result being perceived as a part of the pen or pencil product categories. This will be a good chance to design an object based on its actions rather than on its archetype.

1-2



In an act of writing, fingers are important. You hold a pencil or pen between your thumb and index finger, and then support the weight with the rest of your fingers. However, this is not the only reason fingers are important in writing. Let's pretend writing devices do not exist in this world. What will you use to write? Very likely, you will use your index finger. You will need a proper platform to write on. It is be a good platform if it is soft enough to be inscribed with your fingers. Sand on beaches, wet windows, and your palms are perfect examples. Ancient Sumerians took a further step from using your fingers to write and used carved tips of plants on the wet soil, and the Ancient Chinese carved on the Oracle turtle's shell and bones, which is called *Oracle bone script*. Finally today we are using writing devices made out of plastic or wood.

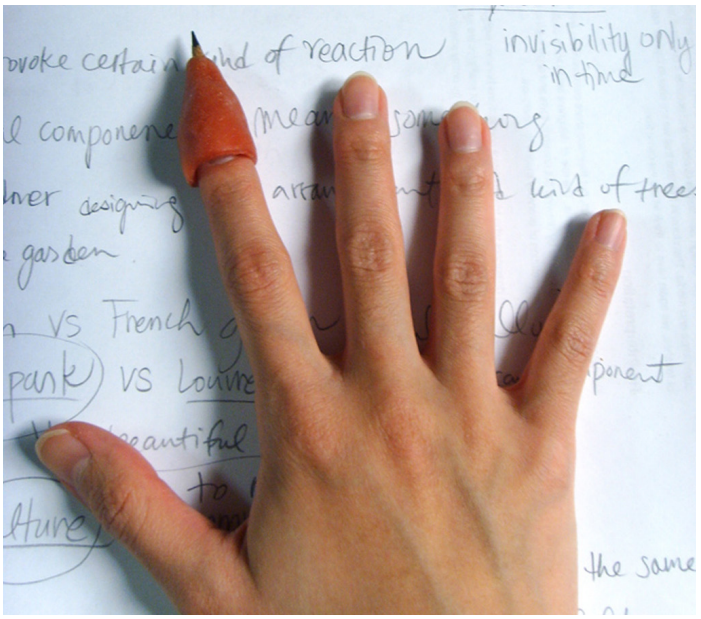
1-2
Ancient Sumerian way of writing

Ancient Chinese way of writing on the Oracle turtle's shell

3-5
Writing with your index finger

3-5

What if we can write with our fingers using different colors and line thicknesses without the aid of any device? With warmed beeswax, I made a mold of an index fingertip as a prototype for an embodied pencil on top of a finger. Overall, it felt weird to have wax material on my finger. It also created imbalanced pressure on my fingertip. This concept may be useful if we can use our fingertips as an ink filled stylus when touching a proper platform. However, this will require in-depth study on related technology, and that is unintended in this project. Also, it was hard to be away from using a sharpened pencil tip, which is the basic feature of a pencil that I have been familiar with for a long time.



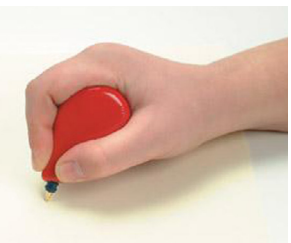
Mixing bee wax and paraffin to cast a finger: pencil tip growing out of your index finger

Exercise 2

These days using hand writing devices are not the only way to save documents and keep in touch with acquaintances with written words. The younger generations are more familiar to use a personal computer for the same tasks. However, many people still use pencils every day to leave quick notes. The previous exercise was to reconnect people to the origin of writing. In this exercise, I want to explore problems of existing mediums and improve them if possible.

A stylus is a very well approved writing device, evidenced by its long-time use. It is space efficient and light-to-handle. Yet we often forget that writing with it is not easy for beginners or those with arthritis. In order to improve the usability of the common pencils, I developed a form that could be held and used easily by users. My sketch models started to show organic form that respond to the shape of the palm when grabbing an object. The most challenging part in this exercise was to design the object ergonomically slim. Later I found that my sketch model resembles a writing device, which is specially designed for arthritis.

1



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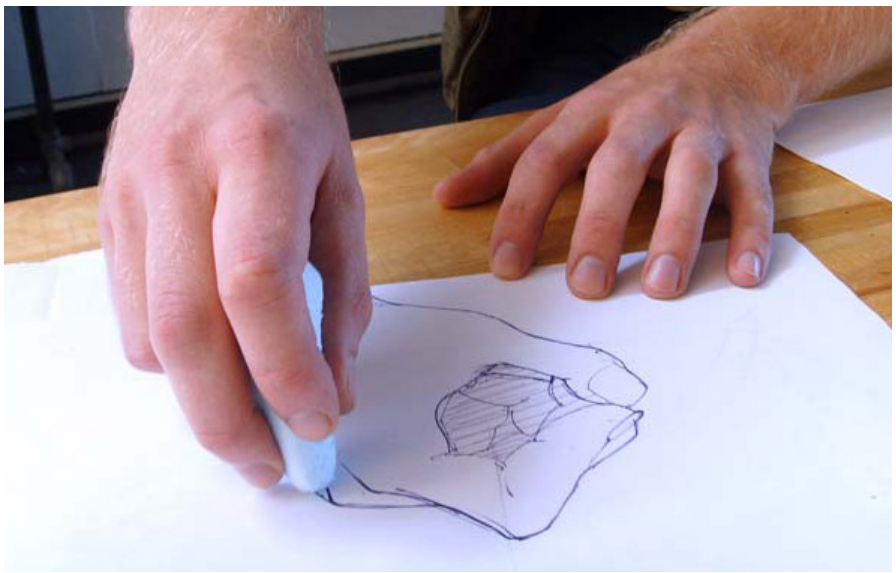


1-2
One of ergonomic pencils for the arthritis.

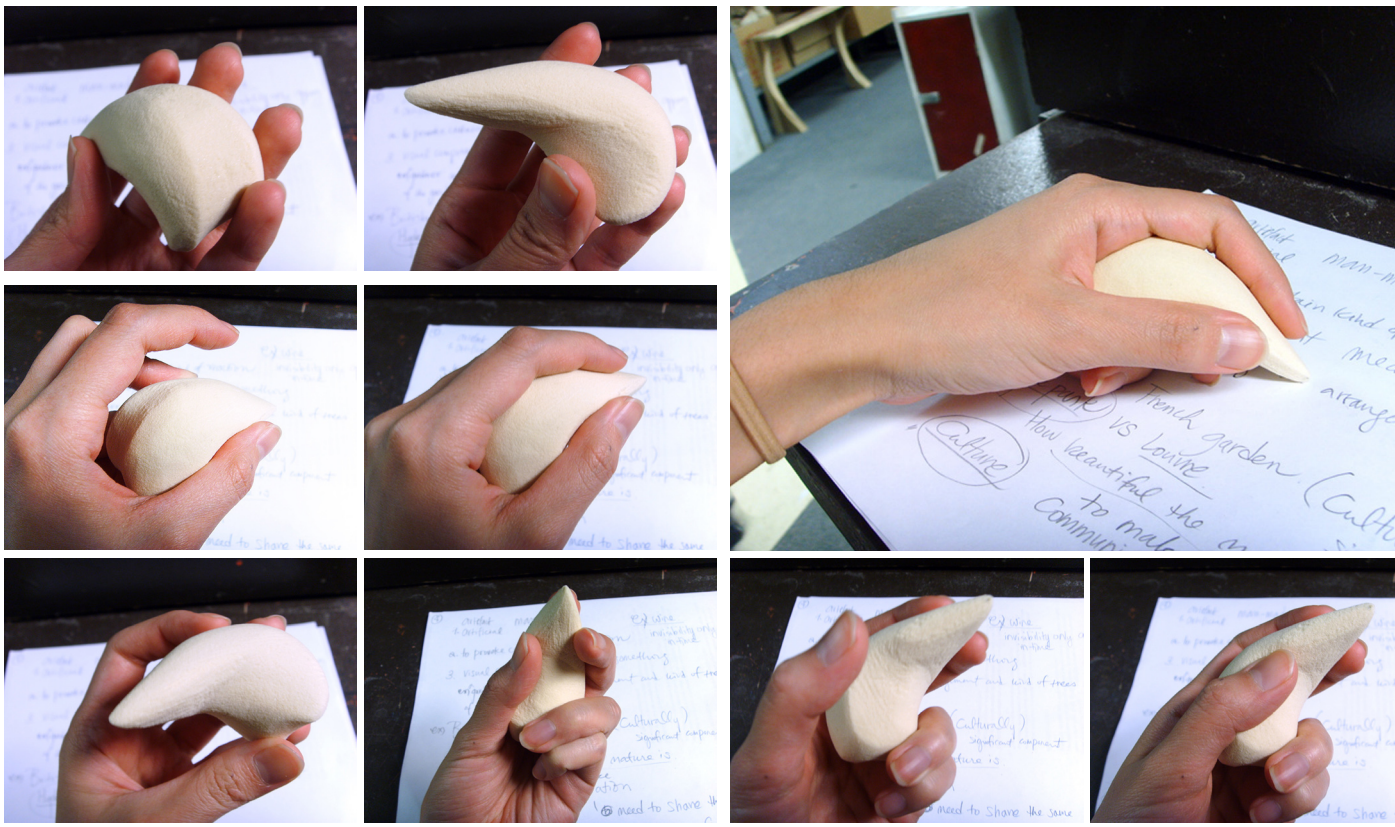
Studying a sketch models

Exercise Analysis

Both of my exercises were not free from the original look of a pencil. It has been embedded in people's minds that if you say 'a writing tool,' people would immediately think of 'a stylus.' This is almost as natural as we think of a 'tree' with colors of brown and green together with its cloud-like leaves and barrel-like body.[18] What I learned through these exercises is that the change should take place gradually and within the social norm, otherwise it will be hard to change a common perception of the object.

[18] Saussure, Ferdinand de. "Nature of the Linguistic Sign" In Course in General Linguistic, Eds. Charles Bally and Albert Sechehaye. Trans. Roy Harris. (La Salle, Illinois), 71.

Take a look how this medium is interacting with the fingers



Garage sale.

We organize our thoughts to make them useful, organize properties to own even more and organize anything to make our life simpler.

Dialogue 2: "Human Instinct"

While I was thinking about daily activities, I came upon an everyday task that I struggle with all the time. This is the act of organizing. I know only a few who are a master at this, but most of us ordinary people always struggle to do this right. It is not that we walk upright and have two free hands that make us truly distinctive from animals, but that we organize. We organize our thoughts to make them useful, organize properties to own even more by getting rid of unnecessary things, and organize anything to make our life simpler.

Observations

My first attempt was to make a customizable organizer that can be used on a desk. I made some observations on people's working spaces. Many pictures were taken at the Industrial Design Studio and at the machine shop since these two places were where I spent most of my time.

The studio and the shop were filled with repurposed objects, which I later learned to call Non-Intentional Design (NID), from the book *Design by Use*.[19] People often reused packages of machines or shop materials as organizing boxes. As a result there were always piles of small boxes that stored different materials. Some were using left over blue foam, which is usually used to make prototype models, to put their CDs in. In this space, it was harder to find products that kept their intended purpose than those repurposed objects. This is partially because the users of the space are students who are short on money, and they are a group who want to show their creativity and resourcefulness. From the observations, I found a common trait that people put a vessel and a stick together to organize their space. I have seen many combinations between a glass and pens, a box and rulers, a vessel and rolled up paper or any container and objects that can be put upright in it.

[19] BIRD: Uta Brandes, Sonja Stich, Miriam Wender. *Design by Use; The Everyday Metamorphosis of Things* (Birkhäuser, 2009).

OPPOSITE
Observing the machine room which belongs to Industrial Design Department on fourth floor, Rochester Institute of Technology Building 7A.

I have always wondered if the industry and market that produces organizers respond to actual organizing patterns of people. My observation shows that places like our registration office on the rit campus, which because of its glass walls and hence public visibility is one of the few places that shows the orderly patterns which match the idealized methods of organizers available in the market.


PRIORITY MAIL


DESIGN


GRAINGER


crystal roc


CLAY
TOOLS


DESIGN SHOP

Market and Opportunities

Every time I go to Office Depot® or Office Max®, I see many organizers displayed on the rack. Due to my unhappy experiences with these products that they are incompatible with my organizing patterns, I have decided to stop buying them. Tossing books around and stacking documents on the floor are my placing habits, and most available products are unable to adapt my personal habits into their system.

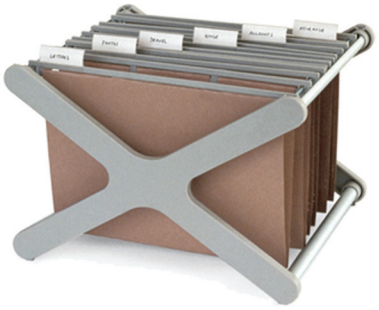
Many products have failed to offer users a design solution that is open to changes depending on the users' organizing habits and living environments. Here are a couple of reasons that they remain a temporary solution for many people.

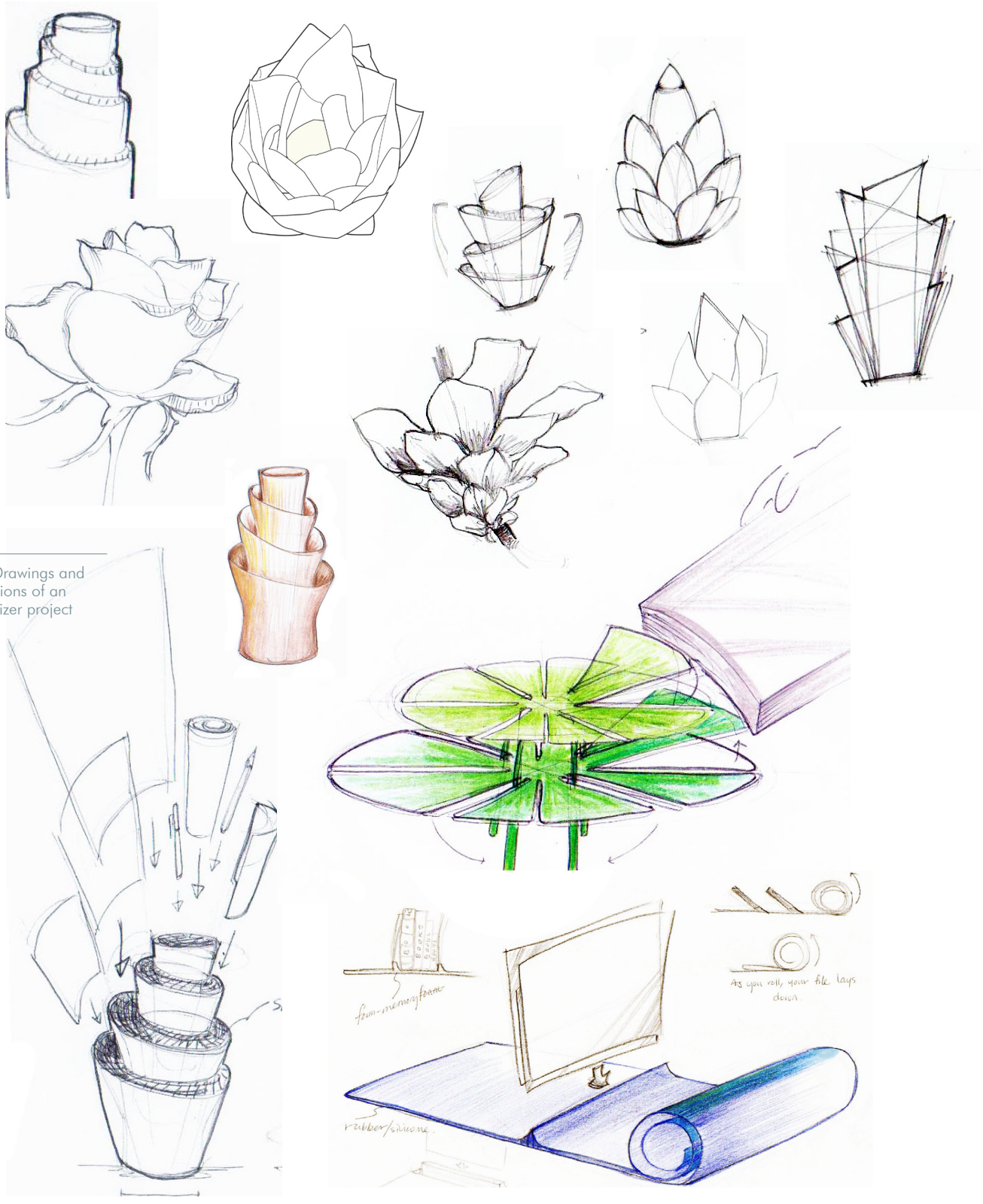
1 Limited solution: forceful order and grid systems that do not consider individualities of users

2 Lack of understanding: incapable of finding and drawing a natural order out of the user

Everybody has different ways of placing and organizing things in their space. Mostly, these patterns are uncontrollable unless you have a particular order in mind. Therefore, I will design an organizer that helps users to find their own natural ordering system that can grow as a part of their daily habits.

Organizing products available in the market





Initial Drawings and inspirations of an oraganizer project

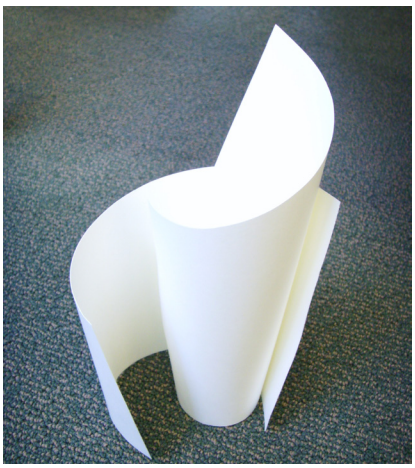
Natural Order: a desktop organizer

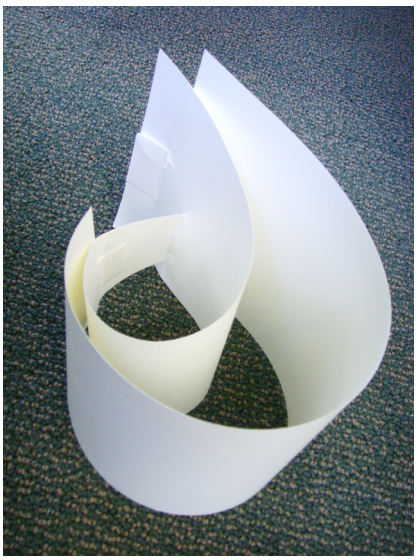
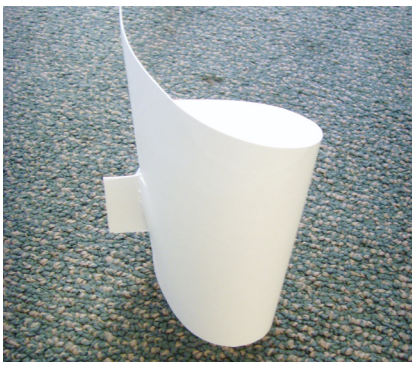
There are three things I want to achieve in this project. They are:

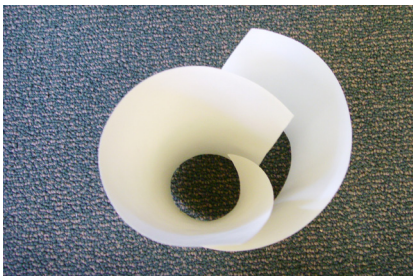
1 Show dynamic movements.
2 Make it simple that users can easily assemble it without reading manuals.
3 Create a playful experience whenever people use the system so they want to use it over and over again.

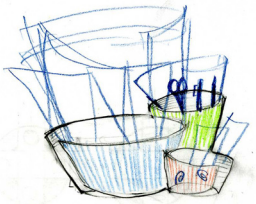
Since people and their environments constantly move and change, the first goal of this desk organizer project is designing an organizer that accepts the movements of spinning, rolling and piling that illustrate dynamic movements within the system.

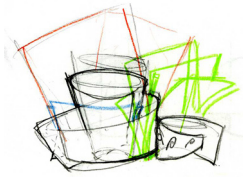
It is easy to fabricate, light-weight and magnetized so that each unit can be attached to each other.

