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While always a fundamental part of the design world, textiles have only recently become more integrated into interior product design during the past few years. In particular this kind of exploration gives the product a hand-made authentic quality rooted in traditional craft history. The term "nostalgia remix" both taps current terms in the popular design media, and refers to a concept defined by Judith Cushman-Hammer, lecturer at the University of North Carolina at Greensboro. The term then suggests both an examination of the past and a contemplation of the future of product design. The intent of "nostalgic remix" design, or contemporary designs created with a traditional quality, is to evoke feelings of familiarity and awaken memories; to create products that have an emotional element connected to something recognizable from the past.

The thesis investigation develops and evaluates a design process that fuses traditional craft techniques, such as sewing, quilting, and weaving, with contemporary interior product design. The "cocoon" line of products, created through a generative hands-on design process, consists of items intended to help create personal space, privacy, and comfort. This design process encompasses textile arts, or products with a textile component, specifically products that soften the environment.

NOSTALGIA REMIX: FUSING TRADITIONAL CRAFTS AND CONTEMPORARY INTERIOR PRODUCT DESIGN

by

Tracy Cottrell Kalman

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Approved by

_____
Committee Chair

APPROVAL PAGE

This thesis has been approved by the following committee of the Faculty of The Graduate School at the University of North Carolina at Greensboro.

Committee Chair_____

Committee Members_____

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Date of Acceptance by Committee

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Date of Final Oral Examination

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CHAPTER I

INTRODUCTION

During this thesis investigation a design process was developed that fused traditional craft techniques, such as sewing, quilting, and weaving, with contemporary interior product design. This design process encompassed textile arts, or products with a textile component, in particular products that soften the environment. Additionally, 21st century design precedents, craft theory, behavioral psychology, and inclusive design theory informed the design process. Based on these ideas, this research sought to create products that fit within the design goal of creating personal space, and adhered to the "nostalgia remix" ideals. The resulting "cocoon" line of products helps foster personal space, privacy, and comfort.

The term "nostalgia remix" coined by Judith Cushman-Hammer, lecturer at the University of North Carolina at Greensboro, expresses both an examination of the past and contemplation toward the future of interior product design. The intent of "nostalgic remix" design, or contemporary designs created with a traditional quality, is to evoke feelings of familiarity and awaken memories; to create products that have an emotional element connected to something recognizable from the past. These feelings are communicated innovatively through form, material, texture, palette, and pattern, and provide the user a connection with a product.

In this research discovery the following questions are addressed:

1) Do craft-making techniques, applied to product design and reinvented in a contemporary way, help to create an emotional connection and foster psychological comfort with objects?
2) How do craft-inspired products relate to inclusive design theory? Do following the Franck principles and building on the precedents of inclusive design assist in creating products with an emotional connotation?

"Nostalgia remix" design as it relates to product is defined as an interest in using the past and memory as an inspiration for design but reinventing these references in a new and often technologically innovative way, fusing traditional and contemporary. The focus of nostalgic design is the adaptation of something familiar while emphasizing a strong emotional connection to the past.

In the fast-paced digital world of the 21st century, intimate connections to place and people do not always remain a priority. Where the prevalence of Internet social networking can be extremely beneficial, it can also be potentially harmful, as individuals shift attention to computer screens in lieu of face-to-face contact. This transition toward superficial connections often creates a yearning for meaningful emotional connections with people and place. The yearning for meaningful connection extends to products as well. Designing with a nostalgic ideal enables a bond to form with a product, fulfilling the need for significant emotional connections, and creating valuable relationships with objects. Additionally, designing in a way that addresses inclusiveness and diversity serves as reminder that the built environment is a cultural artifact that should strive to embrace everyone. This design investigation is centered on user-based design and

nostalgic design ideals, creating objects with a traditional craft component but formulated in a 21st century way. The goal of the thesis is to increase the awareness of emotional design and provide a strong argument and physical evidence (products) for why this kind of nostalgic design is important. The research that directed this thesis stemmed from several theory bases. The study began with a review of literature relating to inclusive design theory. From here the research extended into craft theory and behavioral psychology. Finally, research related to the review of 21st century nostalgic designers provided this study with precedent necessary for the design investigation.

CHAPTER II

REVIEW OF LITERATURE

In the discipline of product design there is a constant desire for designers to create a new idea, a new technology, or a new form. However there is a growing sect of articulate 21st century designers who are interested in looking to the past (17th, 18th, 19th centuries) for inspiration. This is not a new concept; design history is made up of oscillating periods of reinventing and rejecting the past. The following review of literature brings together topics of inclusive design, craft theory, feltmaking, behavioral psychology, "nostalgia remix" designers and theory, and design process theory.

Inclusive Design Theory

Inclusive design theory is an aspect included in the review of literature for this thesis investigation due to the connection between inclusive design theory and emotional design. A scholar of gender design theory, Franck defines 5 principles for creating inclusive design: connectedness, ethic of care, subjectivity, emotion, and flexibility. In designing, connectedness takes several forms (as cited in Rendell, Penner, & Borden, 2000, p. 295). One form of connectedness is cultivating a close relationship between designer and client or designer and user. Another form is the desire for closer spatial or visual connections between spaces, or connecting activities to promote interaction. This is often reflected in connections between people using a space or product. Another characteristic of her design theory is an attention to ethic of care, or responding to the

needs of others and reflecting an understanding of caring for others. A wonderful example of this is Eileen Gray's adjustable side table originally conceived as a bedside table for the guest room in Gray's E. 1027 house. Gray created this table for her sister and her fondness of breakfast in bed. This attention to the mundane, human comfort, and care is essential according to Franck. The next principle is acceptance of subjectivity as a strategy for creating design. This allows personal experience to be sources of inspiration for design ideas. A systematic way of using personal experience in design can be employed by making one's preconceptions conscious and using these as sources of design inspiration. Additionally, the ability to portray emotion in design is highly valued and offers authenticity. Emotion is what makes a user form a connection with a space or product, encouraging him or her to use it again and to feel comfortable doing so. Gray disparaged this lack of emotion concerning Modernism, "Modern designers have exaggerated the technological side…Intimacy is gone, atmosphere is gone…Formulas are nothing; life is everything. And life is mind and heart at the same time" (as cited in Rendell, Penner, & Borden, 2000, p. 300). Flexibility is the last characteristic listed by Franck, stemming from an awareness of change and the need for flexibility in objects and spaces. Complexity and flexibility in design invite user participation and engage the user in interaction with a product or space. This kind of interaction gives power to the user to control his or her environment. Empathy for users should be part of the ethical and responsible development of any design. These five principles merge perfectly with the "nostalgia remix" design ideals emphasizing emotional connections and users' needs.

In addition to these five principles Franck believes in the importance of hand craftsmanship in design. She states (2000):

> Shaped from raw materials, the objects made in the world of craftsmanship, although inanimate, embody and manifest the amount of participation as well as the skill brought by the maker into the creation itself, through his or her hands, mind, and soul. The more intense the participation of those hands and minds in the making and the greater their skill, the more alive the creation. (p.103)

The qualities that emanate from craft objects are a direct reflection of the crafter. Crafted objects enrich the mind and soul by generating relationships between the maker and what is made, and between the user and the object. The uniqueness associated with the handmade symbolizes individuality, beauty, and creativity, and manifests an emotional connection between user and maker, and user and product.

Since the late 20th, and now in the early 21st, century an interest in the needs of the user is less important. Design parameters have shifted and novelty is now more important than the needs of the user. Contemporary designers want to develop new solutions, the next best thing, and consequently their work is judged according to its originality. According to Rybczynski (1986) this leads to a "cult of originality" (p. 210). "What's new?" becomes more important than "What's better?" The result is that each new idea belongs to that particular designer and can never be improved by other designers. This circumstance makes it hard for gradual evolution of design that improves upon, not simply adds to, what came before. Additionally, the idea of comfort becomes less and less important in this quest for novelty. For example, in some contexts sitting comfort is no longer the main criteria for judging the worth of a chair. Philip Johnson, a

protégé of Mies van der Rohe, once stated, "I think that comfort is a function of whether you think a chair is good-looking or not" (as cited in Rybczynski, 1986, p. 210). Rybczynski (1986) explains of the late 20th century chair:

> It shows an optimistic belief in technology and the efficient use of materials. It shows a concern for fabrication, not craftsmanship in the traditional sense, but in precise and exact assembly. It is a purposeful object, without frivolity or frills. But it does not ask to be sat in, or at least not for long. (p. 212)

This interest in everything new and innovative ignores the traditional ideals of comfort and well-being. Consequently this absence of comfort leads to dissatisfaction with the present and nostalgia for the past. Like the contemporary designers and scholars that are included in the review of literature, the researcher of this investigation sees a need for design that embraces the user along with traditional craft values and methods. Designing with a nostalgic ideal should reintroduce an emotional connection and enable a playfulness and delight that has not always remained a priority.

Craft Theory

In addition to uncovering the theories of inclusive design, it is necessary to review the history, definition, and current trends of the craft world. For the purposes of the thesis, craft can be defined and narrowed as a process of creating objects mainly relating to textiles such as quilting, sewing, and weaving. These objects have been created with a sense of handcrafted technique, although they may not be entirely handcrafted.