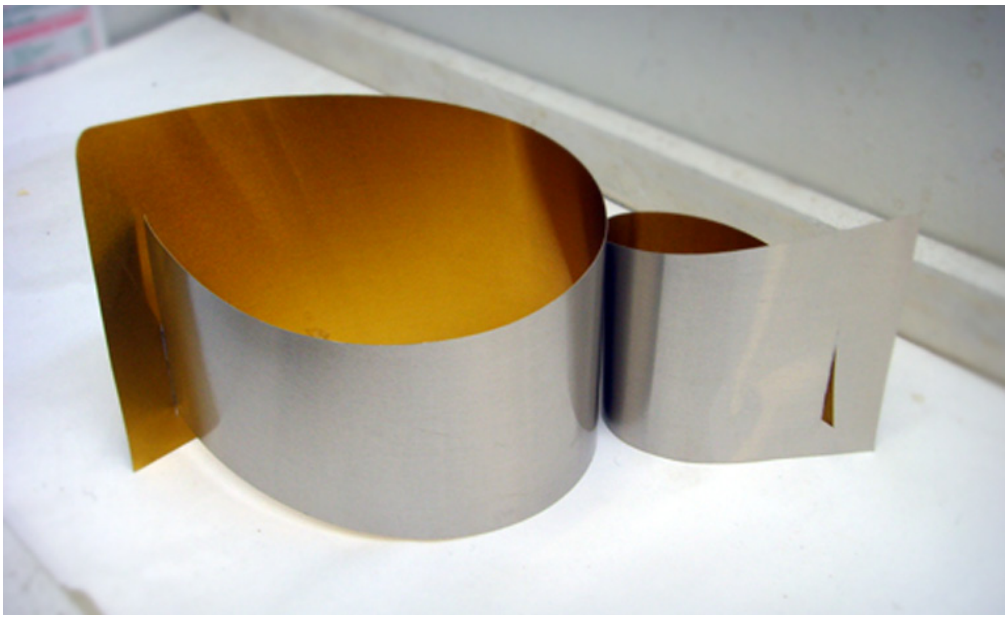


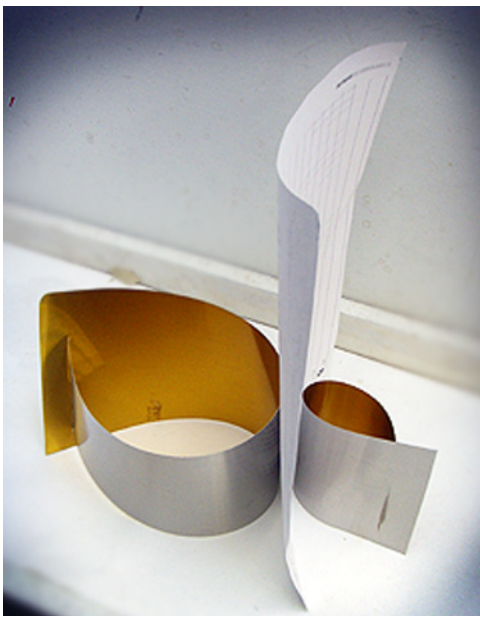







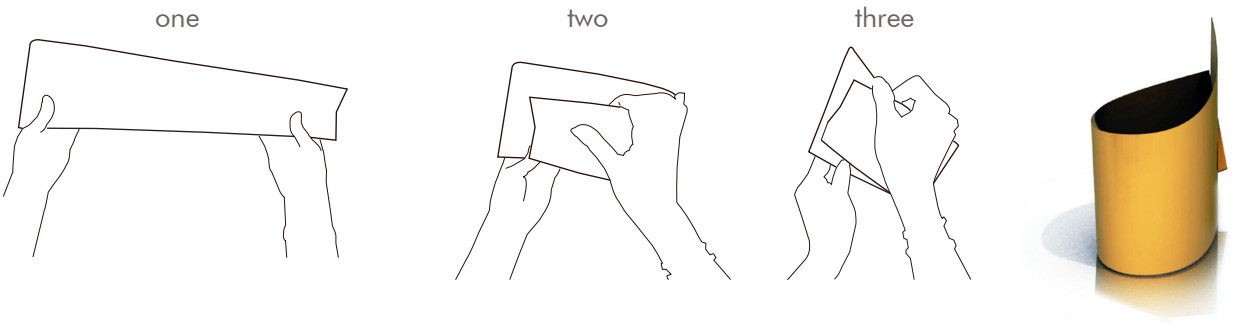






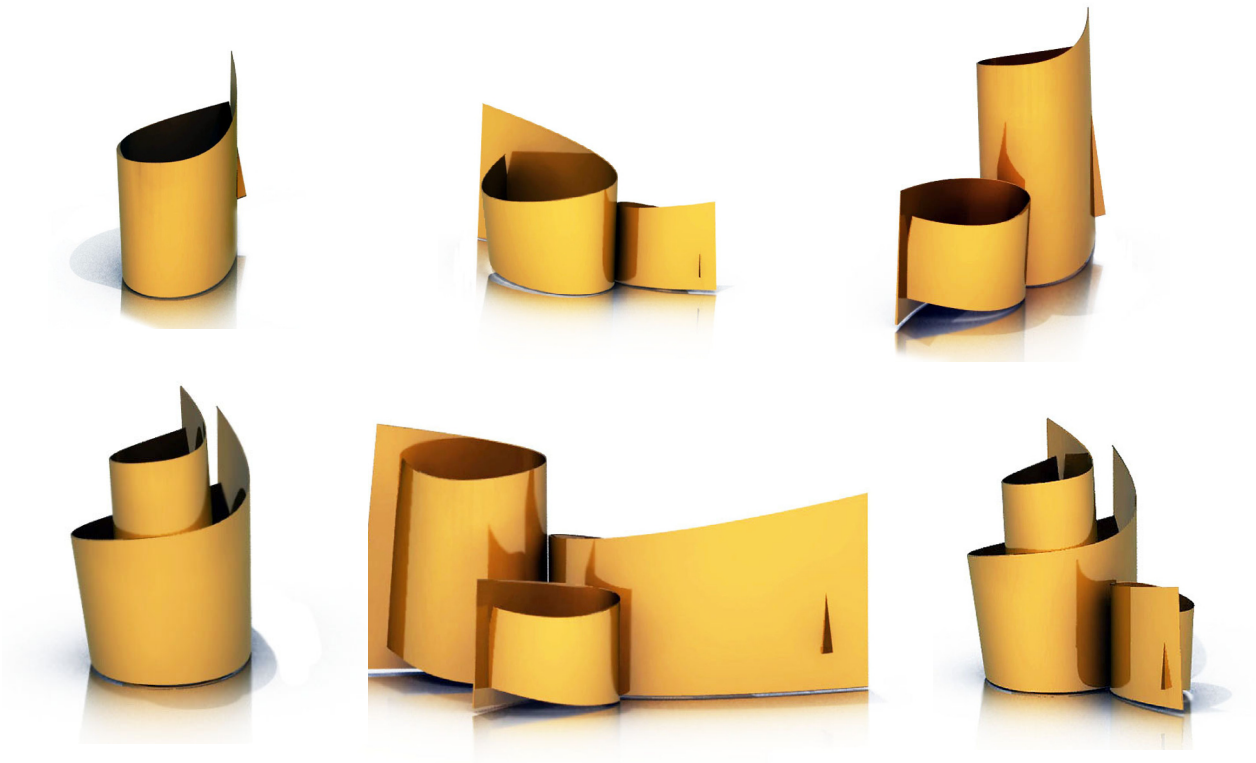
As an inspiration I instantly thought of the Golden Ratio, which is believed to be an aesthetically pleasing proportion. I looked at patterns of flower petals and dried pinecones as visual references. I sketched and simplified them and made several mock-ups with Bristol board to show spiral movements so that perspectives change from different angles.

My initial idea was to create a single container rolled out of a flat trapezoid-cut sheet that can hold different sizes of office tools and paper documents. This simple sheet that transforms into a multi-purposing object, however, seemed to lack functionality in that it cannot properly divide separate spaces as needed. Thus I end up designing containers with different sizes that can be nested together like Matryoshka, the Russian nesting doll.



Demonstration of "Natural Order"

In order to make the structure more robust, I changed my mock-up material to a thin metal sheet. I cut a slot on one side and pushed the other bottom through it. Using a magnet to connect each unit seemed to work well since metal can be easily magnetized. As a final version, I changed the body material that itself is a magnet. Since these containers are assembled from the flat magnetic sheet, the product can be packaged and shipped flat. The products will take up little shipping and storage space. Also it is simple enough that users will not need to go through the manual to assemble the organizer.



Various configuration of the "Natural Order."

OPPOSITE
A study model in use.

The unlimited possibilities to configure each organizer with combinations of various sizes, and the magnetic feature that locks and unlocks different configurations will allow users to freely customize them into various settings whenever they need. Above are some examples people can come up with and have fun with. This set of organizers can be a plaything for grown-ups when their hands are idle, even though they are not interested in using it as an organizer.

Analysis

The project "Natural Order" has a potential to develop with user's habits given that it allows users to play with various outcomes. However, I decided not to move further with it because of its strong presence within a space that opposes the concept of the thesis "Design for *Invisibility*." It should be visually compatible with any user's environment.

Dimensions
(width x length x height)

S 2 ½″ x 4″ x 3 ¾″
M 4 ¼″ x 7″ x 8″
L 8″ x 12″ x 17″

Dialogue 3: Placing

We naturally place objects. There is no need to force ourselves to place as we do to organize and store. Think about your own experiences. The first thing you would do when you come home will be placing your bag and keys down somewhere. Why do we have a problem with it if this comes naturally? First, it is because stuff builds up fast as we stack things on the same spot over and over again. Second, if you do not pay attention to where you place what, you will have trouble finding them when you need them in the future. This is why we need a proper placing system. I will explain how this concept of *placing* is different from that of storing or organizing.

OPPOSITE
Organizing and placing objects observed at the RIT campus.

In terms of making an object and a space useful, *storing* and *organizing* seem to suggest the same idea. However, they are not identical actions but are closely associated. When we store objects, we assume that they are currently unnecessary, and thus can be put away. If stored things are badly organized, we will face a problem when we need them. Therefore the habit of organizing, in any circumstances, will put your life in control. This thesis, however, is not about controlling but about creating a perfect harmony and promoting interactions between a user and the user's objects. I would like to propose that we need more considerations from the market for different users who are not inclined to put things in a rigid order or align them in boxes. In other words, there is a need for better and easier solutions to deal with our piles and clutter at home.

The reason for using the term placing is to free the design process from being judged as, and constrained by the standard storing systems associated with organizing space (e.g., tabbed file organizers, drawers or aligned boxes).

We need more considerations from the market for users with different *placing* habits.

To Place Things Better

The act of *placing* and *organizing* both require our constant attention. Otherwise, clusters at home will be uncontrollable. *Placing* deals with the momentary status of things, while *organizing* objects means that they can be put away until they are needed. Keys, cell phones and monthly bills are things that must be placed properly. We usually have a certain spot where we place a bill that just came in. However, if we happen to put it somewhere else, like on a sofa, or a bookshelf, between pages of a book, this misplaced bill can be forgotten until we get a late notice. Soon after they are paid, it will be tossed away and will not have to be placed any more. On the other hand, we may need to keep track of and categorize the paid bills for the future reference, so they should not be tossed away. We can forget about those bills while storing them under a cover because there is no instant need for them to be remembered. This is the difference between a *placing* system and an *organizer*. The organizers can store books or documents in an ordered manner, out of sight and out of mind. In this thesis project I will design the placing system that opens up the contents to prevent to be forgotten from the users. The system should be enjoyable to use so users can unconsciously grow habits of strategic placing by utilizing it.

Objective

1 Create an enjoyable placing experience to help the user stay self-motivated
2 Design a system that highly adapts to different habits and spaces of individuals

Methodology

I will build user scenarios based upon daily observations on people's placing behaviors in their office area. Fictional characters and their common placing habits will be helpful to build a system that can be adapted nicely to the actual environment of the users.

Organizing and placing objects observed at the RIT campus

1

MR. PILER

Mr. Piler is a thirty something year old single male. He often repurposes his furniture or cardboard boxes to put things on. For instance, his books are kept in baskets as an alternative to bookshelves. Jackets or jeans rest on top of a drawer or chair. Hooks on a side of the door are used to hang scarves and heavy winter jackets. His light LCD-TV is put upon a chair so that it can switch its position easily. He placed a twin mattress between a lounge chair and the TV; this allows him to put his feet on the bed while he is watching TV. There is a built in closet right behind the TV station, which is always opened half way enabling him to shoot his dirty laundry into a hamper from any direction. This usually makes a pile like a hill that flows down onto the floor. He may not be a great organizer but he knows where he places certain things to the assigned spot.

2

MR.ORDER

Mr. Order is a middle-aged graphic designer. He loves to look at and talk about details of everything; he has keen eyes. He feels uncomfortable when things are not in order. For example, if a floor mat in the kitchen does not align with lines of the floor tiles, he instantly needs to fix it. He likes to label his documents and small belongings for easy identification. He lives in the 3D world but a 2D grid system works perfectly when it comes down to organizing the patterns of his life.

3

MS. PERSONALIZER

Ms. Personalizer is a twenty something year old student. She loves to put postcards, posters, and pictures of her families and friends on the wall to personalize the space. In this way, the white-boring walls actively become part of her surroundings. She refuses to use labeled organizers since she figures they aren't for her. After reading magazines or books, she likes to toss them to the floor. As a result, there are always several piles of paper and books in her room. It is one of her hobbies to look up online or DIY magazines for ways to keep her place unique and cozy.

4

MR. NON INTENTIONAL

Mr. Non-Intentional is a middle-aged carpenter. He is a master of the NID. In his studio, there are several containers holding rulers, or big cardboard boxes with smaller boxes inside. It is not hard to see piles of papers on and under his desk or on the floor. He has customized walls to have different textures or colors, to hang tools on them. His system works perfectly for him but it is hard for a stranger to find tools.

5

MR. CALM

Mr. Calm teaches industrial design in college. He has two desks in his relatively small office. They parallel each other but are facing opposite walls. He uses a lamp to highlight an area in which he places his current project. Consequently, his room has to be dark to operate this placing system. He also finds negatives spaces on or under desks, flat surfaces, and chairs to pile books and store things. But he also likes to display small objects that he likes to personalize his office. His five walls, which include the ceiling, are all filled with books and objects. For him, any kinds of horizontal plane can be seen as an opportunity to put things on, and playing with light becomes his strategy to highlight current work.

10 Placing Habits

1 Vessel and stick: ex. place a roll of paper in a container
2 Hang on hooks: ex. hook a t-shirt
3 Stack up: ex. pile books
4 Roll: ex. roll a paper or carpet
5 Pin up: ex. pin posters up
6 Toss: ex. toss dirty laundries away
7 Highlight; assign a space: ex. color the wall behind a desk
8 Label: ex. put labels on sorting containers
9 Align and arrange: ex. line up cosmetic bottles in one area
10 Put away: put dishes under the cupboard

Opportunity

There are common organizing patterns that people share as listed above. Some people are better than others at finding and utilizing negative spaces that afford the placing of objects. They use space between a desk and a wall to store rolled up drawings or documents. Meanwhile some are better at accepting systems of order given by designed organizers. Some develop natural systems of their own by following patterns of their environment such as floor or wall patterns at home. There is no perfect method that fits to everybody. Therefore this system should be configured in variable ways that can adjust within different settings. The concept for the project is dedicated for people who need more than typical organizers that provide rigid boxes with sorting labels on top.





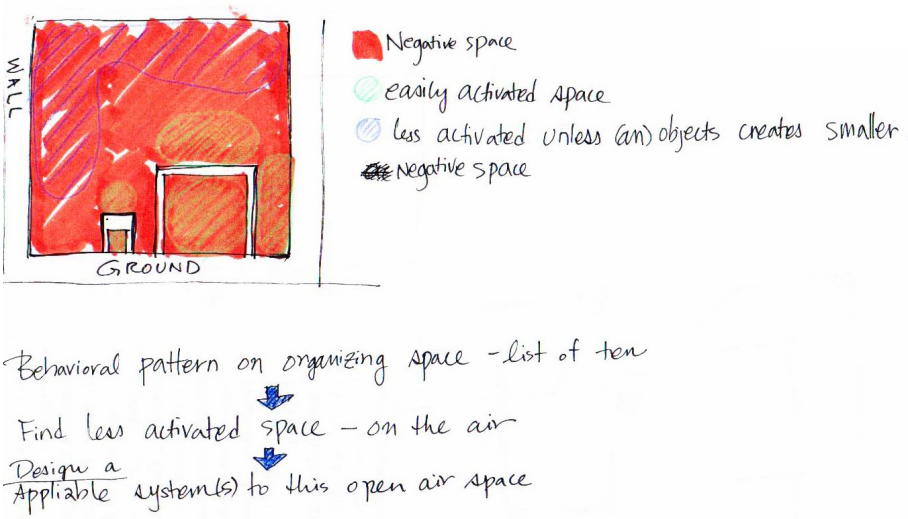




Strategies Derived

1 Exploit the space around and between objects
2 Rediscover and transform existing planes of the space into a part of the placing system.
3 Apply Aesthetics of the emptiness, the minimalist philosophy

Recognize, rediscover and transform the elements of your space…



OPPOSTIE
Placing habits at homes

THIS PAGE
The initial sketch about the negative space

I will call left out corners or overhead spaces that we unconsciously find and utilize as the negative space. These spaces are used as outlined in the "10 habits of placing" listed earlier. Additionally, using walls as a part of the system activates these pre-existing elements of the space without adding new things, and thus potentially can be perceived as an invisible condition. Aesthetics of Emptiness is a traditional Korean philosophy that pursues a minimal shape that only wishes to show the essence of an object and avoids secondary or ornamental elements.

Beliefs and religions of Korea

The Aesthetics of the emptiness is a philosophy of minimalism influenced by beliefs and religions of Korea: Shamanism, Buddhism, Confucianism and Taoism. As an everyday practice influenced by Shamanism and Buddhism, it was important for the Korean people to harmonize with Nature and respect any kinds of living creature, especially the small and vulnerable. Many of the mythical creatures in the Korean folk tales for instance, birds, cats, dogs, frogs and cows, have noble spirits and show loyalty to humans, and are therefore well respected. Korean scholars of the Chosun Dynasty (1392-1910) lived by the philosophy of the Confucianism. They took pride in living in modest environments free of unnecessary ornamentation. The furniture they preferred was honest to its function and materials. Taoism was never as dominant as the Buddhism or the Confucianism in any Korean dynasty, however, since its first arrival to Korea in 624 AD, it deeply influenced the daily lives and the customs of the ordinary people.

Tao Te Ching

Asserted by Chang Sup Yoon, most works of art made by Korean architects and craftsmen reflect this famous design axiom, which was mentioned by Lao Tzu, the founder of the Taoism, and the author of *Tao Te Ching:*

> Great ingenuity is something like artlessness or rusticity.[20]

[20] Chang Sup Yoon, Palace Architecture of Ch'cagdok-Kung, http://nongae.gsnu.ac.kr/~mirkoh/palace1.html, (accessed September 2009).

Sarangbang is a space for the male family members to study and sleep. This space was also used as a salon for reading, doing artistic activities and greeting guests.

This condition of ingenuity as "artlessness" or emptiness is equivalent to the Kenya Hara's design philosophy, "the very commonness of everyday life." Both Lao Tzu and Kenya Hara find importance of noticing mundane elements of our everyday life.

In *Tao Te Ching*, there are four characteristics of Tao[21]:

Tao is undifferentiated

1 Tao returns

2 Tao is subtle and quiet

3 Tao is simultaneously dispassionate and nurturing

4

[21] "Characteristic of Tao," Tao, http://en.wikipedia.org/wiki/Tao (accessed September, 2009).

"Tao" means way in Chinese, and within the context of the Taoism, it implies "the essential process of the universe."[22]

[22] "Title," Tao Te Ching, http://en.wikipedia.org/wiki/Tao_Te_Ching (accessed September, 2009).

Relevance to the thesis project

Among the four characteristics of Tao, the third principle, "Tao is subtle and quiet," best explains my thesis and the project, "To Place Things Better." According to the *Tao Te Ching*, the third principle is illustrated as follows:

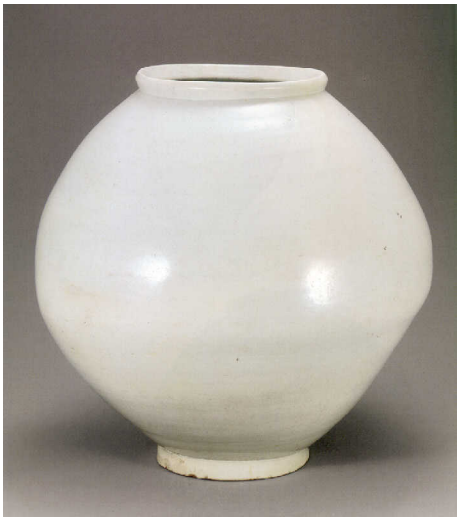
> The most important aspects of Tao are its unremarkable, unnoticed, everyday workings - "the softest thing in the world overcomes the hardest" (*Tao Te Ching* chapter 43). [23]

[23] Ibid.

Even though designed objects surround our everyday life, people rarely notice their presence because they are less visible. However, as the Tao's "subtle and quiet" way of living overcomes the enticing ways of living, I believe the impact of invisible design overpowers that of the sumptuous design in our everyday life.

2D & 3D Applications

1



2

Traditionally the Aesthetics of Emptiness is usually applied to two-dimensional paintings, achieved by leaving the background of the image empty. For instance, the painting Hong-do Kim shows two people on the boat looking at the cliff. By erasing all the details of the surroundings and giving spatial emptiness between the subject and the object, he shares with the audience what he experienced in the nature without explaining much. Similar kinds of minimalism can be found in the famous modernist phrase, "Less is more." By presenting less but essential elements within the space, an artist or a designer can communicate more to their audiences. Another example is a three-dimensional object, which is called "Baekja," meaning *white vessel* in Korean. It is a colorless ceramic vessel designed during the Chosun Dynasty. The most beautiful "Baekja" should look as if it is the product of natural processes. In other words, its beauty is achieved by the "artlessness."

OPPOSITE
Hongdo Kim
(1745-1806)
Joosangkwanmaedo

1-2
Anonymous
Dalhangari Baekja
(Moon shape white china vessel)
Late 17th century

A book shelf from Chosun Dynasty
(1392-1897)

Concept Ideations

I developed several concepts for a placing system and arrived at the final proposal through analyzing and exploring each of them. Here are the six concepts that I have studied in this section:

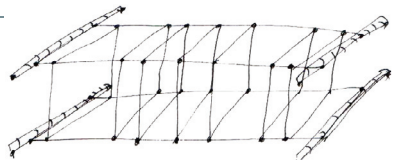
Ideation 1: Rubber-band Hooks
Ideation 2: Space Dividing Cables
Ideation 3: Tensegrity Study
Ideation 4-1: Geodesic Dome
Ideation 4-2: Benefitting from Planes
Ideation 5: Reflection

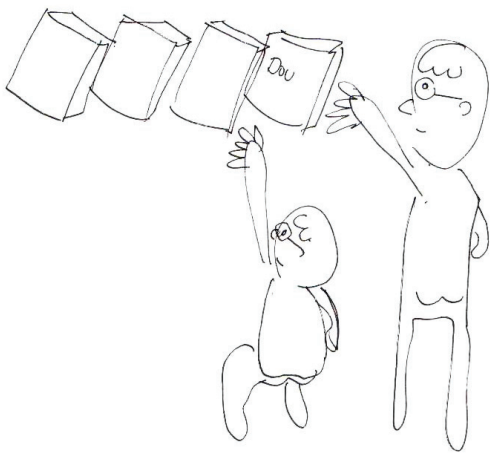
Ideation 1. Rubber-band Hooks

While I have been struggling with the idea of using the negative space as a design element of a placing system, a dish rack that I hardly pay attention to has started to look different. Stacking bowls and laying knifes between dishes in the dish rack are our everyday habits of placing dishes. Since the dish rack is an invisible design that we take its existence for granted, we rarely realize the simplicity of this frame structure for placing wet dishes within a limited space. Let's imagine a world where everything is the same, but without the physical presence of a dish rack. It would be like this:

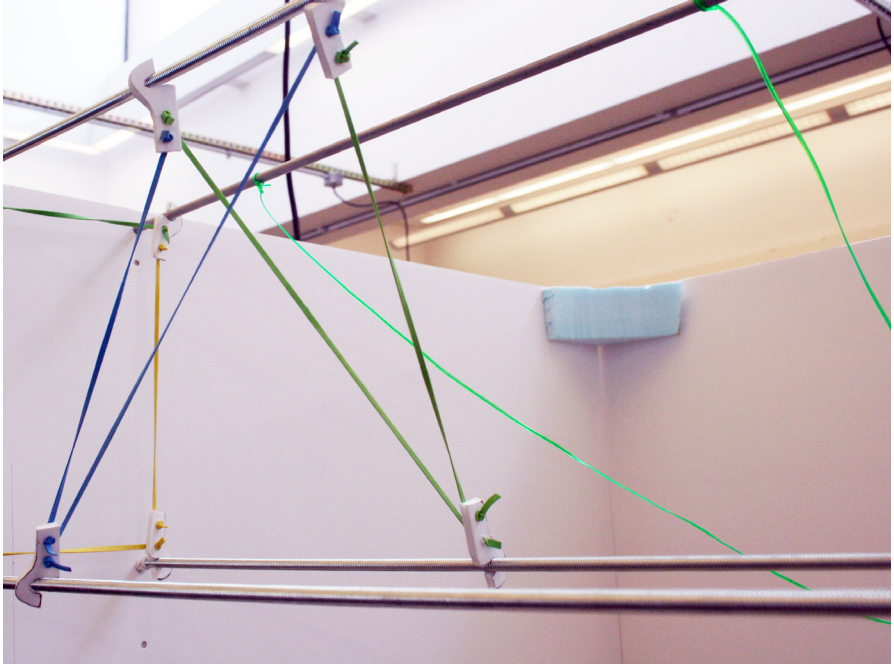
1. The ordered dishes will be floating in the open space.
2. If the negative space between the dishes is filled, they will shape the form of the dish rack.

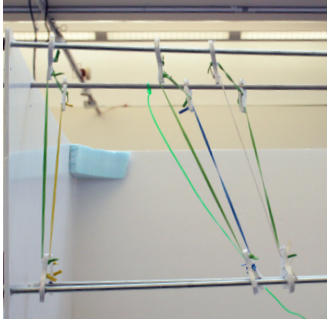
What is more evident in this course of thinking is the content of this invisible object. We realize that it is the user, and her relationship with the object and the space that makes the dish rack more useful than its look or style. If we apply this way of evaluation to placing patterns in the office, we see books and documents orderly placed on a bookshelf or scattered on the ground or on top of the desk. However, as I have already mentioned, most office products are designed in a way that discourage users to be active in developing their own way of placing things. Thus, there is a need for a user-adaptable placing system at the home office space.

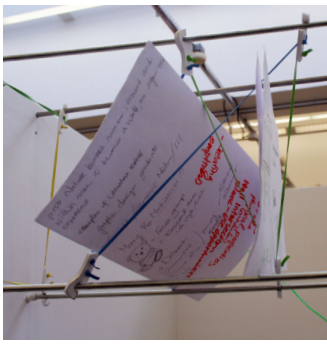


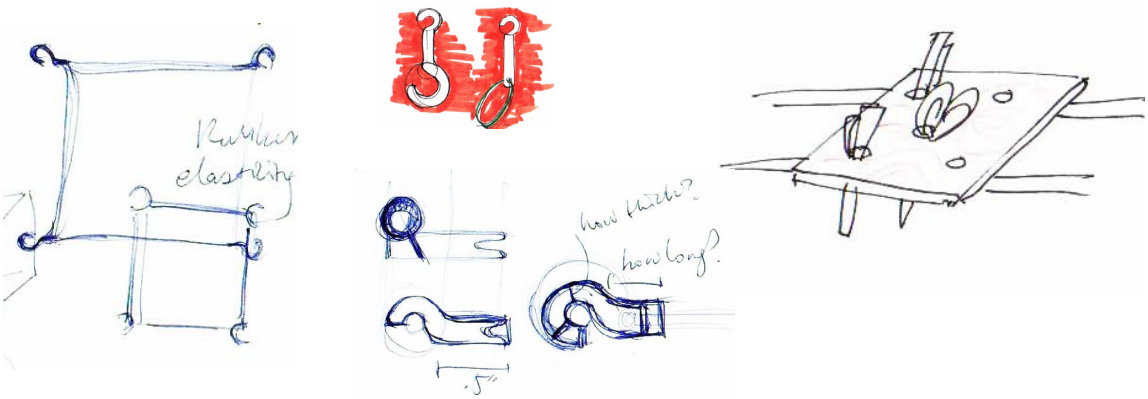


They are taking books out of an *invisible* book shelf.









Analysis

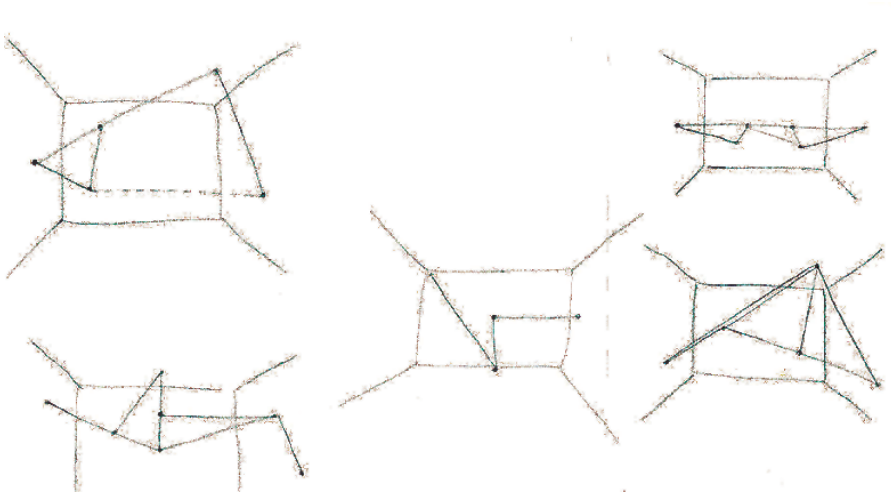
With rubber band-hooks, each module can freely change its angles and width between one another. However, these modules only work in the space where it has four parallel rods fixed to two facing walls. In order to improve this problem, this modular system needs to incorporate existing elements of the space, such as legs of a desk or corners between the wall and the desk.

Four rubber-band hooks shape a rectangular module

Ideation 2. Space Dividing Cables

As opposed to the limiting condition of the previous concept, I will explore the open space above the desk to develop my placing system. In addition, I will avoid using surface elements in order not to be tempted to use the surface materials like shelves or containers before developing a proper frame structure.

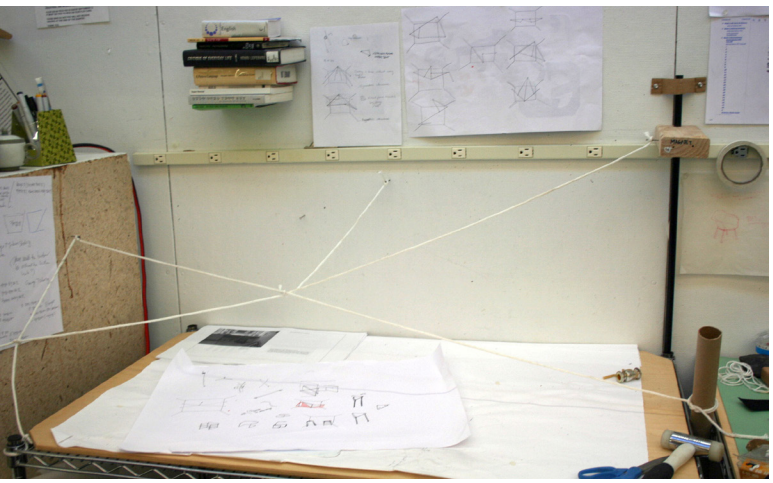
As widely known, spiders build their webs to catch insects. Those webs are only made with lines that are almost invisible, but are able to block the way of their prey by increasing in density. The principle of this model is similar to the spider webs. As more lines are added to the structure, it will divide the space into smaller units, and its density will grow so that it can hold objects on top of it.

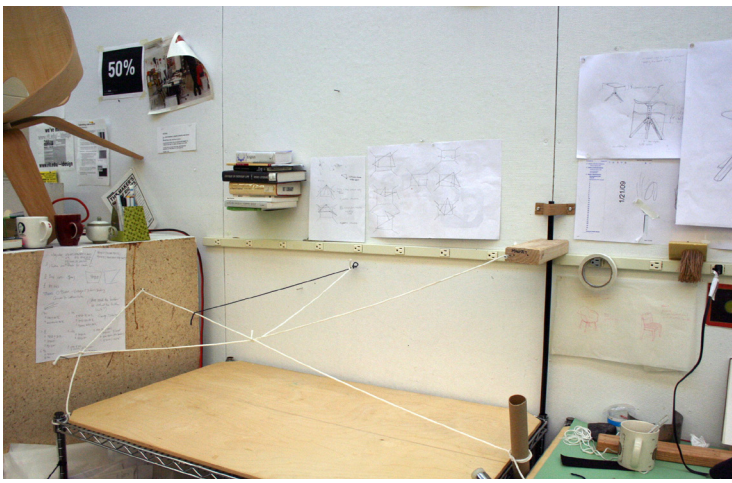


Spatial studies using cables.

Analysis

The usability of this model needs to be enhanced so that ordinary users who are not interested in creating a complicated net structure can also make a useful placing system. Simpler joints to fix each connection will enhance the usability, and also strengthen the structure.

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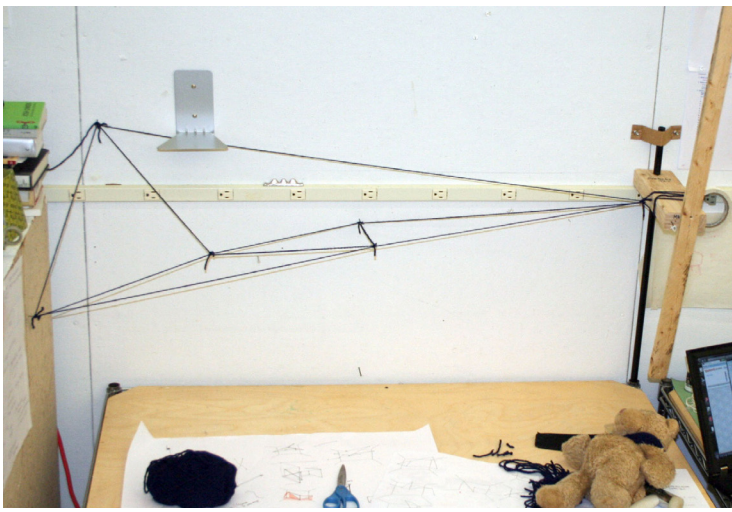
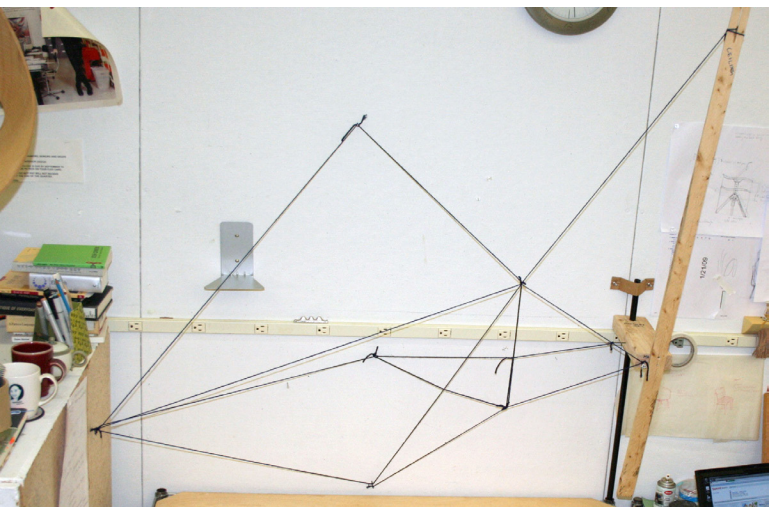
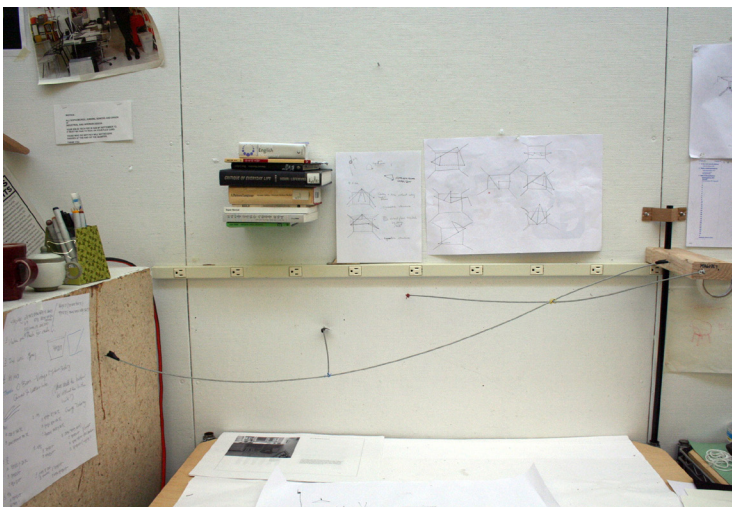


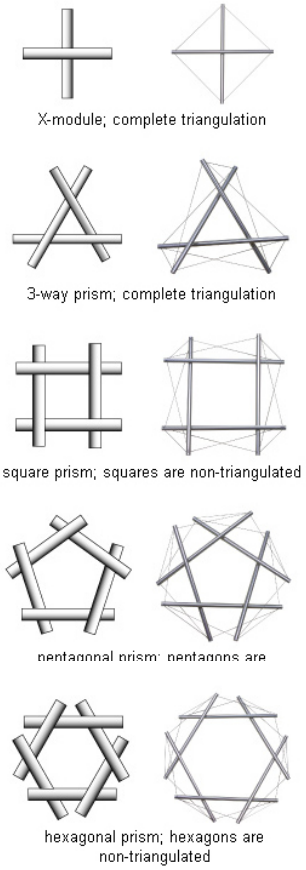


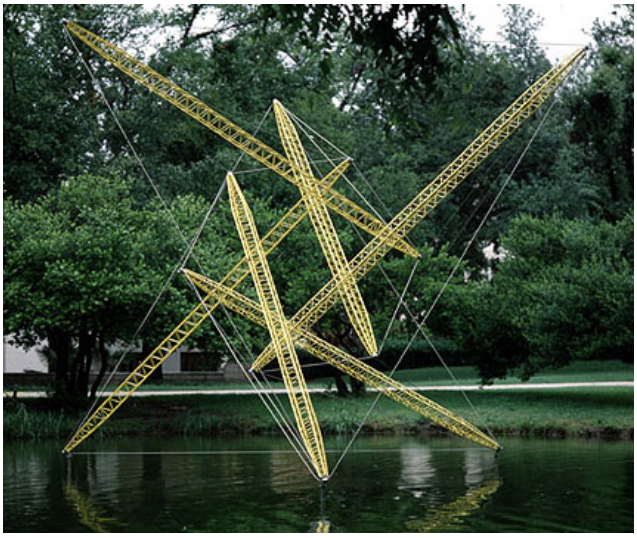


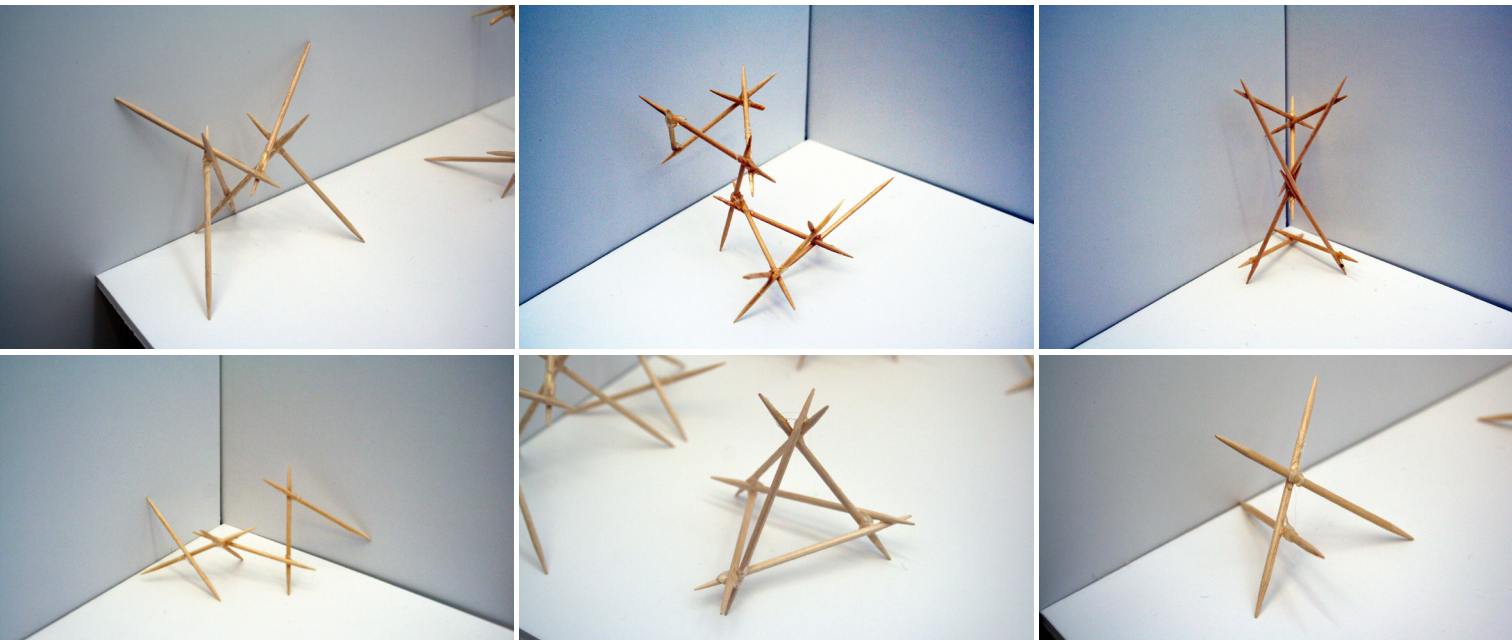
Ideation 3. Tensegrity Study

A lesson from the previous model is that a system with an open-ended solution but without a user-friendly structure is hardly accepted into our everyday use. Having too many variables can be frustrating and discouraging for users. Kenneth Snelson, a sculptor who is known for the use of tensegrity, is an inspiration for this ideation. In the principle of tensegrity, the structure gains strength when tensions between components grow as it builds up.