In the past, the handiwork of the women in the family passed from mother to daughter or from aunt to niece, and often stemmed from basic human necessities: food, clothing, shelter, and warmth. Women were not always allowed to participate in 'fine

arts,' so they used functional crafts as a form of creative self-expression. In addition to its creative aspect, craft goods were social objects that assume an importance beyond household utility; they signified and legitimized social roles and group membership.

Paul Greenhalgh, Director and President of Corcoran Gallery of Art and College of Art and Design, defines modern craft as a "consortium of genres characterized by decorative and vernacular attributes as well as maintaining the political badge of handmade" (Alfoldy, 2007, Foreword). The perceived value in craft objects of the modern world is understood in terms of skilled craftsmanship and aesthetic properties. Consumers see craft as an expression of authenticity and beauty in a world where such concepts might be uncertain. According to crafter and scholar Bruce Metcalf, four identities define craft (as cited in Alfoldy, 2007, p. 4). First, craft is made substantially by hand; this is the primary root for all craft. Second, craft is medium specific, it is always identified with a material and the technologies invented to help create it. Third, craft is defined by use, crafts fit into groups of functions such as jewelry, clothing, and furniture. Fourth, craft is defined by its past. Each craft discipline has a rich history associated with it and by nature craft looks backwards to that history. Craft looks to the past for techniques, visual cues, meanings, and ideas. Crafts derive meaning from its traditional heritage. Greenhalgh explains:

> It has always seemed to me that the crafts sit at the most interesting of conjunctions in the visual arts. They ride across the boundaries of populism and elitism; while being fundamentally global, they are crucial for our understanding of locality and ethnicity; they are key to the gender issue; they have been the most fundamentally interdisciplinary of all the visual arts; and they reside in the most complex of spaces between archaism and modernity. (as cited in Alfoldy, 2007, preface)

Craft perches in the middle of many different topics, uniting people over various backgrounds, genders, and ethnicities as well as linking history with modernity. The reason for craft's continuing history is due in part to the fact that craft inspires comfort. Typically craft products are accessible and fit easily within normal everyday life, neither challenging nor intimidating. The familiarity of craft forms perfectly complements the individuality of handcraft. Craft objects also engage the senses, especially its appeal of touch. Weavers and textile makers are conscious of the feel of different fabrics, how different densities have various tactile qualities.

The Modernists of the International Style did not in the end account for the hand touch of craft making, excluding personal experience or the need for self-identity and individuality. In particular the common characteristics of the International Style included a radical simplification of form, a rejection of ornament, and acceptance of industrialized mass-production techniques that often led some critics cold. Byars (2005) refers to interior products:

> Unfortunately, Modernism.... has never adequately served the more nurturing aspects of the domestic environment that most of us desire. Modernism has frequently failed to cater to our physical needs (through softness and warmth) and our appetite for visual and intellectual stimulation (through surface variety and intricate images). (p. 149)

Perhaps this is why "nostalgia remix" design speaks to the 21st century and fills a void that some feel in reference to comfort, security, and warmth associated with interior products. In addition to inherently portraying comfort, craft objects reinforce personal

identity, and the uniqueness of the handmade symbolizes the individuality of human lives. Irregularities, subtle variations associated with craft give a visual complexity and uniqueness to the forms themselves as well as the consumers of these forms. Human presence evident in craft objects becomes a symbol of humanity. Metcalf (2004) explains:

> I believe that certain types of craft objects -- especially objects designed to be used rather than just looked at -- embody sympathy. Because craft objects are substantially handmade, traces of the maker's body and its movement often remain in the object: the potter's fingerprint, the stitches of the needle worker. (as cited in Fariello, 2004, p. 218)

What is the appropriate proportion of handcraft versus machine-made concerning craft objects? Most are accustomed to the idea that handcraft can include some mechanized assistance, but how much is considered suitable? This is a subject of much debate but most people agree that a craft object should be made mostly by hand. The designers included in the review of literature often simulate craft techniques using modern manufacturing technologies, some with portions of handcrafted technique but usually entirely manufactured. Does that make these objects less successful? The researcher believes that these references to traditional craft techniques do embody the same emotional connotations that the handcrafted objects embody. They are modern interpretations of the traditional techniques but still contain the reference to the human touch. What is evident in craft and in simulated craft is the sense of the individual, it stands out from the anonymity of most consumer goods where any handcraft is usually erased. Metcalf explains, "Handwork communicates. By itself, without any overlay of

artistic intent, the first thing handwork communicates is that a skillful person was there" (as cited on www.brucemetcalf.com).

Interested in the idea of variation associated with craft, Droog is one the best known craft-infused design collections. Started by Gijs Bakker and Renny Ramakers, it is a selection of objects that are curated and publicized under the single brand Droog. Droog's appearance on the design scene was noteworthy due to its embrace of craft imagery and processes and the embrace of the idea that craftsmanship did not have to be reactionary. "Some advanced materials actually demand manual intervention, while some low-tech materials that respond to ecological needs, merely demand a crafts approach because of their special nature. Experimentation, be it high- or low-tech, requires a hands-on approach" (Antonelli, 1998, p. 35). Participants in Droog include some of the designers previously mentioned, such as Jongerius and Wanders. While under the Droog umbrella, Wanders cast a macramé chair while Jongerius created a knitted lamp covered with fiberglass. Droog products such as these emphasized tactility and individualization, intentionally departing from the perfection of high-end design objects. "Ideologically, these products signaled a return to the Scandinavian modern or the American 'designer-craftsman' styles of the 1950's, which attempted to inject human warmth into the mass production process" (Adamson, 2007, p. 34). Droog design is an example of using craft to create a product without using crafts as a fixed category. The participants in Droog believed in craft as a way to differentiate them from the expensive world of high-end product design while stepping outside of the traditional craft world.

Today there is a changing nature to the craft world, which is embracing modern innovation while attempting to hold on to tradition. "Craft seems positively fashionable in the present moment, as artists, architects, and designers evince a fascination with process and materials not seen since the heyday of the Counterculture in the late 1960's" (Adamson, 2007, p. 166). Understanding craft theory and history serves as a basis for understanding and creating "nostalgic" design.

Feltmaking

During this design investigation the designer explored the applications and capabilities of felt. The applications of felt are endless given the varied densities; while some types of felt are very soft; some are tough with enough body to form construction materials. There are essentially two types of felt, industrial felt and craft felt with a wide range of compositions ranging from 100% wool to 100% synthetic. Industrial felt is made in a similar process as craft felt but adheres to more stringent consumer requirements, i.e. thickness, weight, density, denier of fiber, type of wool and surface quality. Felt can be any color, made into any shape or size, and can be employed for a variety of different functions ranging from sound absorption to filtering purposes to insulating activities. Given the rich history of feltmaking, felt was the perfect material to explore the traditional craft techniques associated with this thesis.

Wool felt, the earliest known form of textile fabric, predating weaving and knitting, played an important part in the life of early man. Felting is an ancient process dating back to the Iron Age. Turkish nomads made their tents, clothes and floor coverings from the material and also incorporated felt as a significant part of many religious rituals,

including marriage ceremonies and animal sacrifices. Felt was also believed to have magical properties - Mongolian horsemen hung felt figures inside their tents to bring good luck and to ward off evil spirits and a felt mattress protected the sleeper from dangerous snakes and scorpions. Additionally, the ancient Roman mural paintings in the Fuller's House of Pompeii illustrate the technical process of feltmaking.

Feltmaking gained popularity in the United States originally among fiber artists sometime in the 1970's. In the past ten to fifteen years the medium has exploded with popularity among crafters, designers, and artists. The fact that felt is made from a natural sustainable material and has a familiar softness and warmth makes it easy to understand the inherent appeal.

Felt is a non-woven cloth that is produced by matting, condensing and pressing fibers. Feltmaking is a process also called *wet felting or traditional felting*, where the natural wool fiber is stimulated by friction and lubricated by moisture (usually soapy water), and the fibers move at a 90 degree angle towards the friction source and then away again, in effect making little "tacking" stitches. Only 5% of the fibers are active at any one moment, but the process is continual, so different 'sets' of fibers become activated and then deactivated. In industry, felting is either done by a chemical process or can be done with special felting needles, which grab individual fibers and drag them against their neighbors, thereby binding them.

Felt is familiar to all of us, and it is frequently associated with warmth and comfort. There is a nostalgia associated with felt as a material, reminding one of childhood crafts, Christmas decorations, or cozy warm boot liners. The allure of felt is

imbedded in its connection to ancient culture and history as well as its strong tactile quality. These qualities made felt a befitting choice of material for this thesis investigation.