The principle of tensegrity and works of Kenneth Snelson







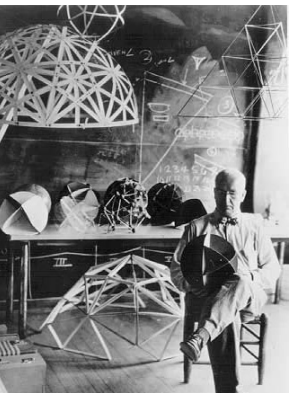
Study models

Finding tension spots within the structure, and sustaining that tension with cables, are t important qualities in the Snelson's work.
However, I believe that if the architectural elements of a corner space, two intersecting walls and a horizontal surface, become part of the structure, the structure becomes even stronger without being distinctive from its surroundings.

Analysis

I have built toothpick study models that work within corner spaces. I got the feedback at the end of this quick study that the toothpick models lack design elements to be modular structure, and so my exploration continued.

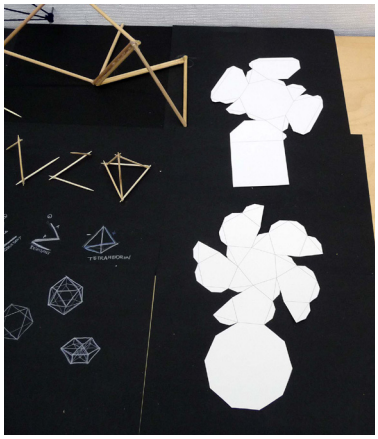
Ideation 4-1. Geodesic Dome

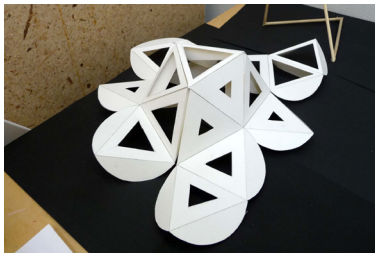


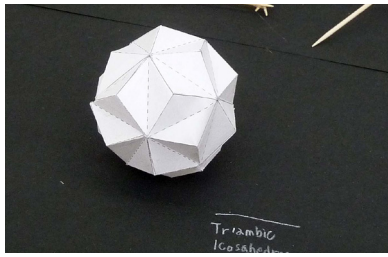
Buckminster Fuller is a practitioner of "a vectorial system of geometry, energetic-synergetic geometry, based on the tetrahedron, which provides maximum strength with minimum structure."[20] His philosophy of "maximum strength with minimum structure" suits my needs for a placing system design. In this ideation, I will examine the structure of several geodesic domes and dissect them into pieces to find possibilities to develop a placing system within overhead and corner spaces.

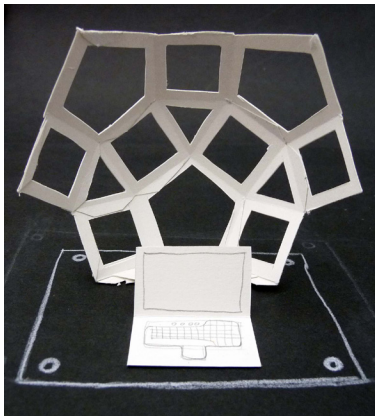
1

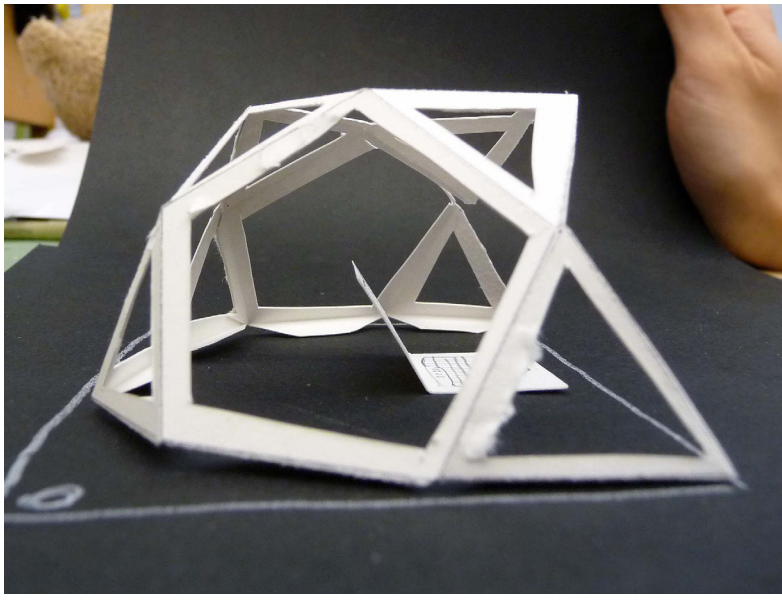
2











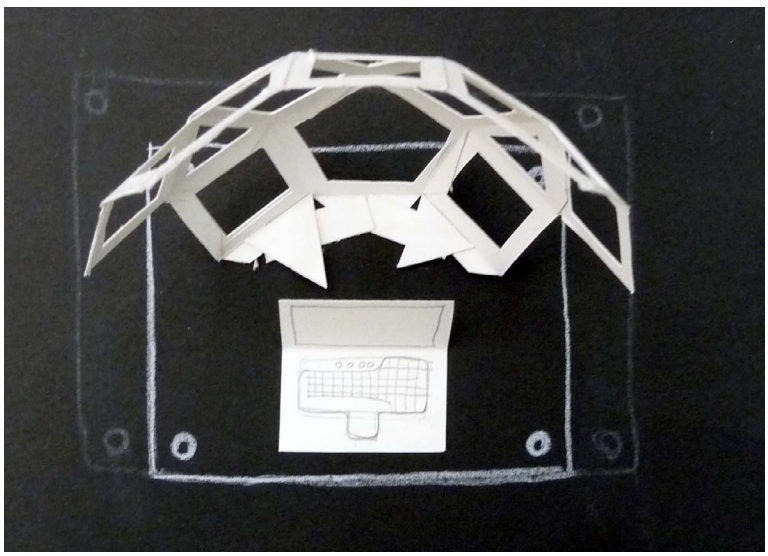
1-2
Buckminster Fuller in his studio

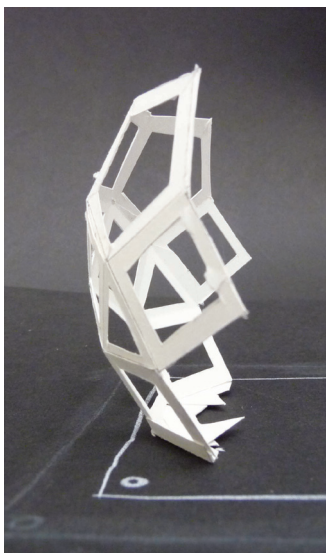
Geometric study models

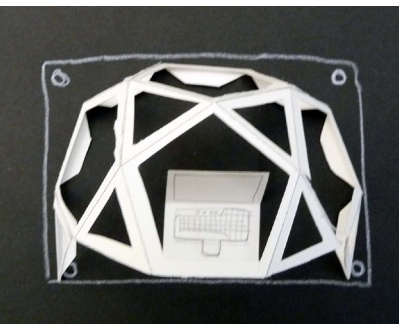
Analysis

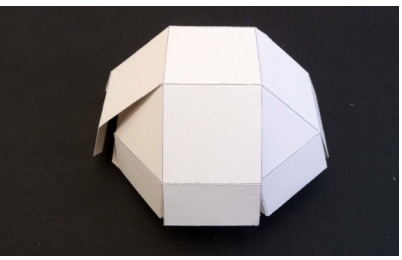
I have attempted to develop a unit system that builds on top of another. With provided elements of the system, users can expand the scale of a dome structure depending on the needs. This was a good opportunity to experiment with the practicality of geometric shapes within the desk space. However, the strong presence of the material that I used for the study model would veil the contents, and break the totality of the whole system. Thus I need to find different materials that use the principle of geometrics without harming the integrity of the space.

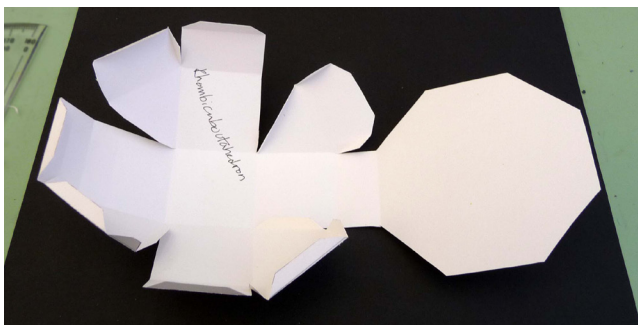
[20] "Leonardo on-line," Buckminster Fuller, http://www.olats.org (accessed January, 2009).

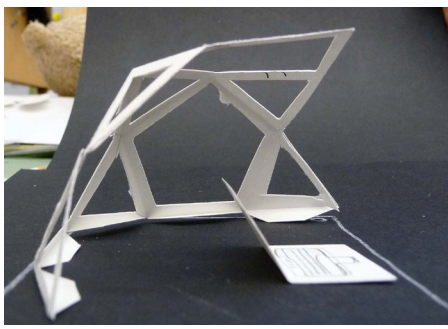






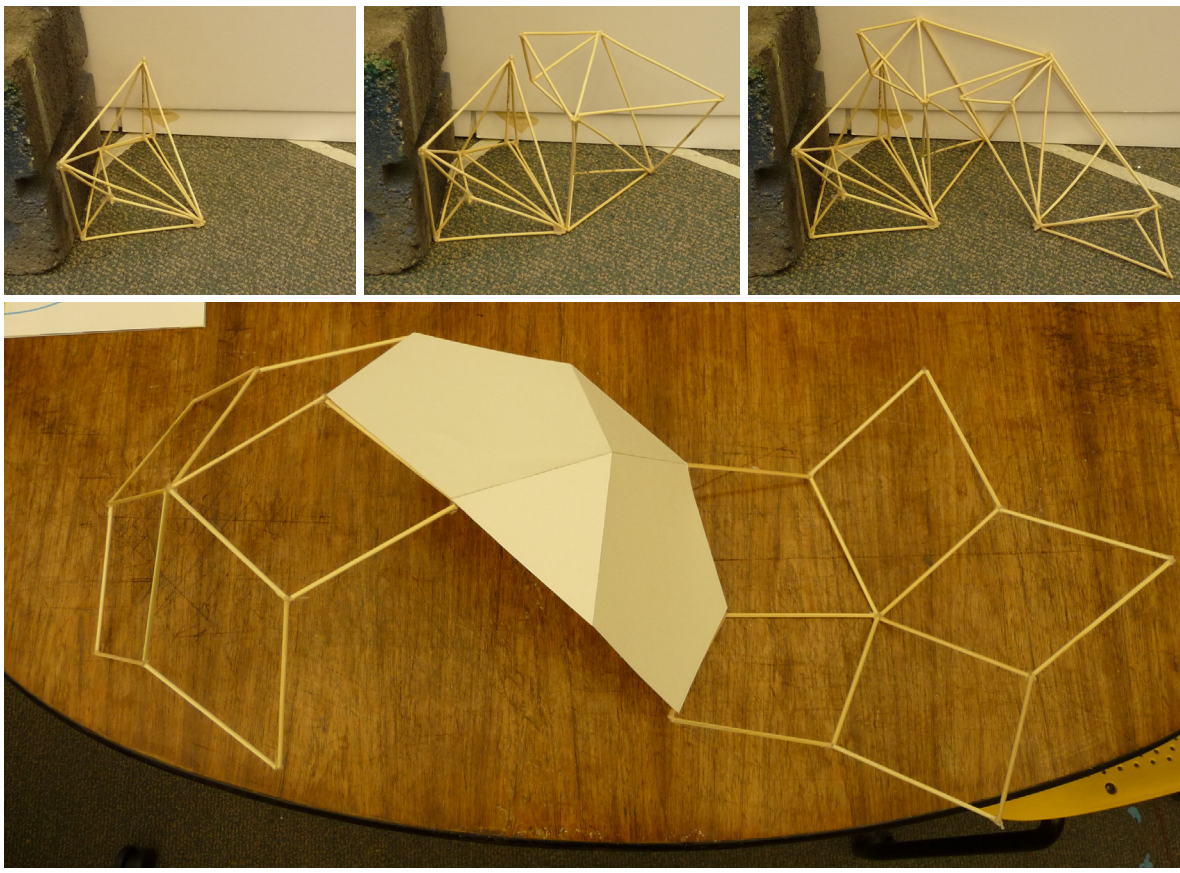




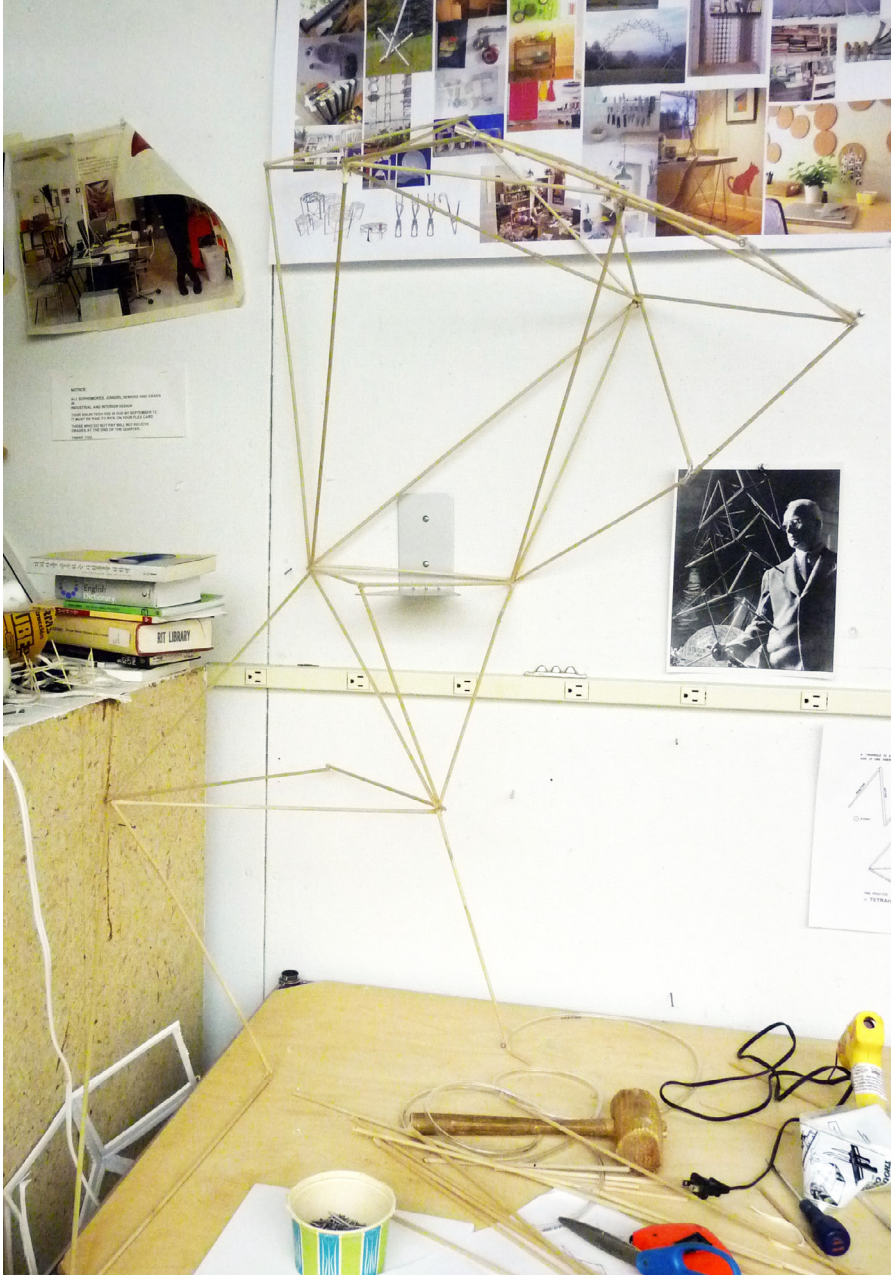


Ideation 4-2. Benefitting from Surfaces

In this stage, my goal is to design a simple frame unit that responds to a user's surroundings, which embraces a use of existing planes of the space into the system. Throughout the previous exercises, I have learned the importance of incorporating planes to the placing system, since the structure was strengthened by them and it was easier to apply to variable settings in that it provides a flat top to put paper documents on.



Modular studies using triangles, and the module combined with a plane.



Modular study
on the desk

Analysis

Prior to adding planes to the structure, I experimented with triangular modules. My intention was to use them as a unit that can be built on each other, covering areas of corner and overhead spaces on the desk. However, this exercise was not developed any further because its usability was not simple and intuitive enough to be comprehended by ordinary users.

Ideation 5. Reflection

The reflection diagrams are visible representation of light and sound reflection when confronted with specula.

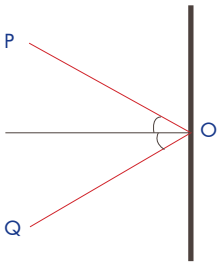
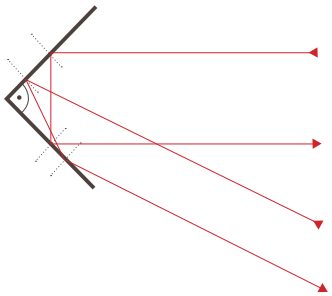
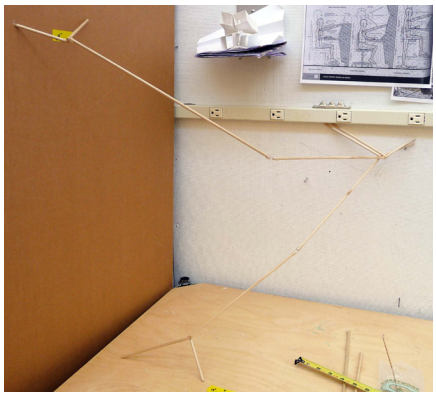


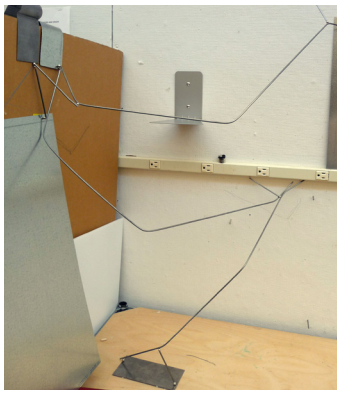
Diagram of specula reflection

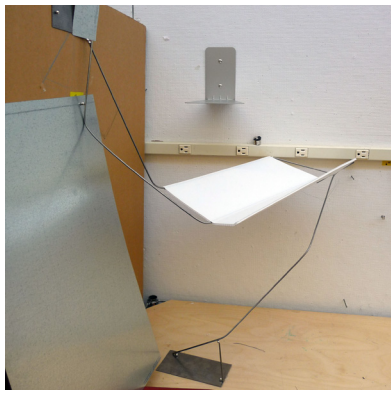


Working principle of corner

Reflection diagram from the Wikipedia on reflection (Physics)



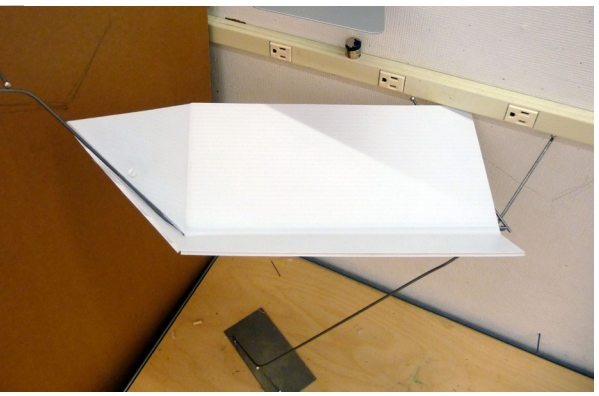


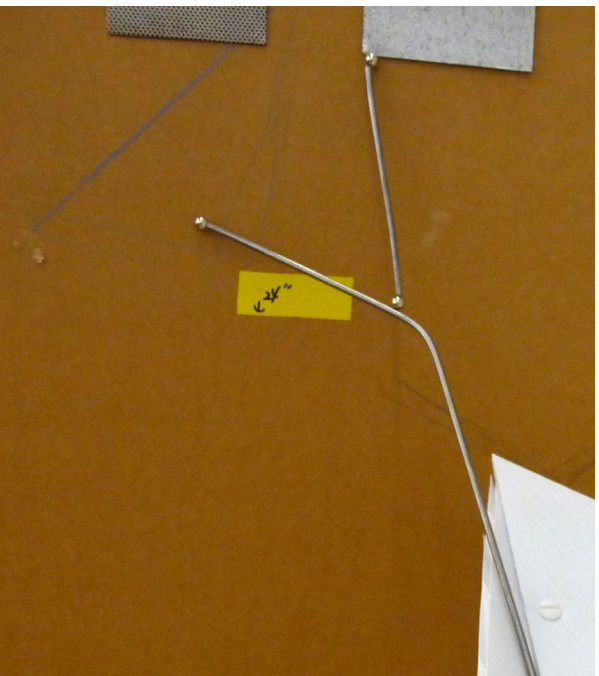


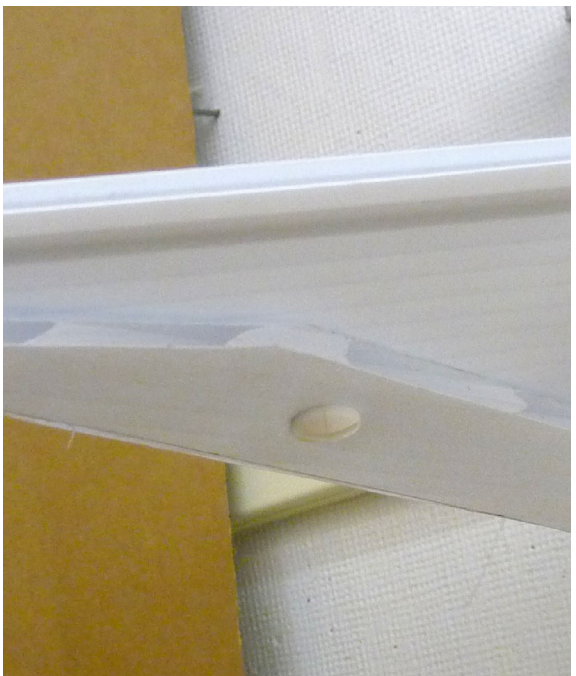
I will apply this concept of reflection when constructing a system; a rod departs from a desktop surface leans toward the facing wall, and it mirrors to the corner wall. This step will repeat as long as whoever is building up the structure wants. Angles of each rod will be based on the calculated degrees derived from my testing. A horizontal arm on the second level will be used to support a shelf installation. In addition, mini-sphere magnets will be used to connect each metal rod.

Analysis

Mini-sphere magnet connectors were used in this model, and the model needs more strength to sustain the weight and its structure. Considering the character of the magnets, connections are easily destroyed by even a piece of paper placed on top of the structure. Therefore, in my next step, I will explore further ways to lock each connection securely.





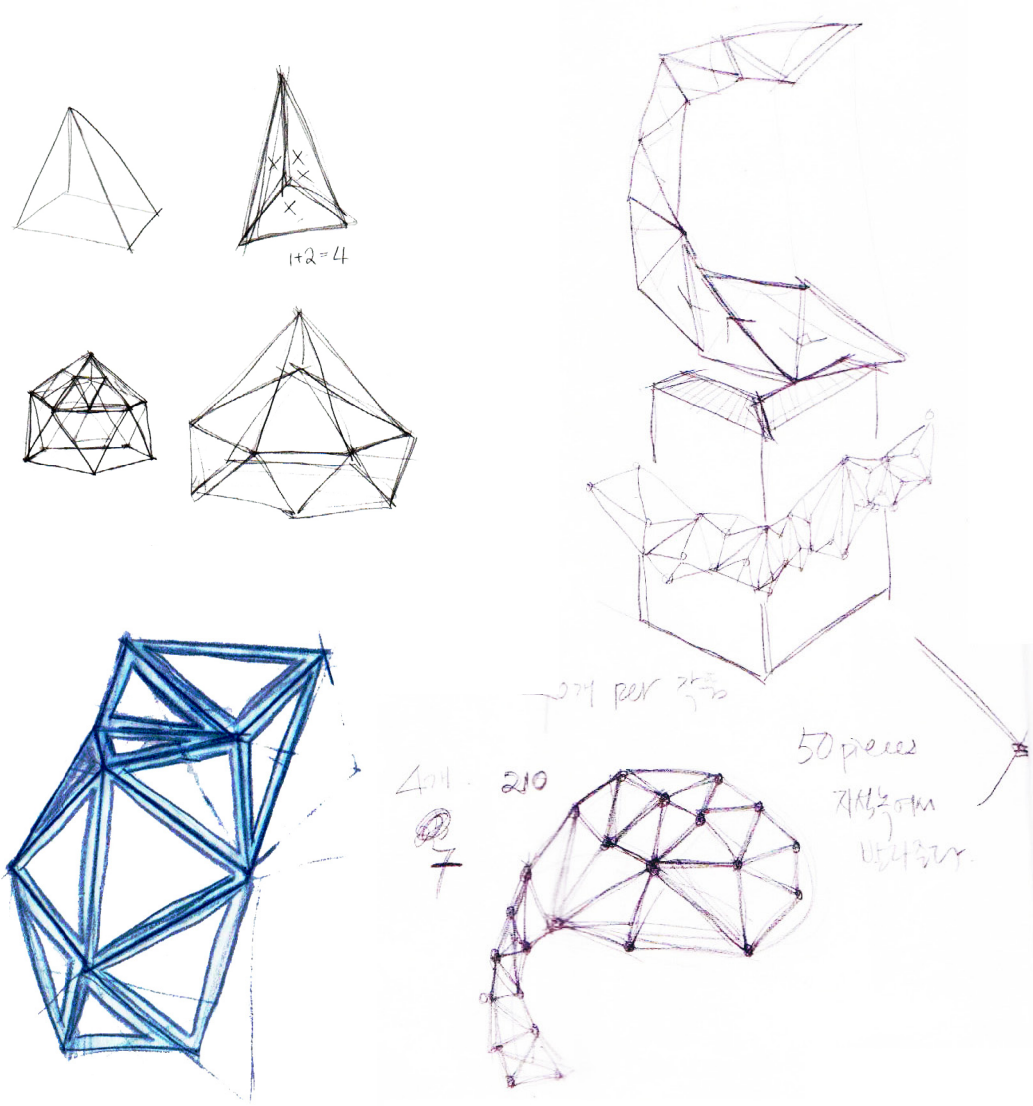


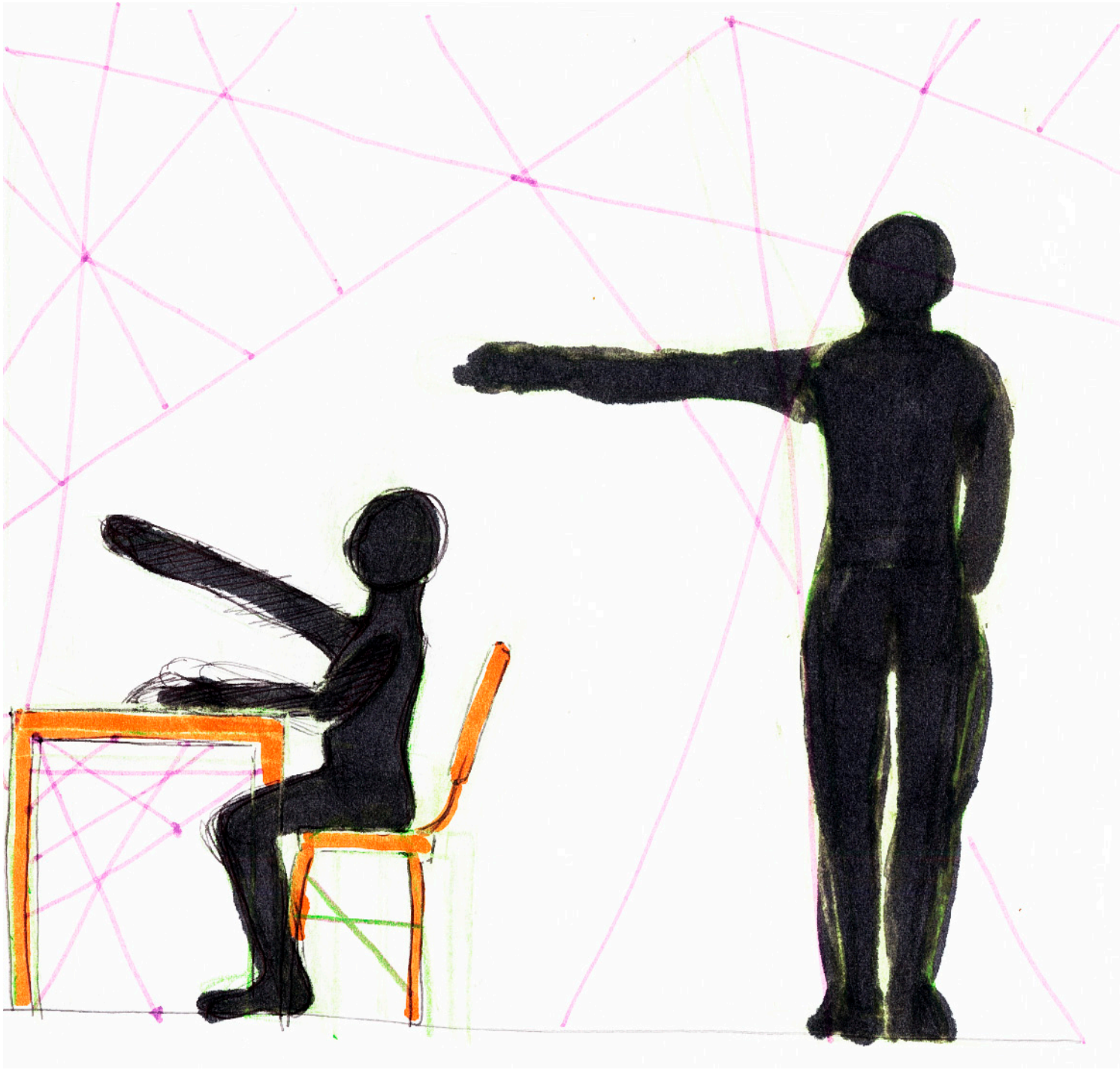
Details:
folding shelves and mini-sphere magnets as a connector between the metal rod

Lessons Learned

Studying geometric shapes helped me to explore diverse ways to create a space. Initially, I have limited myself to create a volume of space by just using frames. However, after several 2D and 3D sketches, I have realized the importance of using planes as the main element. Use of planes within a well-built frame has made the form and construction simpler and sounder.

I imagined a net system like spider webs that can be built in corner spaces and any negative spaces.



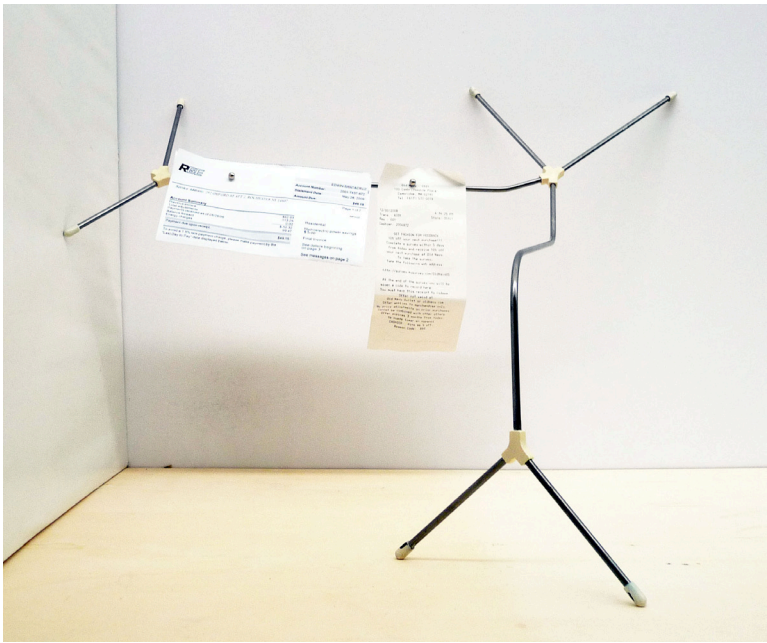


Concept Proposal

Concept Description

This concept asks for active participation from users because it is about building a system that fits well to the user's space, and users understand their own space best. The system incorporates intersections of the walls and a table surface as its basic elements. It is a wall-dependent modular system, which utilizes empty corners and overhead spaces.

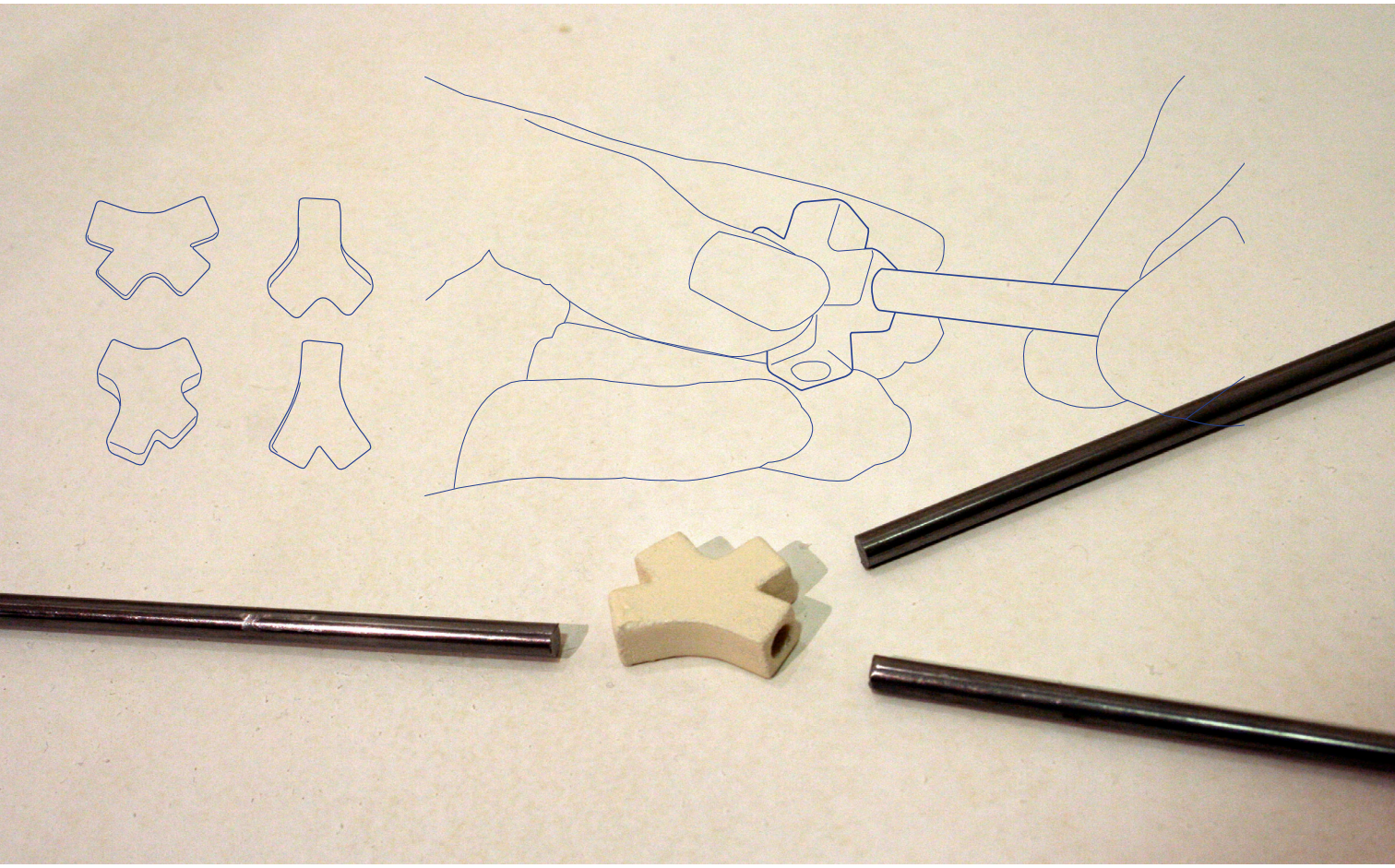
Constructional elements are comprised of various length of straight and angled metal rod, four different kinds of plastic connectors, rubber wall feet, and three choices of folding shelves.



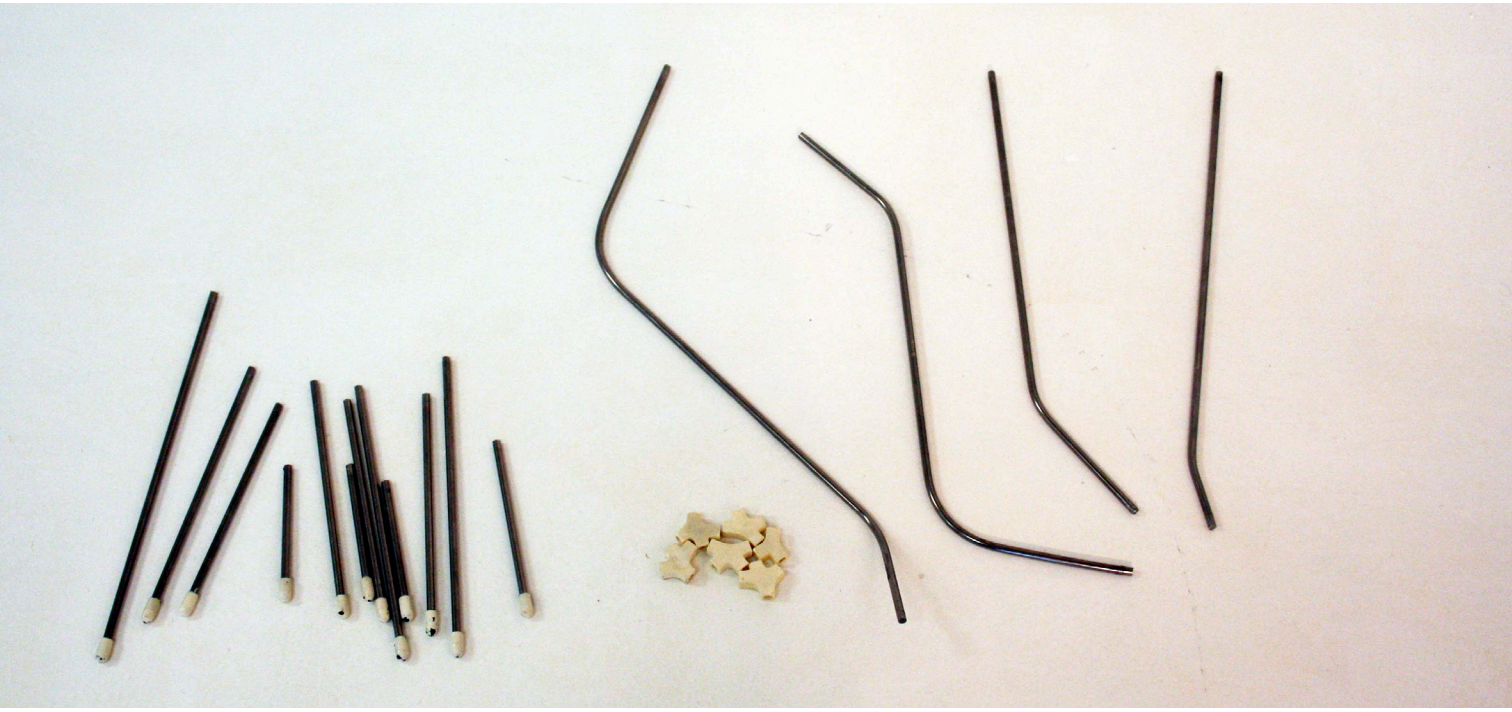
Configurations of units; each unit has a triangular base which connects to another base from the wall.

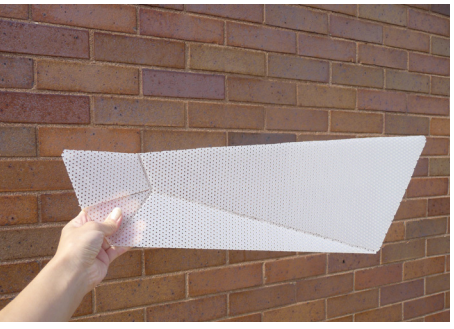
A wall-dependent modular system which utilizes empty corners and over-head spaces

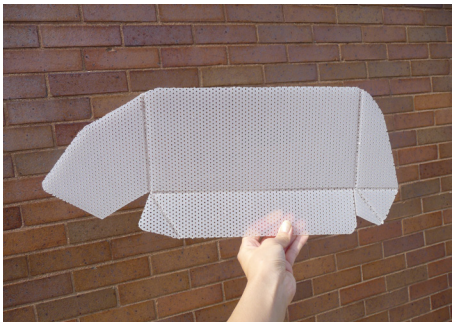
Constructional elements

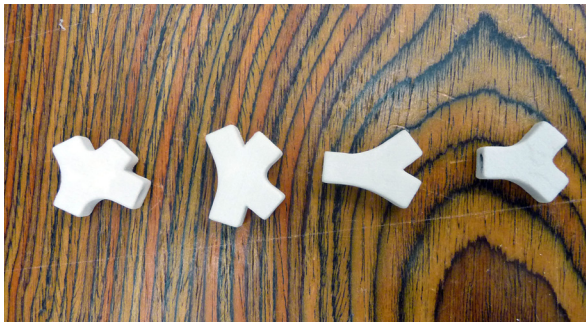


Completion of each unit requires one or two connectors, four different types of angled arms, and five pieces of metal rod covered with rubbery wall feet.