Behavioral Psychology

Credited with the phrase "you're invading my personal space," psychologist Robert Sommer explores the connection between architecture and behavior. Sommer synthesized current research from a wide array of disciplines including sociology, psychology, and architecture and explores topics such as privacy, spatial invasion, and personal space. He studies how people relate to the designed space around them and how important the relationship is between user and space. He states, "Architecture may be beautiful but it should be more than that; it must enclose space in which certain activities can take place comfortably and efficiently. Not only must form follow function, but it must assist it in every way" (Sommer, 1969, p. 5). Also known as "portable territory," personal space refers to an area with invisible boundaries surrounding a person's body into which intruders may not come. Sommer (1969) describes:

> Personal space refers to an area with an invisible boundary surrounding the person's body into which intruders may not come. Like the porcupines in Schopenhauer's fable, people like to be close enough to obtain warmth and comradeship but far enough away to avoid pricking one another. Personal space is not necessarily spherical in shape, nor does it extend equally in all directions…It has been likened to a snail shell, a soap bubble, an aura, and "breathing room'. (p.26)

Personal space is an "invisible" boundary or separation between the self and others. It is also literally attached to the self, and is carried everywhere one goes while

territory implies a fixed, geographically immobile region. Sommer defines personal space as, "the emotionally-tinged zone around the human body that people feel is their space. Its dimensions are not fixed but vary according to internal state, age, culture, and context" (Sommer, 1969, p. 2). Personal space is dynamic and directly related to interpersonal distance. When someone crosses a personal-space boundary, anxiety or stress often results. While most people can tolerate strangers at their side rather than directly in front, personal space toleration can also be culturally specific. What is tolerable in one culture is not in another. For example, in Hong Kong where millions of people crowd into twelve square miles, the population has adapted to the crowding and consequently has developed a greater tolerance for lack of personal space.

Another area of interest for this thesis investigation is privacy. Associated with regulating interaction with others, privacy is an interpersonal boundary-control process. Privacy is a dialectic process, which involves both restriction and seeking of interaction, creating interplay of opposing forces. According to Altman, "Privacy regulation by persons and groups is somewhat like the shifting permeability of a cell membrane. Sometimes the person or group is receptive to outside inputs, and sometimes the person or group closes off contact with the outside environment" (Altman, 1975, p.10). There are four functions of privacy. The first is personal autonomy associated with self-identity and self-worth. Examples of successful and unsuccessful privacy regulation help people to define how they relate to the world, and how they can control interaction with others. Emotional release is a second function of privacy, allowing a relaxation from social roles and a deviation from rules and customs. The third function, self-evaluation, involves the

integration of experiences and the ability to plan strategies for the future. Lastly, the fourth function is limited and protected communication. This function of privacy provides the ability to be alone with yourself and your thoughts or alone with another person or small group. Another analysis that fits well with the thesis is that of Proshansky, Ittelson, and Rivlin (1970). They proposed that privacy maximizes freedom of choice and behavioral options. They also acknowledge that important factor of controlling space; the ability to control one's own space or territory is highly valued. Proshansky sums up (1970), "Territoriality thus becomes one mechanism whereby a person can increase the range of options open to him and maximize his freedom of choice in the given situation" (p. 181).

Similarly, Sommer perceives positive value in sociofugal arrangements. These types of arrangements in public spaces offer the ability for a person to withdraw from social situations when he wishes to do so without the necessity of physically removing himself from the presence of others. The creation of personal space or personal territory is important. Once the designer understands the functions served by a given space then a prediction can be made regarding what sorts of tactics would be employed by occupants to feel comfortable in that space. "Even if we do not accept the idea of instinctive territoriality in humans, it is still apparent that people actively defend certain spaces against intruders using the entire repertoire of defensive techniques in the animal kingdom" (Sommer, 1969, p. 43). Lyman and Scott distinguish four types of territories in human societies: public territories, home territories, interactional territories, and body territories. Public territories provide the occupants with freedom of access. Home

territories are public areas taken over by groups or individuals. Interactional territories are areas where social gatherings may occur; they have clearly marked boundaries and rules of access. Lastly, body territories, also called personal space, are the most private and involve the area encompassing the body. The focus of this thesis is centered on body territories with an emphasis on creating products that secure a sense of personal space and help to create privacy.

A key context for Sommer and his writing was the growing backlash against architectural modernism, especially in its associations with the International Style. He was critical of this style of architecture and believes in a design filtered through the observations of how spaces were actually used by occupants versus the idealistic designs of their architects. Even though Sommer was writing during the 70's these thoughts are still relevant today. In this way, the designer who is successful is someone who creates concepts that are relevant to both physical form and human behavior and psychology. A general principle to follow in design is creating responsive environments, which permit easy alternation between a state of separateness and a state of togetherness. These environments should be responsive to the ever-changing privacy needs of the user, placing the control firmly in the occupant's hands. Emotion dictates human behavior in a space; much of what people experience is on an emotional level rather than a rational level. The emotional level associated with how occupants experience spaces and products ties in well with the emotional connotations of "nostalgia remix" design and theory.

"Nostalgia Remix" Designers and Theory

There are several designers who play a major role in shaping the direction of design of the 21st century and design in a nostalgic way including Patricia Urquiola, Marcel Wanders, Tord Boontje, Hella Jongerius, and the Bouroullec brothers. Urquiola (2007) states " I am excited by the potential of mixing art and craft techniques with modern technologies to achieve a blending of the new and advanced with the traditional -- an emotional element that is connected to something we know and recognize but that has been adapted in an innovative way" (p. 7). Her desire is to see memory, dream, and imagination merged with practical functionality. According to Urquiola, the key in design is balance; the use of the figurative is important but overuse of decoration becomes overwhelming. Her designs are a dualistic mixture of contemporary and traditional, emotional and comfortable. Upon receiving one of Urquiola's new chairs, the Museum of Modern Art's curator Paola Antonelli was quoted as saying "Patricia is able to create things that are completely innovative, yet perfectly attuned to people's homes" (Davis, 2006). It is the nostalgic influence of her designs that makes these products easily fit within users' homes. However innovation remains important to her. She is interested in adapting old typologies and traditional materials in new ways. She recognizes a movement today toward fulfilling the needs and desires of the user, and away from the 'art piece.' For the last decade the design world has been in a state of flux, with many different trends peppering the field, and not one trend dominating. This has opened up the design world to a movement away from product design and toward a world of attention-seeking designs and designers with 'rock star status.' Designers like

Urquiola see a need to address and alter this trend that doesn't emphasize the user in design. Similarly Jasper Morrison (1999) speaks of a balance of what he calls 'objectality' -- the emotional response an item elicits and visual order to an object -- creating items that are easy to live with but provide the user with an emotional factor (p.5).

Figure 1: Urquiola Crochet Rug, Crinoline Patio Chair (bonluxat.com)

In addition to Urquiola, Marcel Wanders chooses archetypal forms, familiar materials, and traditional techniques because they are recognizable and carry associations with them. Wanders has an impulse to strip design of its elitist tendencies, to work with forms that are universally understood and to use old things in a novel way. He often uses the craft techniques of macramé, knitting, and basketwork, but he also innovates these processes. For example, with his Crochet Table and Chair something that is normally

pliable (crochet) becomes structural and stiff with the help of epoxy and resin. He innovates processes, playing around with perceived realities of what materials are capable of doing. Wanders wants to design "objects that touch you and that generate a positive feeling. In short, objects worth bonding with for a lifetime" (Fiell, 2005, p. 327). He would like his products to enter into a long-term relationship with the user. To encourage this he uses both old and new metaphors in the materials that he employs. Wanders has a reputation as a fierce opponent of functionalism but he sees the need for products to function. Modern design as he sees it defines functionality too narrowly and the more functional a chair is the less it is felt. A good product is one you feel in your heart. "Why should we still live in a design culture that looks to the 1920s?" asks Wanders. "With the New Antiques (a line he created in 2006), I'm saying it's okay to go back beyond the limitations of what design has become. The design industry is for people, after all" (Szita, 2006).

Figure 2: Wanders Crochet Chair, Knotted Chair (marcelwanders.com)

Comparable to Wanders, Tord Boontje is a designer who seeks to create a marriage between design that entices emotions and design that is accessible and comfortable. He leads a movement toward romantic decorative objects, often using lacy floral aesthetics in his designs. He creates lightweight, delicate, and refined pieces laser-cut with images and natural scenes that have become characteristic of his work. His primary belief in design is anti-Minimalism. "Modernism does not mean minimalism, contemporary does not forsake tradition, and technology does not abandon people and senses" (Boontje, 2009, para. 2). He sees Minimalism as lacking emotion and although his designs are often simple, they engage the user. Boontje creates layers to engage the user's imagination, senses, and emotions, creating a fairytale land filled with natural inspirations. He creates a feminine aesthetic that purposefully evokes emotion in the observer inspired by these naturalistic patterns. His Fallen Flowers curtains serve to shape interior space allowing the user to create and fashion the space. Moved by naturalistic patterns and his own Dutch history, Boontje often uses these delicate floral motifs to provide a reference to traditional Dutch floral patterns. This interest in recreating the Dutch floral patterns to create an emotional link to the past is the basis for "nostalgia remix" design.