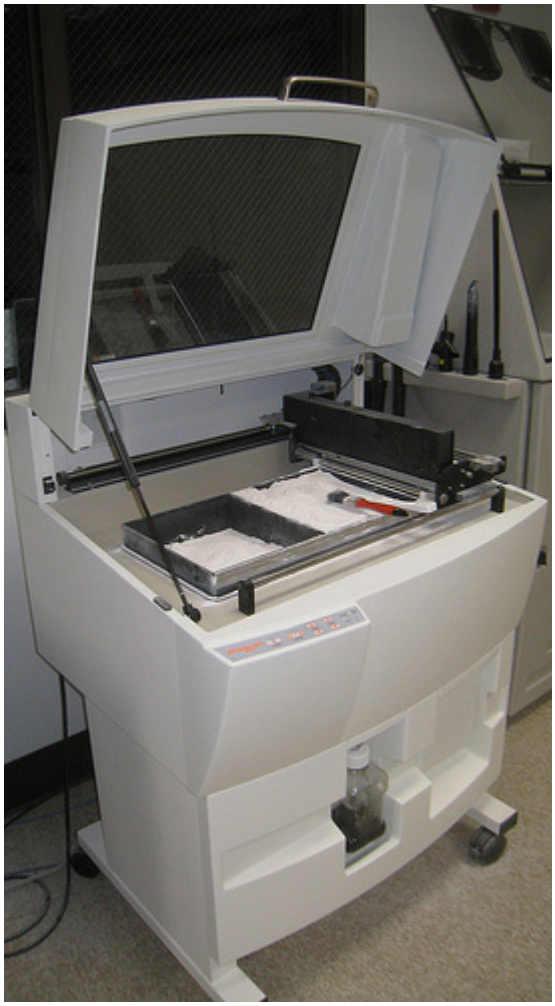


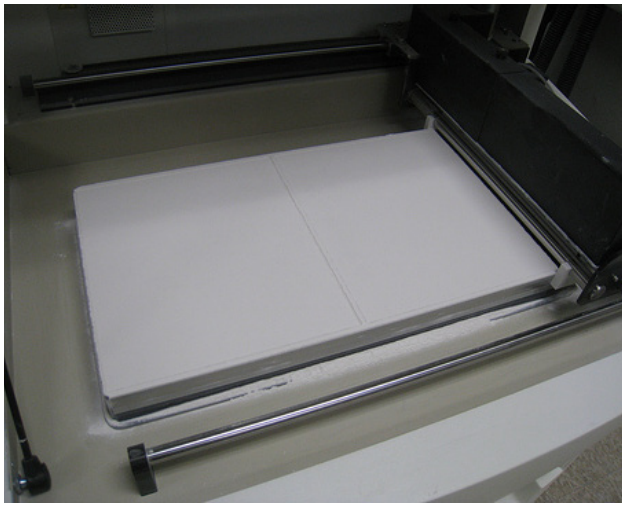


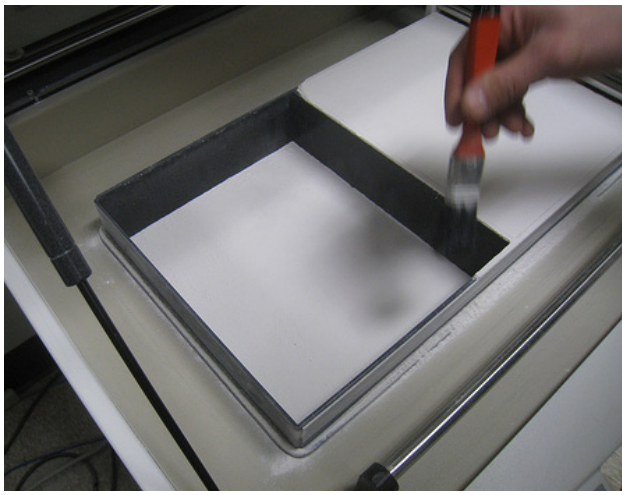


Making connectors 1. SolidWorks Rendering Printing

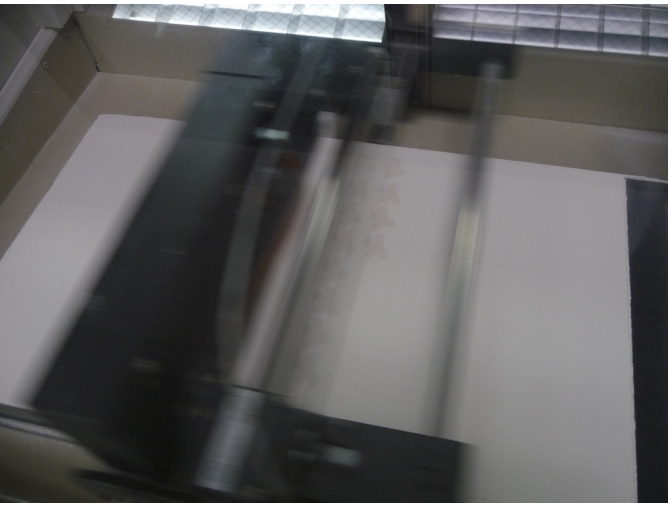
In order to make precise connectors, I used a technology that prints 3D objects by adding successive layers of powder. Models were digitally rendered in the computer rendering program called SolidWorks[24]. This is a technology generally used for prototypes to see its scale, feel and test functions.



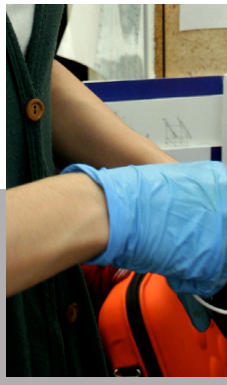




[24] A 3D mechanical CAD (Computer-aided Design) program that runs on Microsoft Windows and was developed by Dassault Systemes SolidWorks Corp., a subsidiary of Dassault Systemes, S.A. (Velizy, France). It is currently one of the most popular products in the 3D mechanical CAD market.



Making connectors 2. Plastic Molding



STAGE 1: Making a Rubber Mold (Duration: 16 hours)

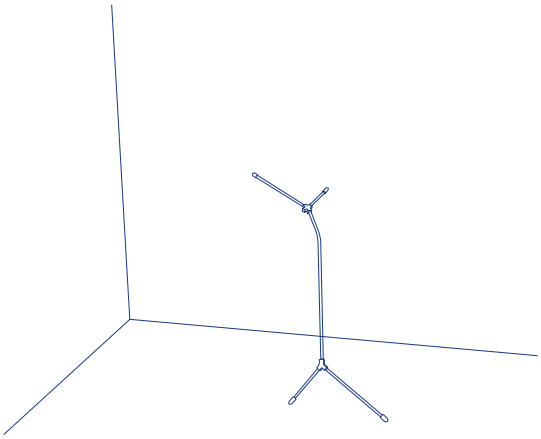
STAGE 2: Making Plastic Molds (Duration: 15–20 minutes)

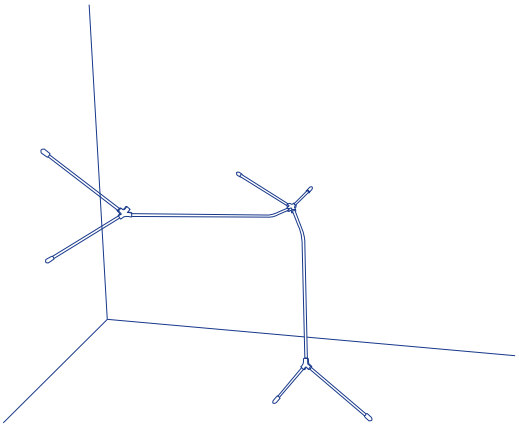
I had prepared the following components to create plastic moldings of the connectors: 3D printed connectors, a clear plastic container, a stick, two cups, Smooth-on® plastic molding and WD-40 .

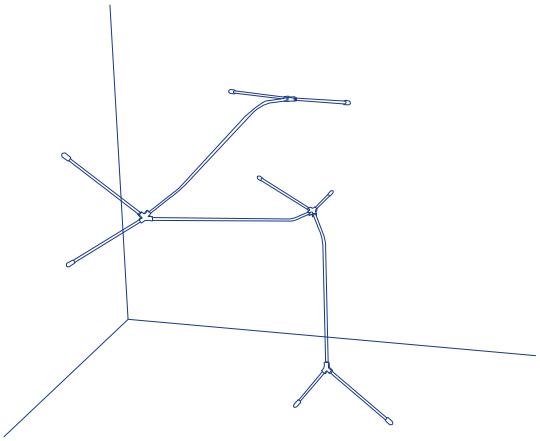
The reason for remaking connectors with plastic molding was because of the low density of the 3D printed ones. The printed connectors were made out of powder and the thickness was approximately 2MM which is fairly thin. The connectors could not sustain the strength of any loads on top of the structure for long and was easily destroyed when holes of the connector were pushed too hard with the metal rod.

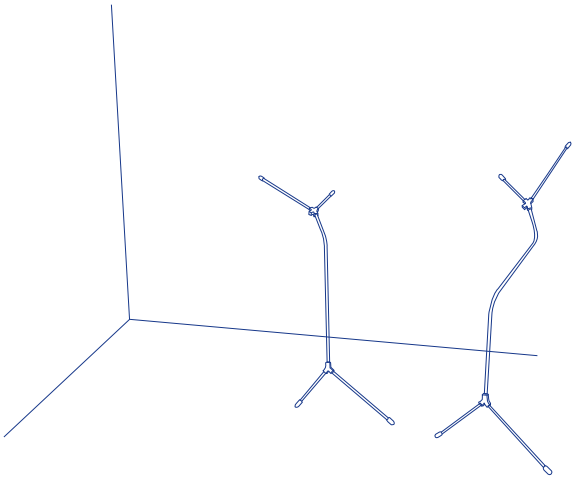
Play With Variations

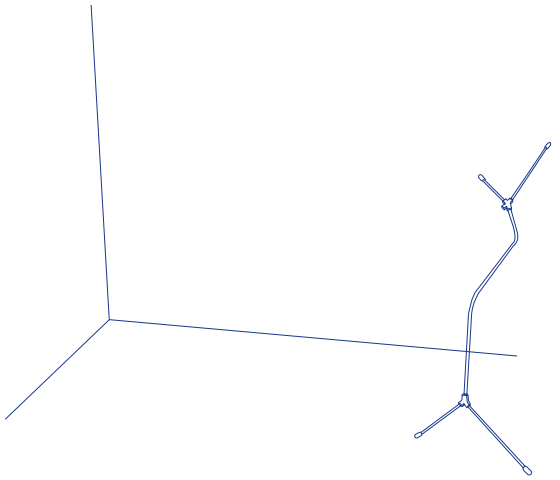
You can build your own structure depending on your needs and features of your living space. Configurations may vary as you get more comfortable using the connectors and the rod at different angles and lengths.

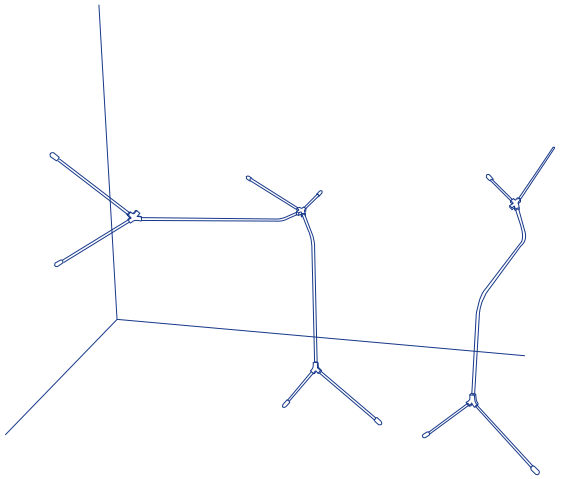




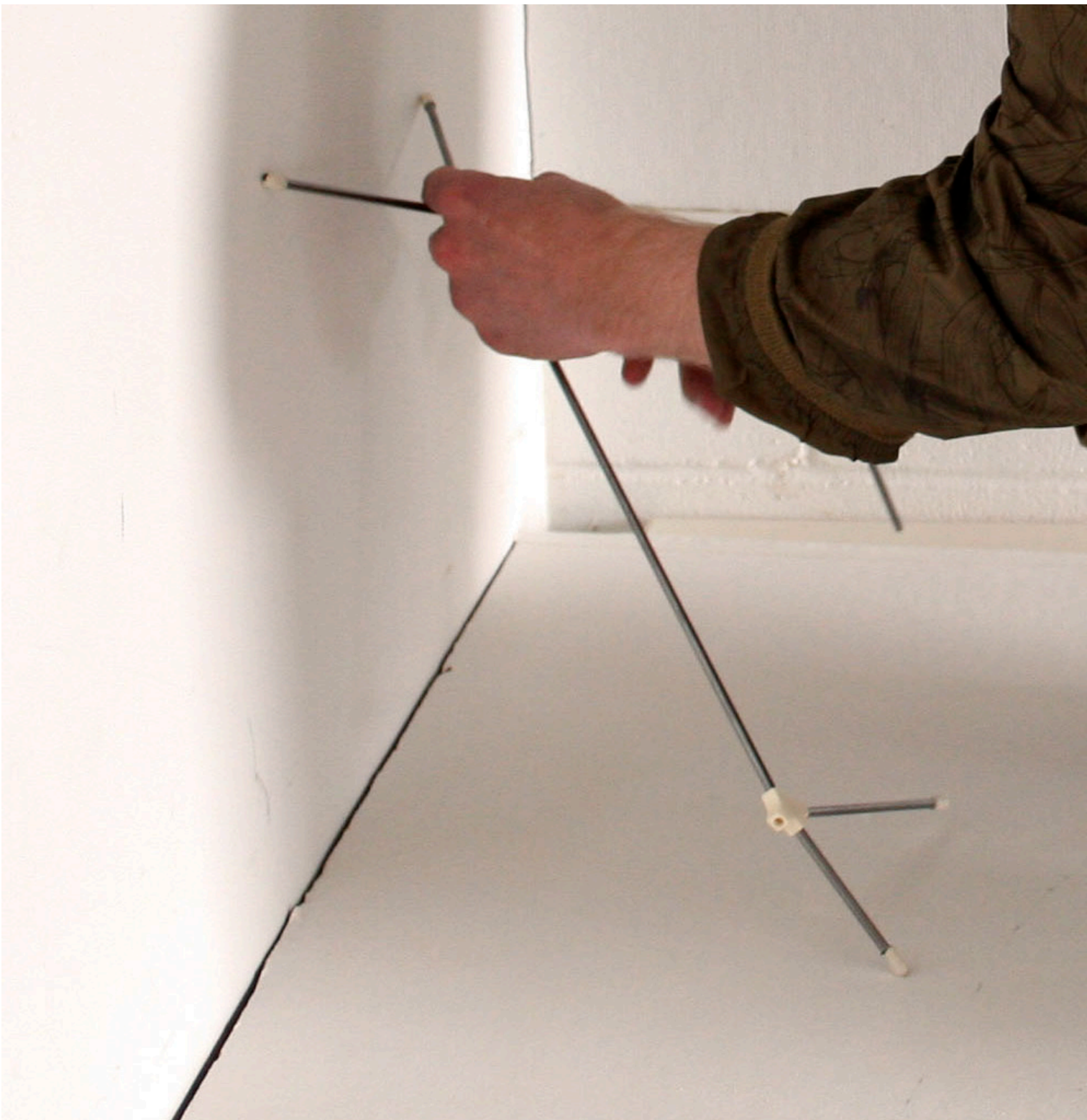


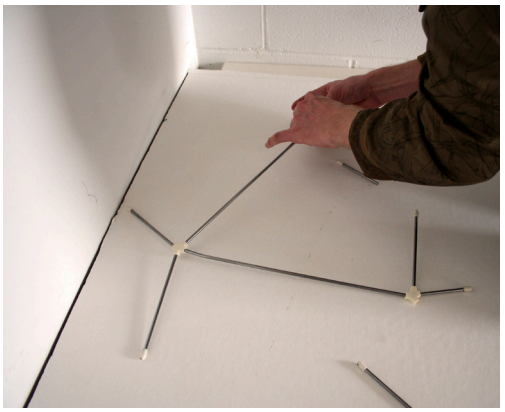


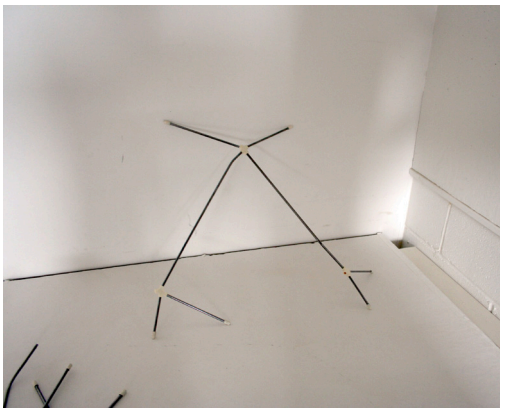
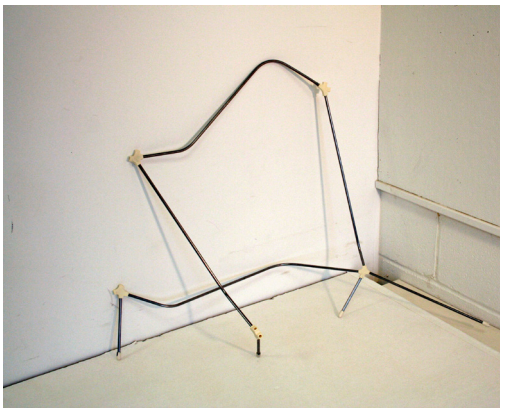
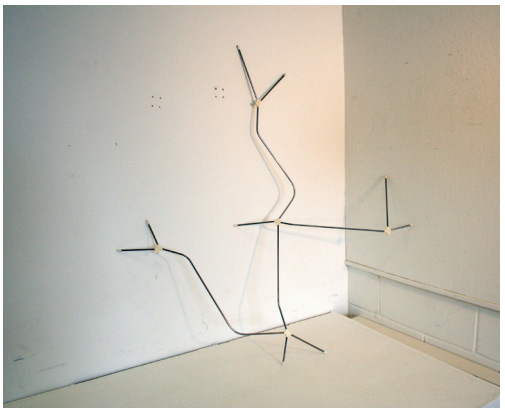
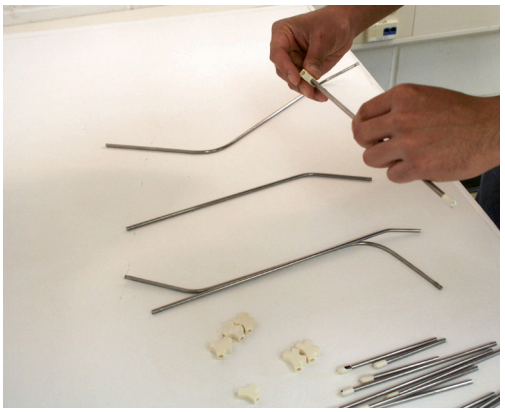
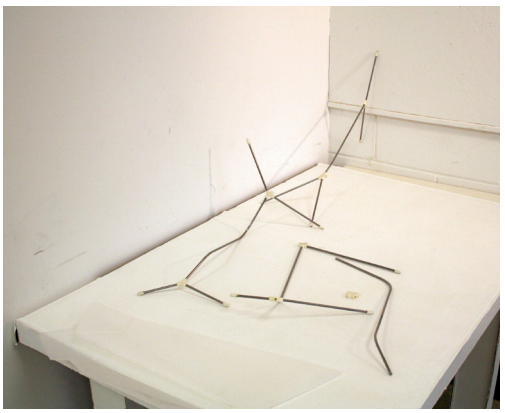




User Testing

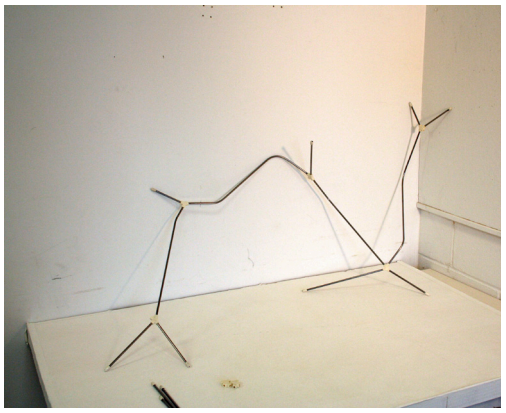


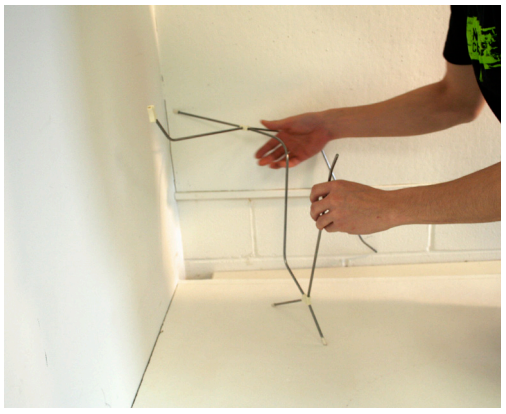
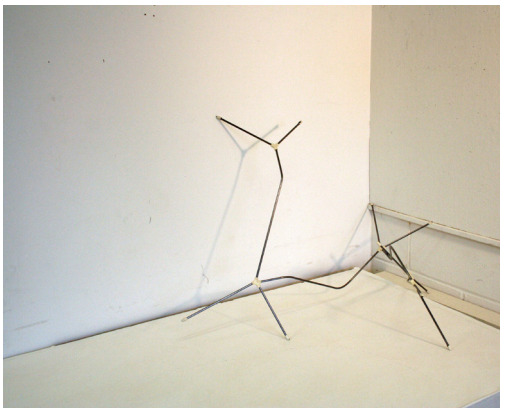
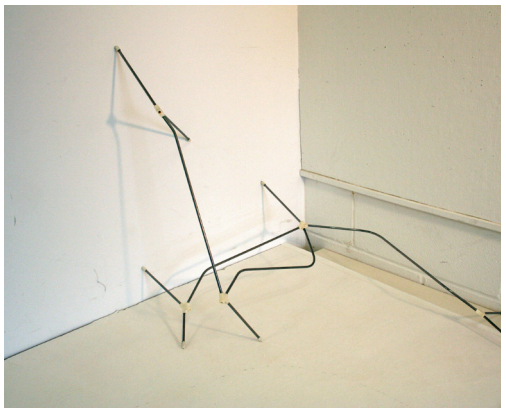
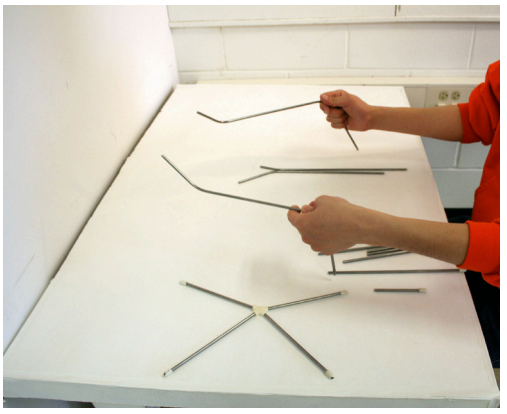
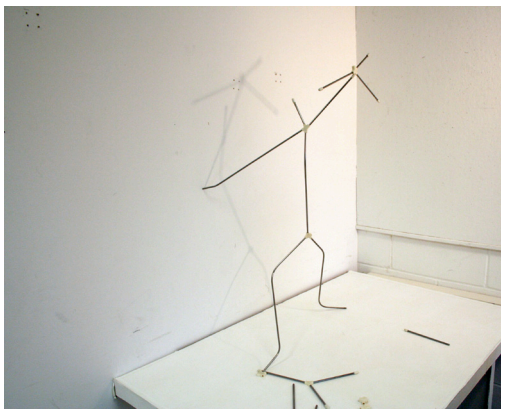
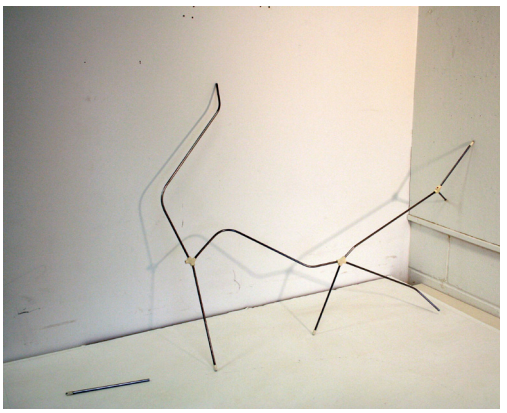



"I love how
I can build my
own structure
that can be also
changed
by spaces."