Figure 3: Boontje Midsummer Light, Nest Chair (tordboontje.com)

Similarly, Hella Jongerius is known for the special way she fuses industry and craft, and high and low tech. Alice Rawsthorn, director of London's Design Museum, says of Jongerius, "One of the most important themes in contemporary design is to imbue industrially produced objects with the character that people have traditionally loved in handcrafted pieces, and Hella is at the forefront" (Urquiola, 2007, p. 55). Jongerius states:

> Craft is a theme in my work. Mixing it with the industrial process is like mixing high and low tech, mixing first and third world cultures, mixing tradition with a contemporary language, different ages and techniques. I am trying to find ways to make unique pieces from industrial processes and using archetypal forms in new techniques or materials. (as cited in "Interview with Hella Jongerius")

She recognizes the rich history of design and the need to incorporate that history into contemporary design. She has also an interest in products that have a story to tell and

multiple layers to uncover so she looks to the past for archetypal forms and inspiration. “While digging into history, I also discovered traditional types of craftsmanship which are beautifully detailed and in which you could see how much time the craftsman had spent on the product. In [modern] industrial processes the products miss this quality” (“Interview with Hella Jongerius,” 2007). Jongerius mixes traditional techniques such as embroidery and collage, with contemporary form, palette, and texture. The motif of the Bovist stool designed for Vitra, called Homework, showing the head of a girl engrossed in embroidery, borrows from a painting by the Dutch master Vermeer. Not only is the subject matter embroidery but also the scene itself is embroidered onto the stool. These designs at first glance can look familiar and simple, but behind the simplicity is Jongerius's careful consideration of an object's history, heritage, and archetypes. She has a special way of considering the small details without turning away from an overall contemporary language.

Figure 4: Jongerius Bovist Stool, Prince & Princess Vase (jongeriuslab.com)

The Bouroullec brothers also are on the forefront of 21st century product design; the two brothers have created objects with clean lines that answer today's search for a new vocabulary while staying true to a handcrafted history. “They themselves seek to inject their objects with significance, lend them some historical weight, a soul” (Braunstein, 2003, para. 6). Ronan insists: "Being new in terms of technology or typology is not what justifies an object. ‘Rightness’ is a different matter: It has more to do with the exchange of ideas than with the simple, artificial 'injection' of a material or technique" (Braunstein, 2003, para. 6). The brothers’ designs possess a strong tactile quality that engages the senses of the user while making seamless transitions between handicrafts and industry. The brothers also have an extraordinary ability to reinvent traditional types of furniture or products by recreating them in a way that is appropriately 21st century. They often create playful yet thoughtful forms that are meant to be fully interactive and adjustable by the user; the idea is that the user weaves his/her own environment. They

have created just that with Cloud, an architectural fabric tile developed for Kvadrat. As the name suggests, it is a non-uniform structure that can be attached to ceilings or hung on the wall, fully adjustable by the user. "It's a device that can bring fabric into the house because we believe fabric is a really nice proposition to soften the space, to give it more warm feelings" (Agerman, 2009, para. 3).

These five designers and their products served as precedents to inspire the designs in this investigation. Analysis of their techniques and design genre informed the designer's own investigation and product development.

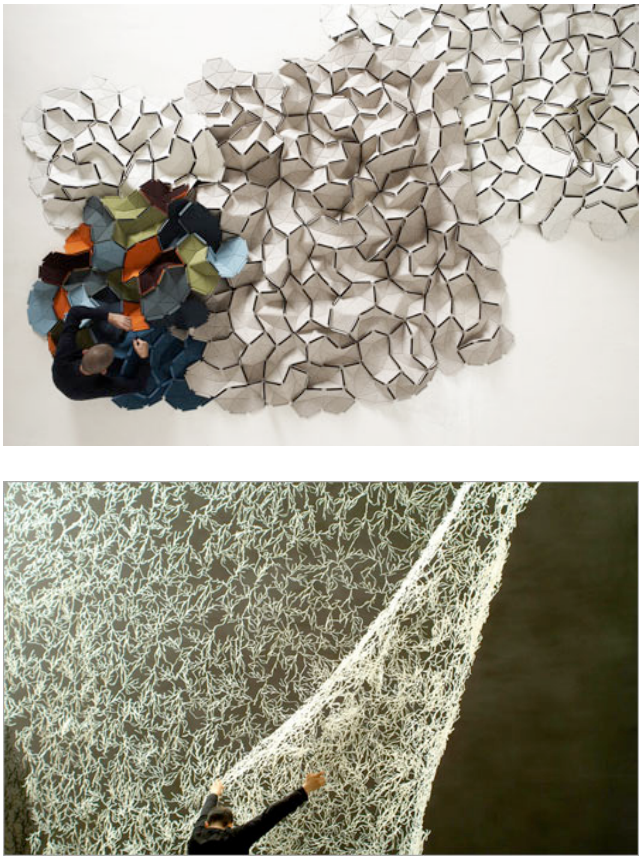


Figure 5: Bouroullec Clouds, Algue (bouroullec.com)

Design Process Theory

To aid in answering the research questions the designer used *Designerly Ways of Knowing* and *Visualizing Research* as the basis for the design process methodology. The development of design research has led to the establishment of design as a discipline of study in its own right. Archer (2007) encapsulated the view in stating his belief that:

> There exists a designerly way of thinking and communicating that is both different from scientific and scholarly ways of thinking and communicating, and as powerful as scientific and scholarly methods of enquiry when applied to its own kinds of problems. (p. 63)

This view was developed further in a series of papers collected in a book by Nigel Cross. *Designerly Ways of Knowing* traces the development of a research interest in articulating and understanding the nature of design cognition, and the concept that designers have particular 'designerly ways of knowing' and thinking. The implication is that there are 'designerly ways of knowing,' distinct from the more recognized scientific and scholarly ways of knowing.

Lawson's (1979) studies on design processes compares the problem-solving strategies of designers to those of scientists. The study required the participants, postgraduate architectural students and postgraduate science students, to arrange 3D color blocks according to certain rules. The two groups had different results. The scientists adopted a strategy of exploration, combining the blocks in various ways, in order to discover the fundamental rule that allowed the right result. The architects proposed numerous solutions, eliminating them until an acceptable solution was found. While the scientists focused on discovering the rule or problem, the architects focused on achieving

the right result, and consequently learned about the nature of the problem. According to these experiments, scientists problem-solve by analysis and designers problem-solve by synthesis. A central theme of design activity is generating a solution quickly rather than focusing on the analysis of the problem. According to Cross (2007), " The designer is constrained to produce a practicable result within a specific time limit, whereas the scientist and scholar are both able, and often required, to suspend their judgments and decisions until more is known" (p.23). An acceptable conclusion for a scientist is 'further research is needed' but this is not so for the designer. Additionally, design problems are ill defined, they are not the same as problems for scientists and scholars. As a result, designers often have to define, redefine, and change the problem in order to find a solution; designing is a process of pattern synthesis rather than pattern recognition.

There is an equally important area of knowledge embodied in the products of designing in addition to the aforementioned 'designerly ways of knowing.' There is a great wealth of knowledge contained in the objects of material culture. Looking at existing examples of products assists designers in creating new objects; this explicit knowledge and creativity has led to significant improvements in the design of objects. Designers are immersed in material culture and draw upon it for inspiration. This material culture-based design process has been successful for the craft society. The unselfconscious processes of craft design have led to beautiful and appropriate objects, proving that a simple process can generate complex products. Designers have the ability both to 'read' and 'write' in this culture: they understand what messages objects communicate, and they create new objects that embody new messages. Douglas and

Isherwood (1979) recognize the importance of this two-way communication between people and the world of goods. They believe in the argument for a 'third area' of human knowledge in design, separate from the sciences and humanities:

> For too long a narrow idea of human reasoning has prevailed which only accepts simple induction and deduction as worthy of the name of thinking. But there is a prior and pervasive kind of reasoning that scans a scene and sizes it up, packing into one instant's survey a process of matching, classifying and comparing. Metaphoric appreciation is a work of approximate measurement, scaling and comparison between like and unlike elements in a pattern. (p. 27)

The reading of the world of goods and translating it from concrete objects to abstract requirements, is called 'metaphoric appreciation.' Recognizing the strength of 'metaphoric appreciation' and embracing 'designerly ways of knowing' have assisted the designer in the design investigation.

Another component of 'designerly ways of knowing' is design intuition. Design is abductive, a type of reasoning different from the concepts of inductive and deductive reasoning. The thinking processes of the designer are based around the relationship between internal mental processes and their external expression in sketches and models. Acknowledging this conversation that goes on between internal and external representations is part of the recognition that design is reflective. The designer needs to have a medium, sketches or quick models, which enables half-formed ideas to be expressed and to be reflected upon. According to Cross (2007) "Design is ambiguous. Designers will generate early tentative solutions, but also leave many options open for as long as possible; they are prepared to regard solution concepts as necessary, but imprecise and often inconclusive" (p.54). Sketching and quick model building aid in

generating these early solutions, enable a variety of solutions to be considered and is an integral part of a designers' methodology.

Additionally, *Visualizing Research* was used as a template for the design methodology, identifying the four main avenues: conceptual process/schematic process, design development, prototype production, and analysis, as well as assisting the designer in the accurate terminology associated within the methodology.

CHAPTER III

METHODOLOGY

Armed with the knowledge of the previously mentioned literature of inclusive design, craft theory, behavioral psychology, "nostalgia remix" designers and theory, and design process theory, the designer engaged in the design investigation. Due to the fact that this is a design thesis the methodology was constantly developed and manipulated throughout the design process. Keeping this in mind, this design investigation followed two main avenues, including product design generative process and analysis. The Methodology portion of this thesis presents a synopsis of each stage of the design process broken down into separate sections. Throughout each of these phases, the design process was evaluated through desk critiques and studio reviews. During these reviews the designer received feedback from both faculty and peers within the Interior Architecture department, as well as feedback from faculty within the Consumer, Apparel, and Retail Studies department. The Methodology section presents a synopsis of these procedures, while the Analysis section includes a more detailed discussion concerning design decisions and feedback data.