SANDRA



"...this would be easier to build if it has more unified modules."

TONY

Qualitative Research

I gave a short description about this project to 10 testers before they actually built their own structure. Shelves or containers were not provided to them in order to test usability of the frame assembly alone with users. I asked questions while they were testing the model, and their suggestions were reflected on my final proposal.

User Testing Analysis

Testers, along with the notion of *invisibility*, successfully have understood the high adaptability of the placing system to the individual space, simple configurations, and its playfulness. However, the testing showed that the structure of the system needs to be more robust to support heavier loads. Also a simple guideline for beginners and unified angles for connectors would allow users to apply the system more intuitively to their space.

> …robust structure for heavier loads, a simple guideline for beginners, and unified angles for connectors that will allow a more intuitive assembly.

IV CONCLUSION

Constructional Elements

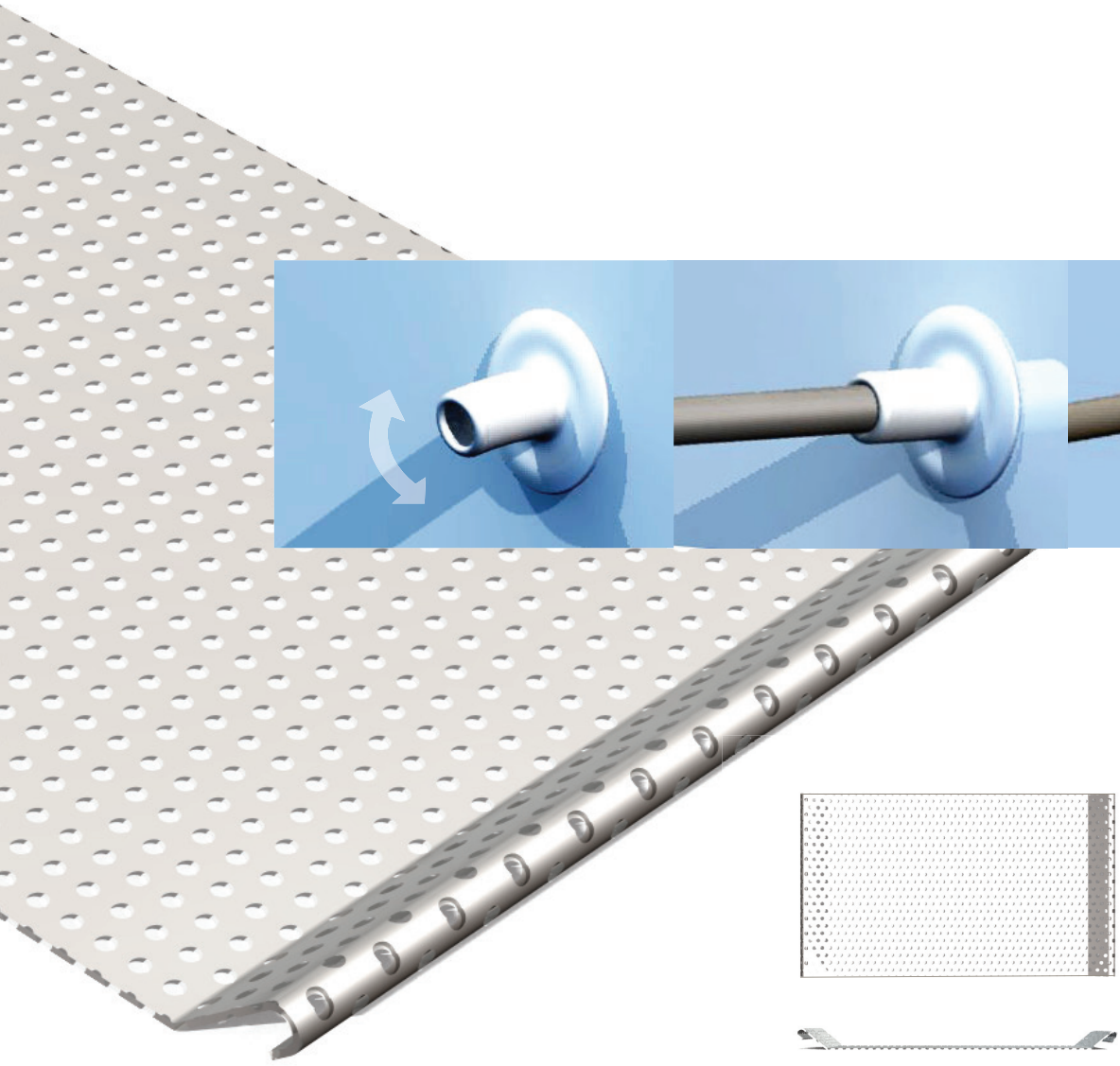
Here are elements to build a structure:

1. Silicone covered polyethylene connectors
2. Rods with different lengths
3. Silicone suctioning wall foot
4. Perforated sheet-metal shelf
5. Polyethylene bin

The folded end of this metal shelf prevents papers from slipping through the side.

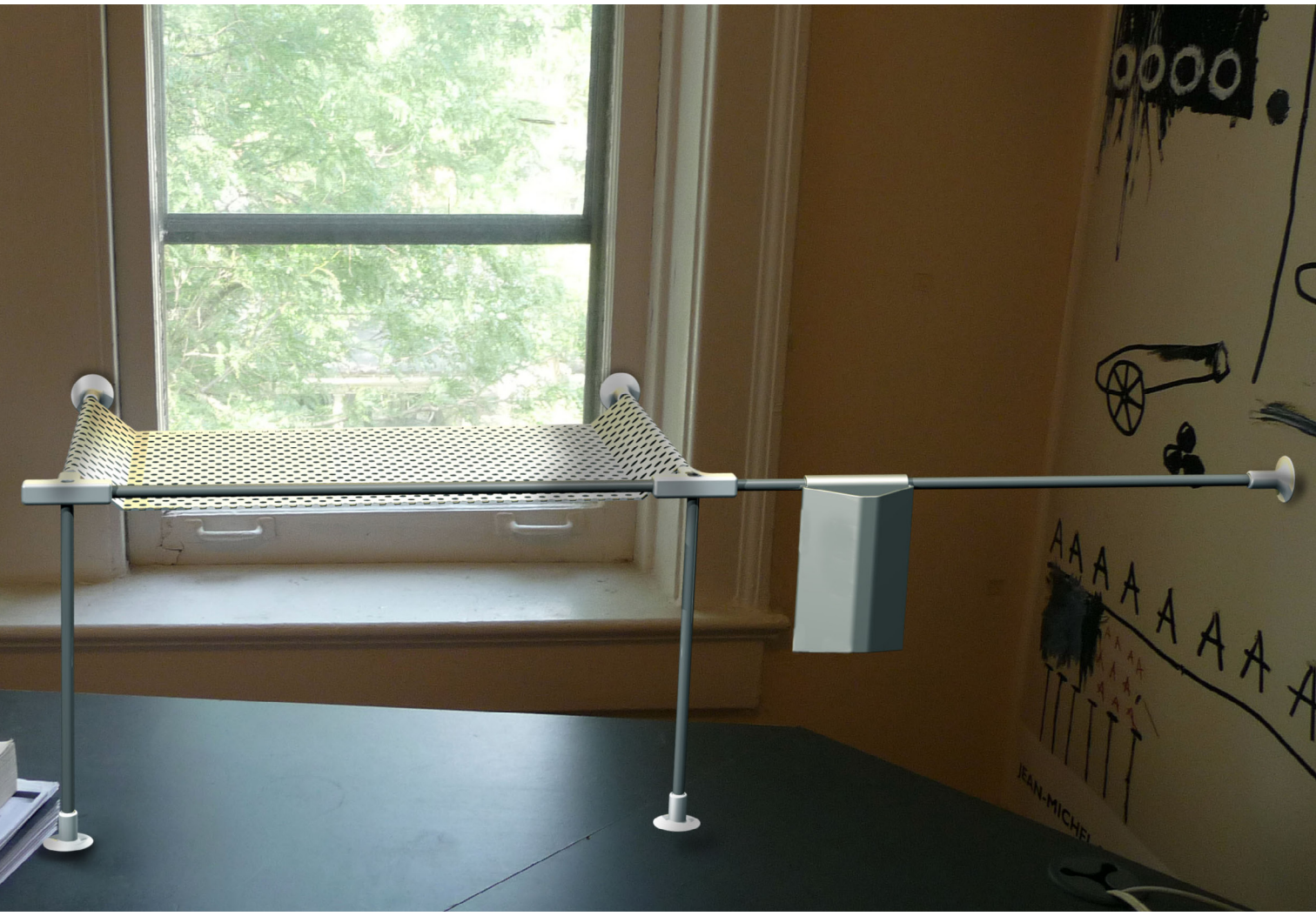
The opening part of the bin is flat but its bottom is slightly angled. This feature helps it to balance from tilting when pencils or scissors are put inside.

These connectors work from any direction by a simple twist action. Since they are be molded on a flat plane, to produce them is economical and simple.



Rubbery wall foot suctions on any kinds of surface plane to secure the structure.

User Demonstration



This structure can be built higher, wider and deeper than the demonstration above depending on the users' needs.

This placing system resembles that of tinker toys in its modular frame assembly. This modularity encourages active user participation beyond what is required in existing products. First of all, a user needs to find a suitable space in her office to construct the frame. When she has found the space, she can pick up a rod and place one end of the rod into the connector, and the other end into the rubbery wall foot. The assembled frame would stand on the desk or could be fixed to the wall with the suctioning part of the wall foot. There are two kinds of connectors: T shape and a cross shape.

When the frame is built, the user can incorporate varying numbers of shelves and bins depending on her needs.

Since the wall foot and the connectors replace the fixing purpose of that hardware, screws and hammers are unnecessary to build this system. The system uses existing elements of the home office space, such as a desktop surface, unused corners and overhead spaces, to create a new space that was once unappreciated and dead.

New Habits of *Placing*

From years of experience, I have learned that most of the organizing products and filing systems in the market are not the right choice for me when placing objects in the space. How are they solving my trouble finding keys and documents? Aren't designers actually ignoring my organizing patterns by covering up the contents using separate closed sections in their products? Designers would claim that their products make the space "look" clean and organized. However, as a user, I want these products to be more helpful for placing objects better, rather than making the space "look" cleaner than it really is. Indeed, "Design for *Invisibility*" is to accept the individual differences of habits and surroundings instead of blocking the sight of the users with labeled boxes and filing organizers.

If designers understand better that people's placing habits vary and require different solutions, they cannot force everybody to fit into their limited product selections. Therefore, in order to solve the problem from the users' point of view, I have designed a system that is easily constructed by them and utilizes architectural elements of their space, such as walls and corners. The user can change configurations based on their environment and personal needs. Also by challenging users to construct their own placing system, this project asks users to scrutinize their habits and surroundings before they can actually start building one.

This project introduces and recognizes new habits of *placing*. The "new" system will change a common user perception on ways of "organizing" that have been shaped by the existing products. In order to active the system, users need to put more effort on placing documents or stationery than they used to with the existing products. This system, contrary to those covering up products, brings attention to the contents and patterns they create rather than the presence of the designed object. This system is new in terms of showing different aspects of organizing, and understanding the space.

Also, in this system, users lead the process of designing instead of being led by a designed product, and the user-object and the user-space relationship change from the passive to the active. If users become more conscious about their own habits, and can creatively exploit their own system of placing, the act of placing will be a more enjoyable experience.

The Success of *Invisible* Design

Although I claim that my thesis project "To Place Things Better" has successfully demonstrated the thesis "Design for *Invisibility*" through the user testing, how can I be certain about its long-term success with regard to the ease of use, and its integrity with the user's habits and environments before it has been in use? Therefore, the full value of the design cannot be determined until it is put to use over an extended period of time, and within an everyday context.

Throughout the thesis, I have explored the impact of *invisible* artifacts in our everyday life, and conducted several exercises to build a model that encourages active interactions between a user and an object. As a result, I have concluded that design needs to move toward the integration of a system into our daily space, rather than the creation of distinctively designed objects. Likewise, what will become more visible are the users' habits and personal surroundings, rather than the presence of the product. Such is the goal of objects designed for *invisibility*.

APPENDICES

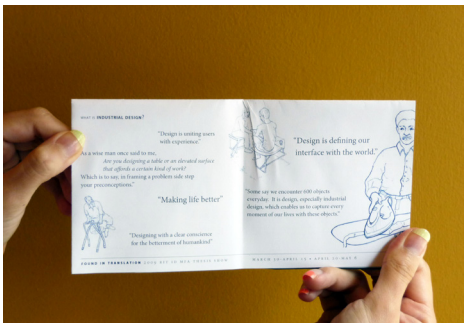
Thesis Show

Posted on the wall of the Java's.

A week prior to the show, six exhibitors got ready to publicize a poster (12″ x 12″) and a pamphlet/ mini poster (16″ x 8″). The pamphlet was color printed on both sides, and was designed to work both as a poster (8″ x 8″) and a folding pamphlet (4″ x 4″).

Demonstration

1.Found In Translation?



2. What is Industrial Design?

3. A Mini-Poster.

4. Exhibitors' Information

5. Found In Translation!

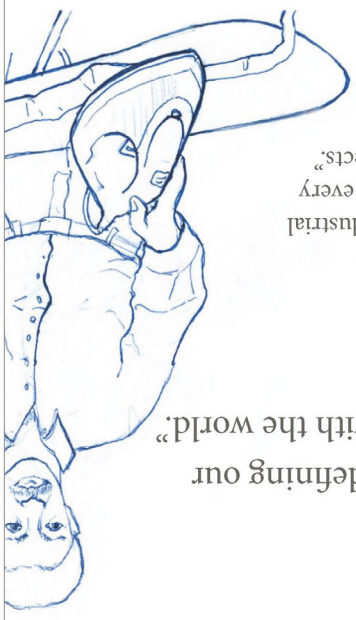
The mini pamphlet can be folded three times and fitted into the pocket. Front page shows a shot of the studio with a title of the thesis show "Found in Translation." Once opened up like a mini booklet, the second spread offers definitions of industrial design with hand drawn illustrations. The third spread is a scaled down poster of the show. The last spread gives the audience brief information about each exhibitor's thesis project. When you close it and look on the back, there is a definition of "Found in Translation." The ruler graphic on the top edge of the poster was inspired by similar markings on our studio wall.

Designed by
Gahyung S. Song

Illustrated by
Brandon McKean

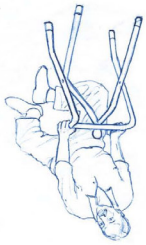
Industrial Design
defined by
"JADU 40 HOURS A WEEK"

Pamphlet *side 1*



"Design is defining our interface with the world."

"Some say we encounter 600 objects everyday. It is design, especially industrial design, which enables us to capture every moment of our lives with these objects."



"Making life better"

"Designing with a clear conscience for the betterment of humankind"

WHAT IS **INDUSTRIAL DESIGN?**

"Design is uniting users with experience."

"As a wise man once said to me,
Are you designing a table or an elevated surface that affords a certain kind of work?
Which is to say, in framing a problem side step your preconceptions."

FOUND IN TRANSLATION
Everyday we enter into a kind of dialogue with artifacts. These artifacts are physical translations of abstract concepts. They are found in translation.

2009 RIT MFA Industrial Design Thesis Show

FOUND IN TRANSLATION

Bevier Gallery in Booth Building 7A, Rochester Institute of Technology


2009 RIT MFA Industrial Design Thesis Show
FOUND IN TRANSLATION
Bevier Gallery in Booth Building 7A, Rochester Institute of Technology
N°1
MARCH 30-APRIL 15
Chongyoon Chung
Hao Huang
Brandon Mckean
Gahyung Stephanie Song
Cindy Staton
Reception
Friday, April 3
5-7pm
N°2
APRIL 20-MAY 6
Weijay Shaw
Monica Zagarra
Reception
Friday, April 24
5-7pm

Pamphlet *side 2*

EXHIBITORS

MARCH 30 – APRIL 15

CINDY STATON
Skill Meets Furniture

BRANDON MCKEAN
Extending the Body; User-Centered Design for Seamstresses

GAHYUNG STEPHANIE SONG
Design for *invisibility;* To Place Things Better

CHONGYOON CHUNG
Gestural Interaction of Secondary In-Vehicle Tasks: *Audio and Climate Control*

HAO HUANG
Interactive Advertising Media

APRIL 20 – MAY 6

MONICA ZAGARRA
Play for Social and Creative Development

Skill Meets Furniture

DESIGNER
Cindy Staton

CONTACT
cls5319@rit.edu
cindystaton.blogspot.com

Gestural Interaction of Secondary In-Vehicle Tasks: *Audio and Climate Control*

DESIGNER
Chongyoon Chung

CONTACT
chung3271@gmail.com
www.coroflot.com/chongyoon
www.linkedin.com/in/chongyoon

Extending the Body; User-Centered Design for Seamstresses

DESIGNER
Brandon McKean

CONTACT
bdm3251@rit.edu

Interactive Advertising Media

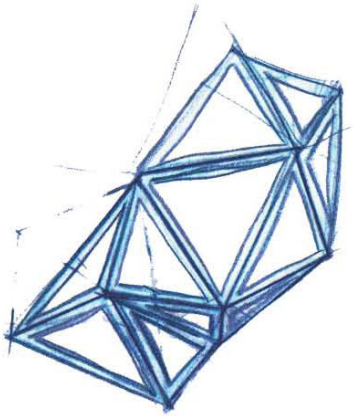
DESIGNER
Hao Huang

CONTACT
jokerjoker9598@hotmail.com

Design for *invisibility;* To Place Things Better

DESIGNER
Gahyung Stephanie Song

CONTACT
courir1227@hotmail.com
stephgasong.blogspot.com



Play for Social and Creative Development

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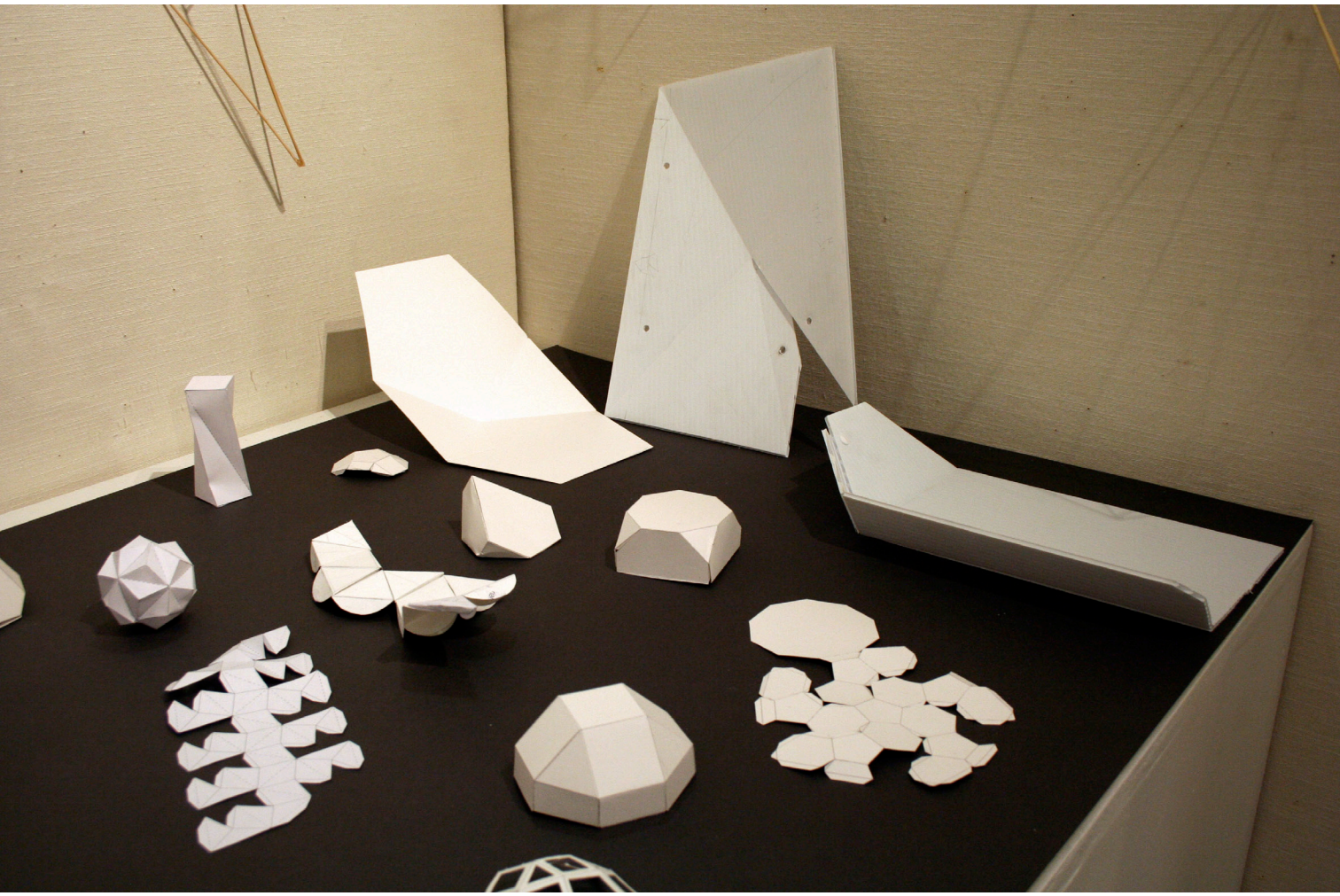
MARCH 30-APRIL 15 • APRIL 20-MAY 6

Thesis Show

Thesis show at
the Bevier Gallery, RIT
March 30-April 15 2009

The show successfully delivered the concept of invisibility by sharing process models, idea sketches and mock-up demonstrations explained with panels to audiences.