Design Process Synopsis

The intent of the design investigation was to create a line of products that were inspired by the concept of "cocoon." The process began with the experimentation with form. SketchUp, a computer program, materialized perspective drawings along side of

hand-renderings. The focus remained primarily on 3-D physical modeling with digital representation taking a secondary role. The manipulation of 3-D and 2-D media then led to a full-scale prototype.

The design phases included in this thesis investigation were conceptual or schematic exploration, design development, prototype production, and analysis. Throughout each of these phases, the design process was evaluated through desk critiques and studio reviews.

Conceptual / Schematic Exploration

The designer generated and documented a design process that was informed by contemporary designers, craft theory, inclusive design theory, and behavioral psychology, fusing traditional craft techniques and contemporary design. Karen Franck's design principles were used as a template initially. Franck's five principles of emotion, flexibility, ethic of care, subjectivity, and connectedness were employed to help inspire concepts and 3-D abstract representations for the beginning stage of the design process. In addition to this form experimentation, objective and expressive drawing was exercised. However the focus remained on physical 3-D form exploration using paper, modeling clay, and foam. The reason for this focus was due to the emphasis on handcrafting techniques in this investigation. The size of these models remained small for purposes of efficiency in producing multiple ideas quickly. The designer documented the process weekly using a blog, taking photos, taking notations/annotations, creating drawings, and taking step-by-step screen captures of any digital work. The blog was set up to document

the design process thoroughly in order to provide a transcription of the design process as well as to encourage involvement or interest from outside parties.

Additionally, reflective journaling was used to provide a purposeful framework for the design process. A reflective journal is a useful device to deposit a range of information, which is added to and consulted on a regular basis. This journal contains an activity and development log, personal diary, information about the pace and progress of work, and key points from evaluation and analysis. The diary portion of the journal houses more descriptive and discursive information concerning thoughts, feelings, and insights from the designer and of how the design process progressed.

Design Development

After the creation of numerous small models, fellow students and committee members assisted the designer in selecting the most promising ideas to pursue further. The products that were deemed the most successful were taken to the next level. The designer further refined and developed models in the form of 3-D digital representations as well as scaled models. The designer continued to document the process using a blog, taking photos, taking notations/annotations, creating drawings, and taking screen captures of any digital work. The products were evaluated again to assess the progress and development of the investigation.

Prototype Build

This design development stage eventually materialized refined detailing and physical full-scale models, and a full body of work with the addition of detailed specs.

Analysis

A panel of experts including faculty and designers analyzed the design process and its resulting products at midterm studio critique. Additionally, chronological analysis had been done during this stage to evaluate the overall design process and its products. The growth and development of the designed products has been analyzed over time.

CHAPTER IV

ANALYSIS

Building on the basis of the previous Methodology section, this Analysis section further describes the design process. This analysis section comprises the results from the design process including documentation of models, renderings, perspectives, prototypes, and key decisions divided up into each product in the line "cocoon," including cocoon: sit and cocoon: nest.

Cocoon: Sit Design Process

Schematic Exploration: Phase I

The first product created for the line of "cocoon" was called the Cocoon chair, later reintroduced as cocoon: sit. Made for the female specialized user at My Sisters' House, a residence for teenage mothers and their children, the focus of the investigation was on creating a product with a sense of personal space. The specific site for this chair was the 'bonding with baby' suite. In particular, the intuitive design principles of Karen Franck aided the designer in the design process. According to Franck, there are five concepts that are essential in creating inclusive design. These concepts are connectedness, ethic of care, subjectivity, emotion, and flexibility. Based on this literature review, an initial goal for the investigation was to create abstract

representations of these five concepts. The first phase of ideation began through paper and clay (non-hardening) modeling with form qualities based on the characteristics of these words. Originally these forms were biomorphic shapes created independent of scale and material concerns. Another avenue was explored through the sculpting of foam. Some forms were easier to construct with the use of foam rather than clay. The designer employed clay-modeling tools for the clay forms and a hot wire-cutter for the foam models. The size of all of these models remained small making it possible to create multiple ideas quickly. Additionally, it was important that the focus remain on physical 3-D form exploration due to the handcrafted nature of the investigation.

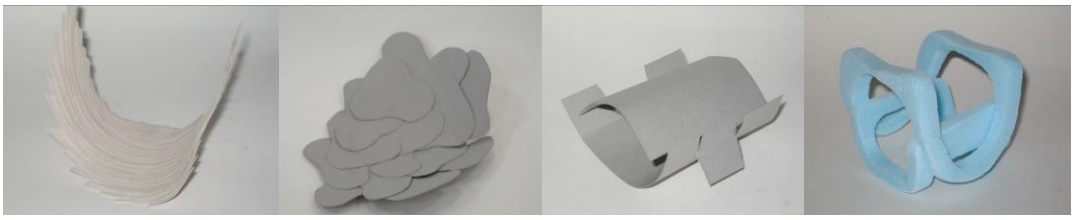


Figure 6: Small Models of Connectedness

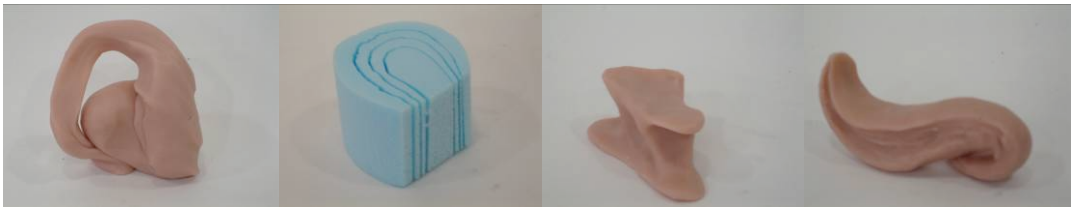


Figure 7: Small Models of Emotion

Figure 8: Small Models of Flexibility

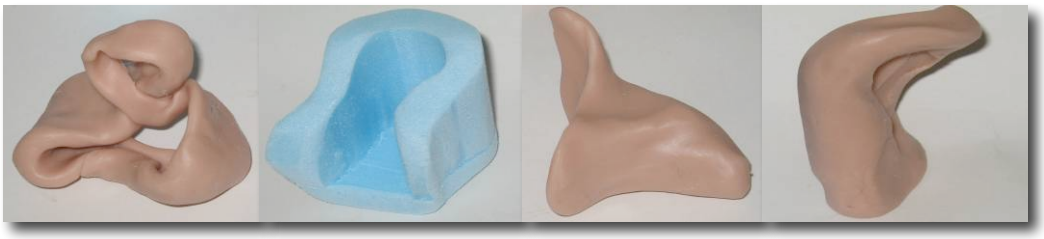


Figure 9: Small Models of Ethic of Care

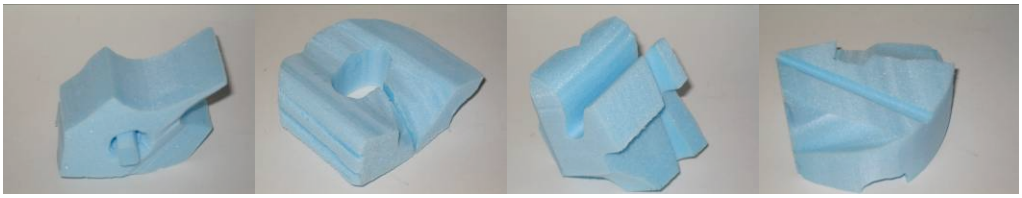


Figure 10: Small Models of Subjectivity

Review: Schematic Exploration Phase I

After producing twenty paper, clay and foam formations, the designer collaborated with fellow students, the studio professor, and the committee chair to evaluate the forms. These collaborations or desk critiques helped to evaluate the forms according to the principles they represented. Additionally, the forms were analyzed for aesthetic appeal and overall feasibility to construct. Reviewers concluded that although the forms were interesting and represented the principles, not all of the forms translated easily to ideas of possible chairs. While addressing the capabilities of these iterations, it was determined that at this point the ideas were too abstract and that in order to move forward, scale, ergonomics, and functionality would need to be considered. Using Franck's principles was an appropriate starting place for generating abstract ideas, but to move forward specific physical characteristics would need to be considered leading to a new phase of exploration.

Schematic Exploration: Phase II

With the aid of professors, students, and committee members, six designs that met the criteria of aesthetic appeal, concept, principle representation, and typological capabilities were chosen for further development. The first design, Nesting chair, was based upon the idea of layers wrapping around the occupant. The layering effect implies security and comfort.

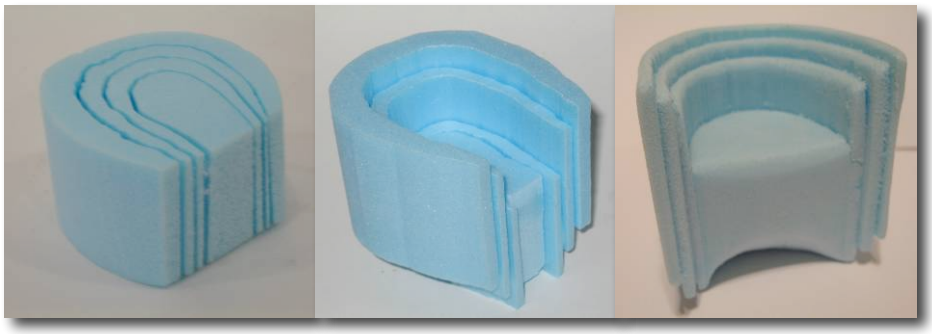


Figure 11: Nesting Chair Development

The Meta lounge design was based on the idea of repetition and flexibility. It also was meant to cradle the body, and provide a comfortable place to lounge and relax accommodating reading, or feeding infant with the built in adjustable armrests.