Geometric study models displayed at the thesis show.

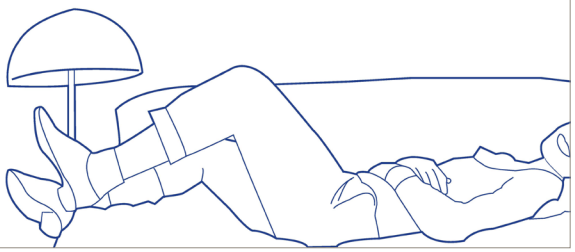
DESIGN FOR *INVISIBILITY* TO PLACE THINGS BETTER

Gahyung Stephanie Song
Masters Candidate Industrial Design

Elisa Nalin lying on her sofa at her apartment in Paris, France (www.thesilby.com)

Take a minute to look around yourself. Think of where you are who you are with and what you use everyday.

You are in the space where everything is man-made except for your own body.



Panel 1: Introduction of Design for *Invisibility* to Place Things Better

Thesis show view of Panel 1

DESIGN FOR *INVISIBILITY*

Invisible *adjective*
1 unable to be seen, either by nature or because it's concealed
2 treated as if unable to be seen; ignored

Physical disappearance of an object does not matter much for the notion of ***Invisible* Design**. When an object fits our living environment and habits so well it gradually disappears to the background of our everyday life and becomes invisible. As you see from images on the bottom, a lighter that 'Chuck Noland' (starring Tom Hanks in a film *Cast Away*) is holding is usually taken for granted by most of us. However it does not seem the same for him after having been left alone on a deserted island for years. Thus it is a person's mental change and their everyday living environment that matters most to measure the *invisibility* of design.

How different is it to make a fire with or without the help of a manufactured designed object?

When an object fits our living environment and habits so well it gradually disappears to the background of our everyday life and becomes *invisible*.

Science fiction film directed by Stanley Kubrik, *The Dawn of Man* in 2001: *Space Odyssey*

"Nature becomes human; around and within man it becomes a world, an organized experience. And man becomes nature a concrete existence, a power. "

Henri Lefebvre, *The Total Man* in *Dialectical Materialism* (Jonathan Cape Ltd., 1968) pp 350

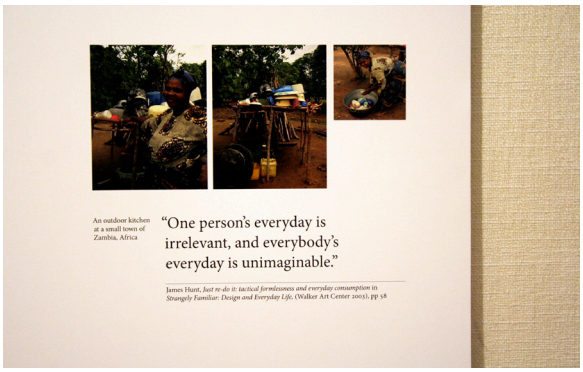
Have you ever questioned those objects you use everyday or wondered who made them? It is so natural for most people not to question about their existence. The reason for this is partly because of its high usability and adaptability to their own surrounding that in turn make it mentally invisible to us. This is as if we do not question the very being of birds, trees and the universe that we live in. Design and our mother nature are alike in a way that they permeate into our life as if they are part of us, and we are part of them.

Everyday is a time-space in which human activities occur. It is also the actual site in which designed objects are created and used. The accumulation of ordinary days form our habits. These habits gradually change themselves over time creating a new everydayness. As James Hunt said, everyday does not exist; *it is the space of becoming, not being*. Although "everybody's everyday" is impossible to imagine and define, we somehow trace its footprint by designing and using designed artifacts.

An outdoor kitchen at a small town of Zambia, Africa

"One person's everyday is irrelevant, and everybody's everyday is unimaginable."

James Hunt, *Just re-do it: tactical formlessness and everyday consumption* in *Strangely Familiar: Design and Everyday Life*, (Walker Art Center 2003), pp 58



Panel 2: Introduction
Design for invisibility and the everyday life

Panel 2 view

CONCEPT DEMONSTRATION

DESIGN FOR *INVISIBILITY*
TO PLACE THINGS BETTER

Gahyung Stephanie Song
Masters Candidate Industrial Design

PROJECT

TO PLACE THINGS BETTER

A more enjoyable and highly adaptable system for actual users of everyday

If you have ever struggled to find things because you didn't place them 'right', you have already understood the essence of this project. It all started from this very question: *Why is placing so difficult?* There were two things that I considered as important features for this project.

They are:

1 Enjoyable placing experience; self-motivated to create one's own space
2 High adaptability to a user's living space; a system that accepts different characters or habits of individuals

Rediscover and transform walls in your space to an *invisible* placing system

10 PLACING HABITS

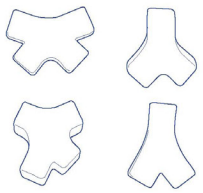
1 Vessel and stick: ex. place a roll of paper in a container
2 Hang on hooks: ex. hook a t-shirt
3 Stack up: ex. pile books
4 Roll: ex. roll a paper or carpet
5 Pin up: ex. pin posters up
6 Toss: ex. toss dirty laundries away
7 Highlight; assign a space: ex. color the wall behind a desk
8 Label: ex. put labels on sorting containers
9 Align and arrange: ex. line up cosmetic bottles in one area
10 Put away: put dishes under the cupboard

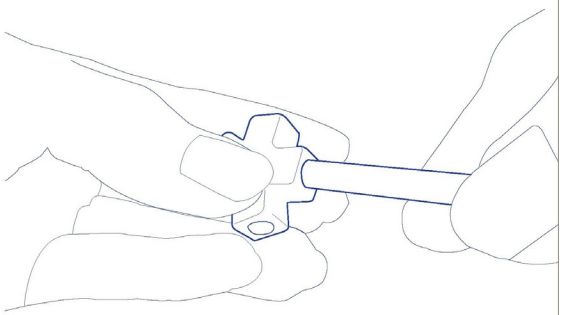
OPPORTUNITIES

The concept demonstrated is dedicated for people who need more than general organizers that provide rigid boxes with a sorting label on top. Wall spaces above a desktop will be rediscovered as a part of the concept.

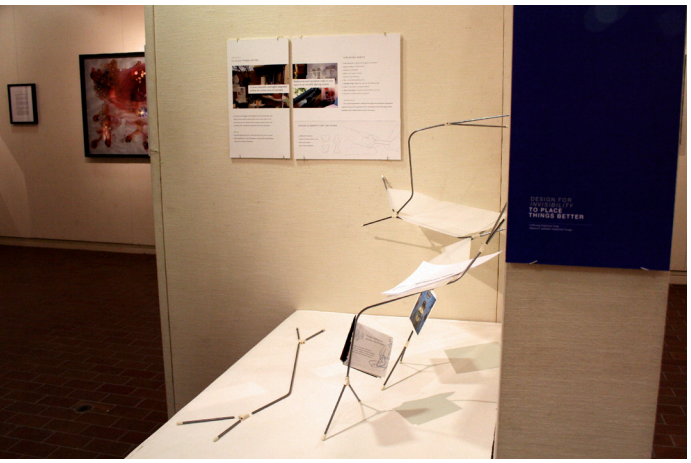
DESIGN ELEMENTS FOR THE FRAME

4 kinds of connectors
5 pieces of metal rod for a unit
Each unit requires
one or two connectors





Panels *continued*



Thesis show view

Panel 7: Side panel
Geometric
Form Studies

PROCESS:
GEOMETRIC
FORM STUDIES

DESIGN FOR
INVISIBILITY
TO PLACE
THINGS BETTER

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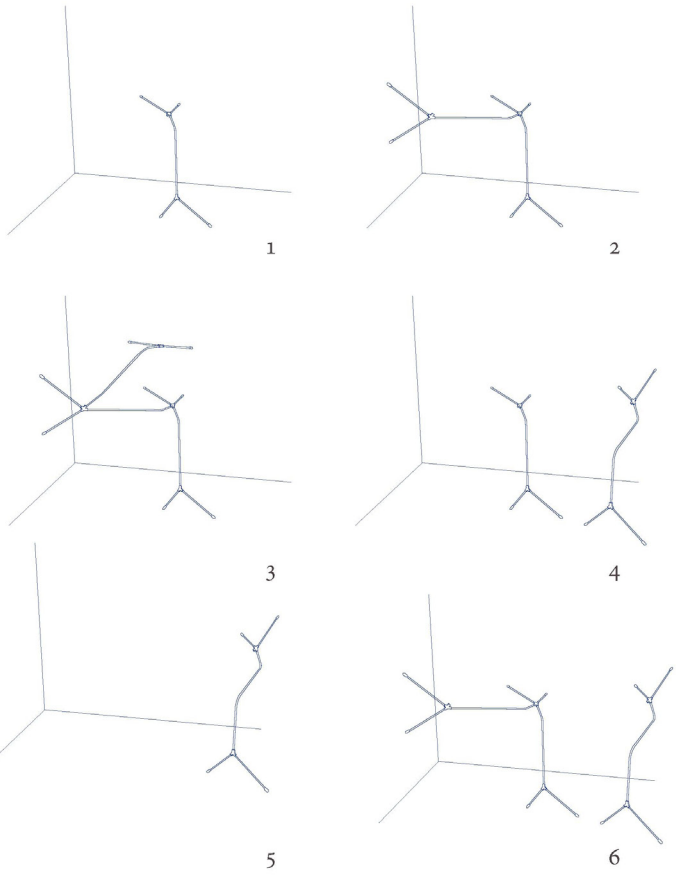
Masters Candidate Industrial Design

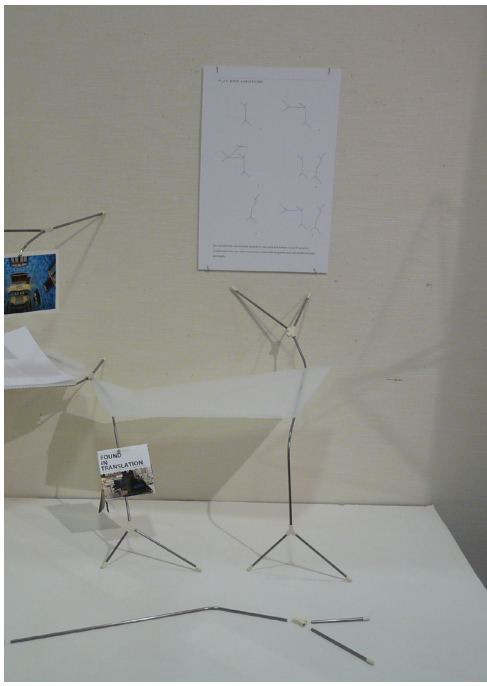
PLAY WITH VARIATIONS



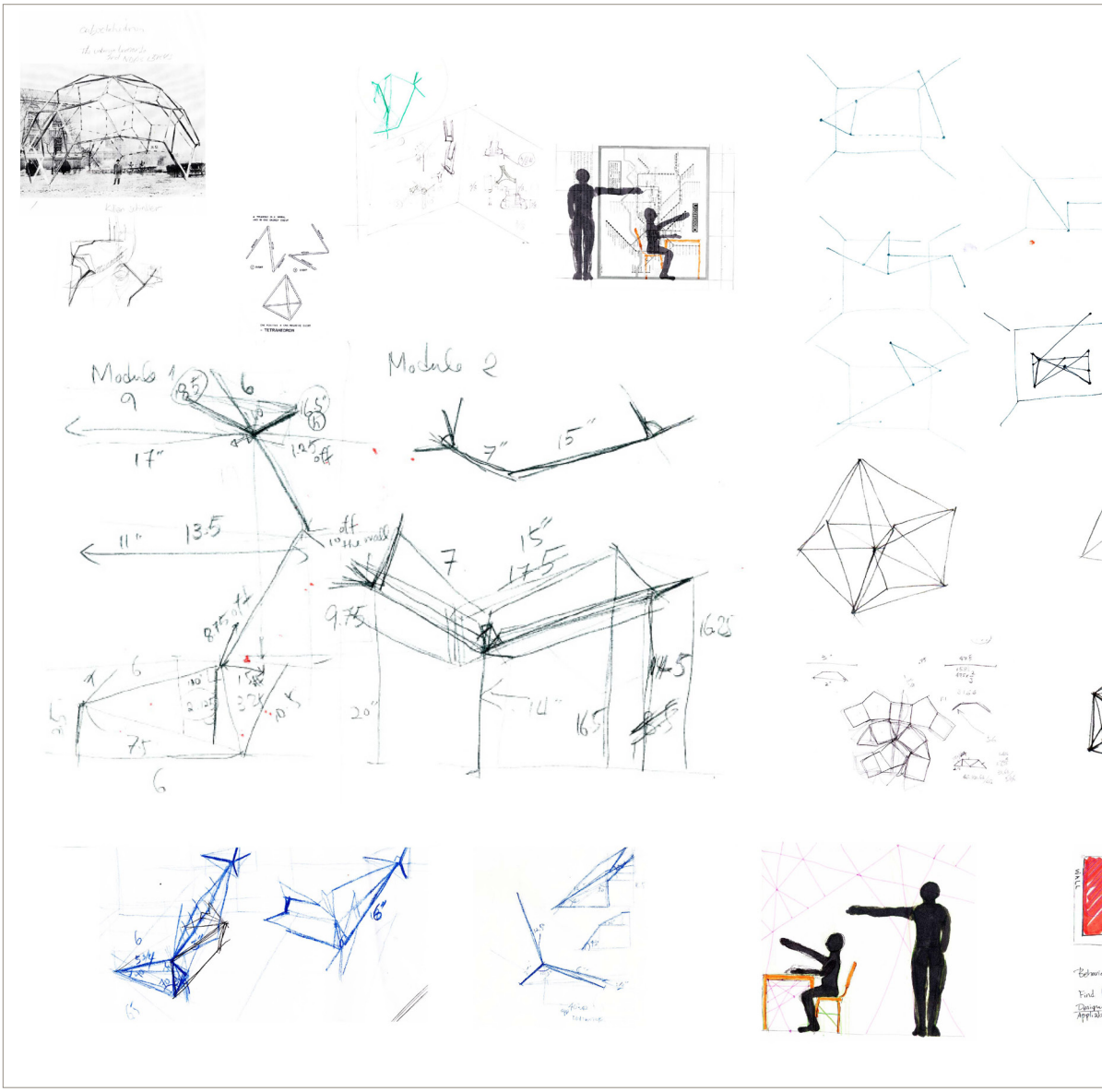
You can build your own structure depends on your needs and features of your living space.

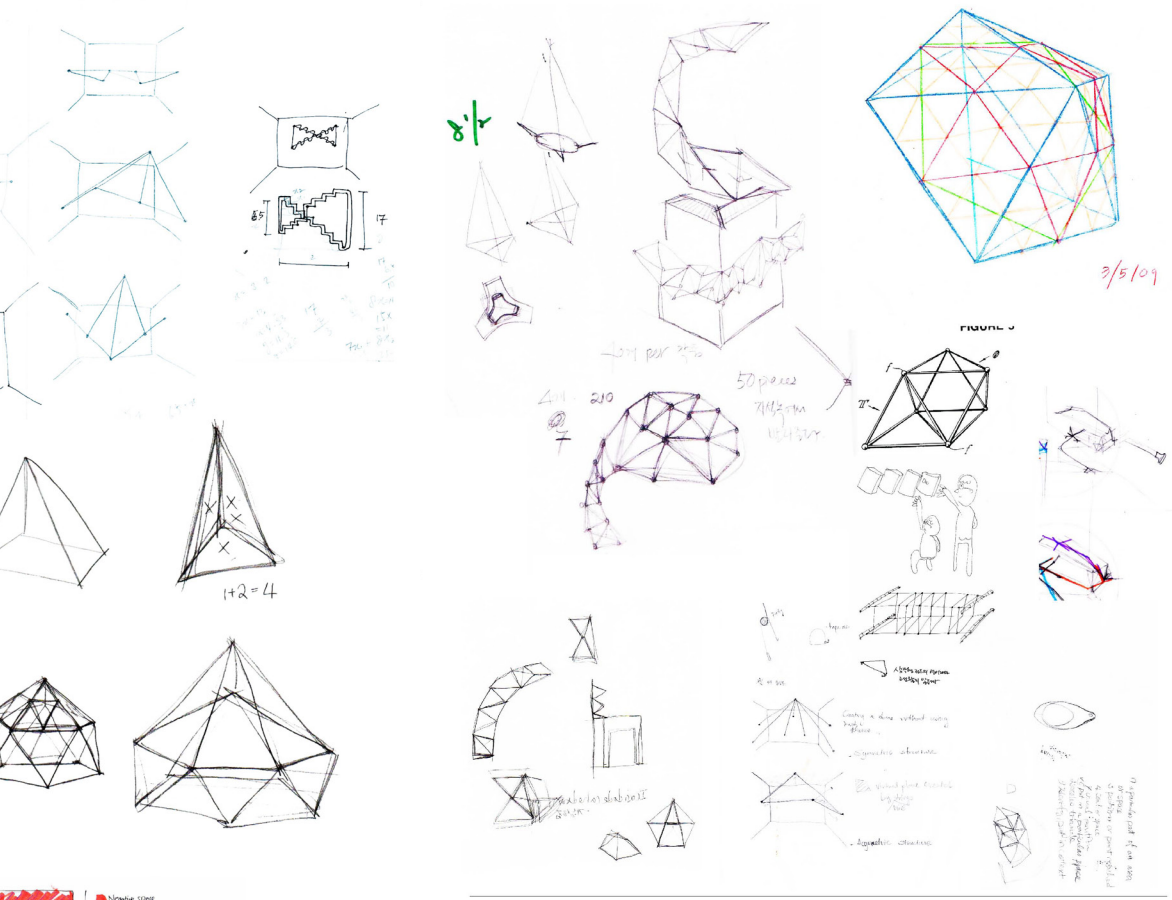
Panel 8: Illustration of Play with Variations

Thesis show view



Panels *continued*





PROCESS: GEOMETRIC FORM STUDIES

Studying geometric shapes helped me to explore ways to create a space. Initially, I wanted to create a volume of space by just using frames for visibility of things that a user will place on it. However, after several 2D and 3D sketches, I realized how important surface is as an element. Use of surface within a well-built frame makes the form and construction simpler.

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Photo Acknowledgement

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