Figure 12: Meta Lounge Development

The Ripple chair design is about flexibility, and it can be flipped to provide more security and privacy. The chair can be changed to express the user's state of mind, inward posture shown on one side and an outward posture shown on the other side.

Figure 13: Ripple Chair Development

The Cuddle chair provides a physical representation of an embrace: it wraps around the body in one continuous motion. The seat is upholstered to provide comfort and it also has a flexible seat base to provide movement to the chair while rocking an infant.

Figure 14: Cuddle Chair Development

The Twirl tete-a-tete expresses the community and connectedness aspect of My Sisters' House since more than one occupant can use it at the same time. This can be

used in a variety of ways, can be lounged on in many different places, and it also cradles and conforms to the body.

Figure 15: Twirl Tête-À-Tête Development

The Cocoon chair was created with the intent of embracing the occupant with edges that wrap around like a blanket. In this chair they can curl up and read a book or cuddle with their infant or other children; the chair is oversized to accommodate this.

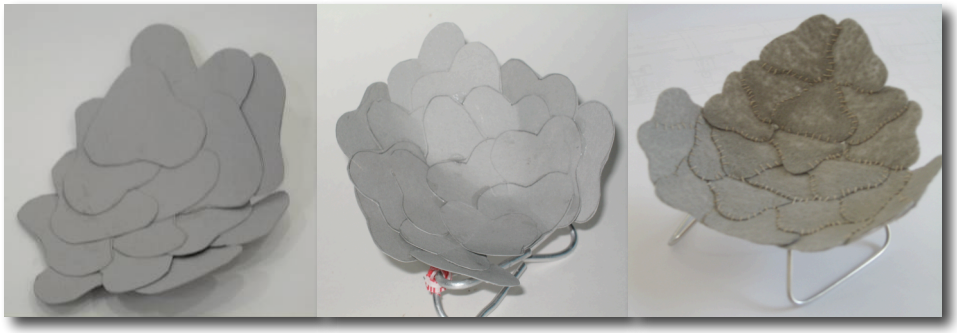


Figure 16: Cocoon Chair Development

Review: Schematic Exploration Phase II

With the aid of departmental professors and fellow students, the physical models were analyzed and evaluated on the criteria of creating personal space and comfort. The Nesting chair was dismissed due to the fact that it seemed more sculptural and less

comfortable. Another critique was that it appeared masculine and given the feminine user base it seemed too hard-edged. The Ripple chair did not receive much feedback. The idea that it could be flipped over to reflect state of mind of the occupant was intriguing to some, but the idea of pregnant or new mothers turning over a chair seemed infeasible. The Cuddle chair was dismissed, though it was admired for its rocking capabilities, the overall design was not as warm and comforting as some of the other options, mainly due to its open back.

Based on the feedback from midterm critiques three of the designs were picked to take further, the Meta lounge, the Twirl tête-à-tête, and the Cocoon chair. One critique of the Twirl was that both of the sides were low to the ground, which is uncomfortable for pregnant women. To remedy this situation the designer added one side that has a higher seat height but the other side is still close to the floor for lounging for the children. The designer also disconnected the two sides to make them easy to maneuver and adjust; they can be arranged back-to-back or side-to-side. The materials for this design included a tricot stretchy fabric for the upholstery for its flexibility as well as its durability, stainless steel frame, and a bamboo fill for the cushions.

Figure 17: Twirl Continued Development

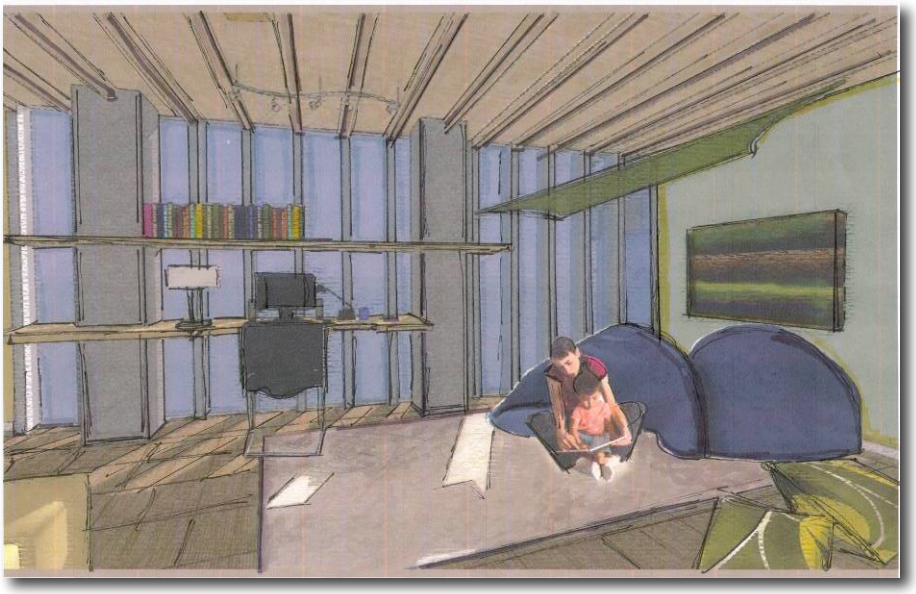


Figure 18: Twirl Perspective

After the midterm review, the designer modified the base of the Meta so that it supported the entire lounge even when leg rest was raised up. Additional changes were made to the color of upholstery, and the pattern of the stitching channels, overall creating a more streamlined design. The stainless steel frame of the lounge has adjustable jointed arms, back, and legs that create flexibility for comfort. The user can adjust the chair completely to suit her needs. Bamboo fiber fills the cushions and the microfiber upholstery is great for cleaning and durability. This chair was mainly intended for the pregnancy stage, providing a secure comfortable place to sit and read or relax while in the privacy of the bedroom.

Figure 19: Meta Lounge Continued Development

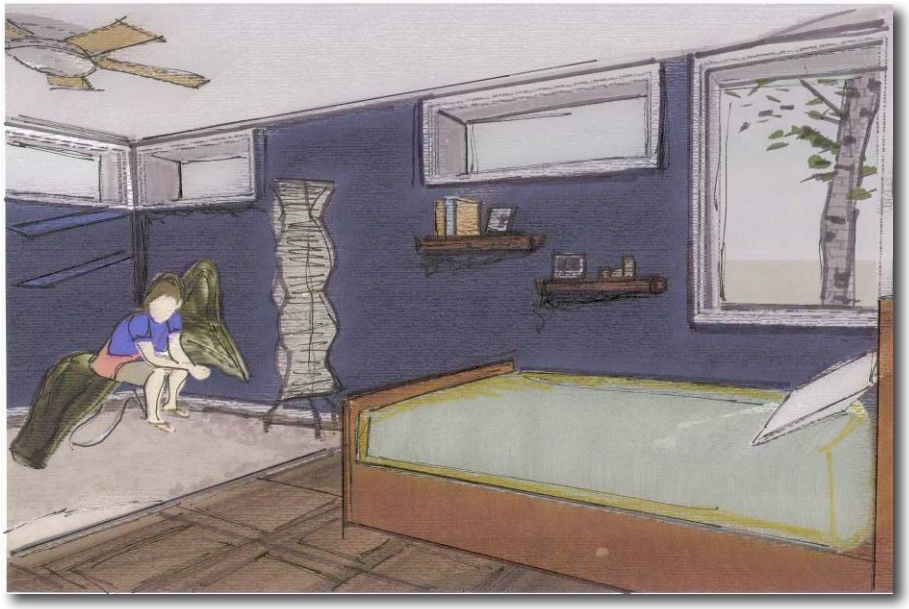


Figure 20: Meta Lounge Perspective

After midterm critiques, the addition of contrasting dark gray felt backing, bamboo fiberfill to increase comfort, and a metal seat frame for support were included in the design of the cocoon: sit. The upholstery piece is completely removable for washing and can be used as a blanket for lounging or playing with an infant on the floor. The intent of the chair is to provide a comfortable place for the mother and the children to sit together in the 'bonding with baby' suite. Additionally, the women can take this chair

with them when they leave My Sisters' House, serving as a memento of their time with their children at the residence. At this point the ideation was refined with the creation of digital models and perspectives of each of the three designs. SketchUp allowed the designer to consider dimensions, scale, and anthropometric data. This enabled functionality to be further considered and the relationship between the forms and the users could be analyzed.

Figure 21: Cocoon Chair Continued Development

Design Development: Phase I

After several more weeks of development of the three designs, the designer held discussion sessions with the studio professor and the committee chair, and one design was chosen to take to the next level. The Cocoon chair became the focus for further development. Numerous larger scale configurations of the individual petals of the upholstery were created and analyzed during this stage. The edges and joinery between individual pieces was a concern. How does one attach the edges of the front and back portions of felt in an appropriate way? How does one attach all the individual pieces together? In the smaller models the edges were hand-stitched but in a larger capacity this would not be strong enough. Different types of industrial thread, Velcro, and adhesives

were investigated. In regard to attaching the petals together, the application of grommets and rope were explored to join the pieces. In addition to rope, other materials were tested including yarn, heavy string, and leather laces. Another consideration was the configuration of the petals when they were attached. The designer rotated the individual pieces into various positions and analyzed the effects.

Figure 22: Joinery Exploration

Review: Design Development Phase I

Discussions with committee members helped to distill the overall design and figure out more of the details before taking the model to the next level. At this point the designer still had not resolved the edges of the individual pieces or how the petals should be attached together but had quality ideas to assess when creating the full-scale prototype. The creation of the full-scale prototype was the next step.

Design Development Phase II: Prototype

The designer determined that a full-scale physical prototype would best aid the investigation. The prototype was created with upholstery felt and stainless steel. The felt was chosen due to its durable yet soft appearance and tactility and the stainless steel was

chosen for its shiny modern contrast to the matte cozy nature of the felt. A washable industrial felt proved to be the best material for the project but due to its high expense and industrial nature the designer chose to continue using upholstery felt. The other materials included bamboo fiber for the cushioning, stainless steel bar, and refurbished metal shelving for the seat. With the help of Artistic Quilting, a local quilting and sewing studio, the individual petals were sewn first. Their larger quilting machines proved to be the only machines that could accommodate the upholstery pieces. Additionally, their industrial thread was more durable to hold the petals together. Next the designer created a template to map out how to pin all the individual petals together. Lastly, the petals were all sewn together according to the template.

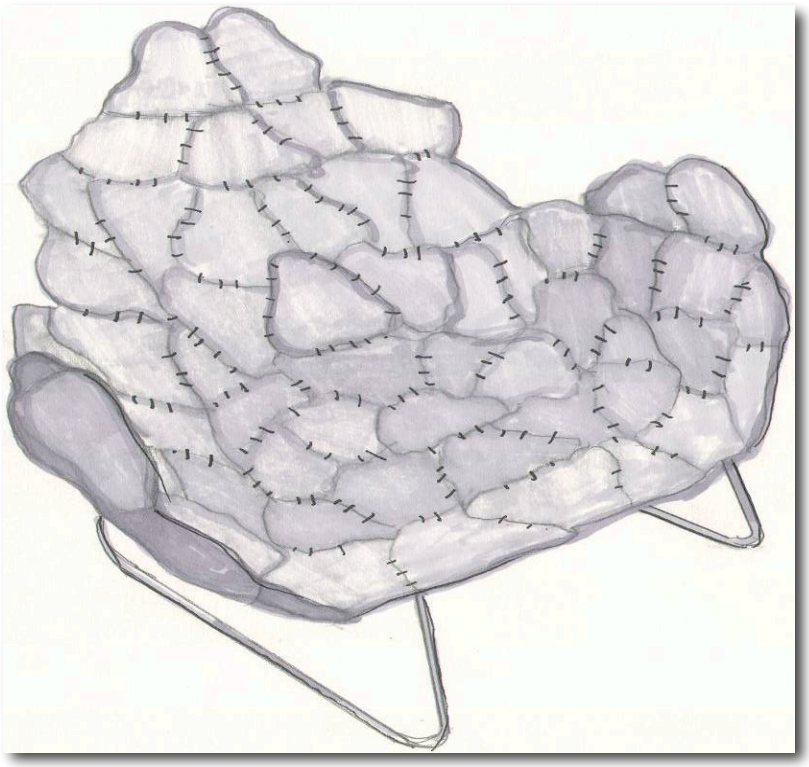
With the aid of a professional welder the designer created the metal base for the prototype. First, the stainless steel bar was bent with a roller. The legs of the chair splay out and a roller was needed to make the angles. After the legs were constructed, the metal base was added followed by the back. The designer employed metal shelving remnants that were discovered in a metal yard for the seat and back of the chair base. The seat back was curved to create comfort for the occupant. At this point the curved arms were added to the sides of the chair.

Throughout the design process, the development was recorded through visual documentation, and journaling. Physical 3-D models were photographed, drawings and renderings were scanned, and SketchUp models were saved as digital images. Additionally, notations were recorded in a journal to capture important comments and decisions.

Figure 23: Cocoon Chair Upholstery Development

Figure 24: Cocoon Chair Prototype Development

Figure 25: Cocoon Chair Perspective



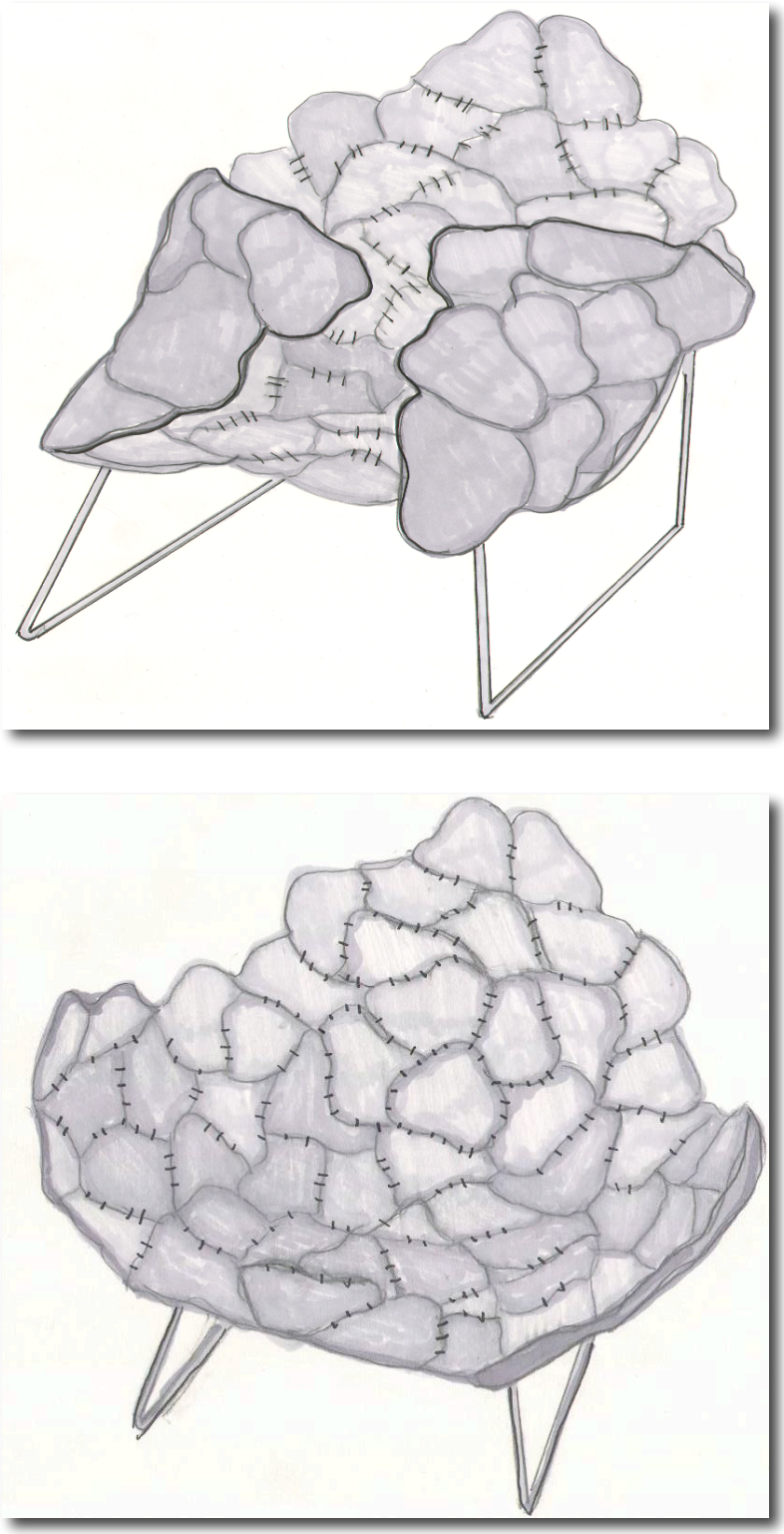


Figure 26: Cocoon Chair Renderings

Review: Design Development Phase II

Even during the prototype building, design development still continued and the designer continued to evaluate and change the design. One of the surprises uncovered during this process was the discovery of shrinkage with the individual pieces after they were all sewn together. Consequently, the overall prototype upholstery is not as large as designed and the arm edges do not wrap around the occupant as much as anticipated. Also the stitching technique used in the small model was not realistic in the larger prototype size in terms of durability; consequently, the contrast stitching is not as evident as it was before. To compensate for this there was an addition of a flanged edge to the pieces instead.

Regarding the metal base, the designer had to make quite a few changes from the original scaled model design. One alteration was the addition of the arms to support the edges of the upholstery. Additionally, extra support had to be added to the legs so that they could splay out the way that the original model was configured. Also given the stainless steel scrap material, it was hard to curve the seat base in the way that the scaled model shows.

Figure 27: Final Cocoon: Sit Prototype

Cocoon: Nest Design Process

Schematic Exploration: Phase I

The second product created for the Cocoon line was cocoon: nest, a textile space divider. The generative process for this portion of the investigation began primarily as a textile pattern study. In this stage weaving methods were given the highest priority with scale, size, and function given less consideration. For this study the designer decided that that the exploration should start with the creation of physical three-dimensional forms. Due to this hands-on approach, the designer could create physical models and immediately study them from all angles.

Initially, three-dimensional models were created out of felt and sculptor's metal mesh. The designer took small squares of metal mesh, about six inches square, and experimented with different weaving techniques. The point of this exercise was to explore all possibilities of the felt weaving without any consideration of scale, detail, or function. Different size metal meshes were experimented with as well as various colors and sizes of felt. The resulting objects were spontaneous explorations that were numerous and quick to execute.

Review: Schematic Exploration Phase I

After producing sixteen designs, the designer met with fellow students and the committee chair to evaluate the forms. These informal critiques provided information on which versions had strong tactile qualities that the viewers responded to immediately. Some iterations were determined to be more engaging than others. The designs that were deemed most successful had more of an overtly three-dimensional quality.





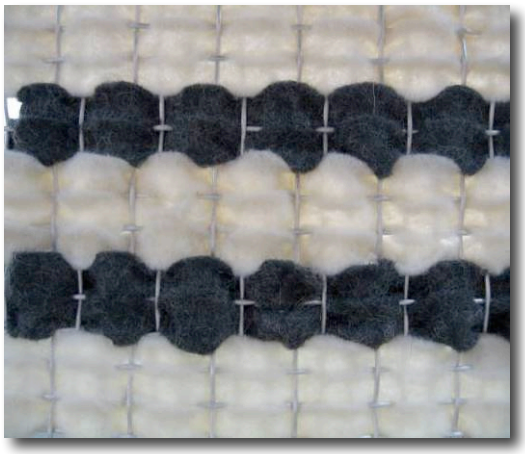








Figure 28: Weaving Iterations

Schematic Exploration: Phase II

After experimenting with small models and receiving feedback from committee members, the designer continued the schematic process but transitioned to exploring larger models. The four models that were deemed to be the most successful and that met the criteria of aesthetic appeal, tactile appeal, and concept were recreated in sizes of about 14” wide x 16” long. The designer constructed these larger sizes in order to determine viability. This part of the design process strived to answer these questions: Is the scale right? Is the material choice correct? Does this weaving pattern still work in this larger size?

The first of the four models was created with winter white upholstery felt and ½ “ sculptor’s aluminum mesh. The designer cut strips of the felt that varied slightly in length from about 3.5” to 6” and in width from ¾” to 1.5”. Details were starting to be considered at this stage. For example, the designer cut the edges of the strips at about a forty-five degree angle to aid in pulling though the mesh and also to provide more

interest to the panel overall. These strips were pulled through the metal mesh at random while keeping the overall canvas balanced yet organic.

The second model was created with a sense of layering of felt. The designer employed ½ " gallery mesh as the base and cut long ribbons of felt to weave through the mesh. The ribbons measured ¾ " wide x 5" long and were woven at regular intervals through the mesh, skipping two rows in between.

The third idea stemmed from the first idea but instead of employing the sculptor's mesh, the gallery mesh was used. The pieces of felt cut for this model varied widely in size. Additionally, the placement of the felt in the mesh also varied with some parts even remaining bare.

The fourth model created a gathering effect. The designer used the sculptor's mesh for this design and a mixture of two contrasting colored felts: a winter white and a charcoal grey. Long strips of the felt were cut and woven tightly through the mesh, creating a pleating effect. Fifteen rows of white were interspersed with three rows of grey, this pattern alternating through the panel.

Figure 29: Four Models

Review: Schematic Exploration Phase II

Following a meeting with the committee members the four models were reviewed and evaluated on the criteria of aesthetics, tactility and comfort. One model was chosen to take further into the design development stage, pattern number one. It had the most

overall appeal with the greatest tactility and depth of interest. Model two was not chosen because it did not have as much depth and interest as the first model. Reviewers were not drawn to touch and engage with as much as the previous model. The third model engaged interest but some found the bare portions where the metal mesh was showing distracting. Model four was dismissed due to the fact that in the larger swatch it was not as engaging as in the smaller model. Consequently the full-size prototype of this pattern would probably be even less appealing.

Design Development: Phase I

Model one became the focus for further development. Until this stage of the generative process, the designs had been created devoid of consideration of detailing such as the edges of the metal mesh. These edges of the metal mesh are rough to the touch and the designer started to experiment with ideas of finishing these off. One idea was wrapping felt strips around the edges. Another concern was the joinery between the individual panels. One solution to this problem was using wire to bind the sides together. Up until this point in the design process, the designer had focused on the textile portion of the divider without consideration of the actual configuration of the screen itself. There are basically two different ways to configure the screen, either hanging or freestanding. The designer configured the freestanding version as a serpentine shaped screen that wraps around the occupant and slightly curves overhead. The approximate dimensions of this screen are eight feet high by ten feet long. The second configuration consists of panels hanging from the ceiling in a linear way, possibly mounted on a moveable track attached

to the ceiling. Where this configuration might be interactive, it is not as embracing and warm as the serpentine shape wrapping around.

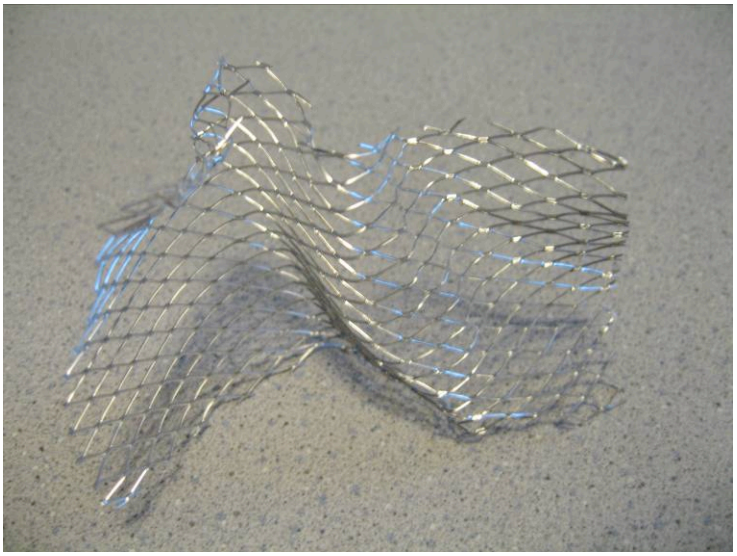


Figure 30: Small Models of Serpentine Configurations

Figure 31: Sketches of Linear Track Configuration

Review: Design Development Phase I

Discussions with committee members helped to distill the overall design and figure out what kind of details need to be considered when taking the model to the next level. At this point the designer still had not fully resolved the edges of the panels or how the panels should be attached together but had quality ideas to assess when creating the full-scale prototype. Additionally, the designer had not resolved the configuration of the

screen itself. The creation of the full-scale prototype was the next step including the resolution of the detailing.

Design Development Phase II: Prototype

The design development stage involved the creation of the full-scale prototype. The prototype was created with upholstery felt and 23-gauge ¼ " galvanized hardware metal cloth. The metal cloth measures 2' x 10'. The felt was chosen due to its durable yet soft appearance and its overall tactile appeal. The first step in the prototyping process was to cut long strips of the felt. The designer then cut these strips into smaller pieces, cutting the pieces at an angle. The size of these pieces varied in length between 3"-6" and in width from ¾" - 1.5". The designer then inserted the pieces through the metal cloth; not weaving through all of the openings but leaving 2-3 spaces open between felt strips. This gives an overall depth to the felt while remaining organic and random. Four panels of 2' x 10' size were created using this same technique. Each panel took about fifteen hours to complete. Throughout the design process, the development was recorded through visual documentation and journaling. Physical 3-D models were photographed, and drawings and renderings were scanned.

Figure 32: Step-by-Step Process of Weaving

Figure 33: Full-Scale Panels

The feedback received from midterm review was valuable. The designer received positive feedback on the overall aesthetic appeal of the large panels. The depth and

tactility of the felt material engaged the reviewers. Feedback was also received on the configuration of the textile screen. Recommendations on how to provide support to the panels in order to make it freestanding were numerous. Among these solutions was to add metal poles in certain sections to provide support, to add rebar support to the structure, or to add sturdy chicken wire type of wire sheeting.

A couple of days after the midterm critique, the designer experimented with hanging the panels in different configurations from the ceiling. The designer attached the panels to the wood beams in the studio's critique space using metal wire. The panels were secured using desk chairs as counterweights so that the designer could easily manipulate the positions. Much was learned about the panels during this experiment. It was determined that the number of configurations that the panels could be placed in was numerous. The designer discovered that the panels could be hung close to the ceiling as a ceiling screen, hung in a linear configuration down from the ceiling, draped overhead, and draped on the floor. The panels had more structure than previously thought; when draped a panel takes on a life of its own, twisting and curving in a variety of ways. The panels could be draped over a table or over a chair, taking on the shape of whatever the panel covered. Additionally, the notion of the panels as seating occurred to the designer for the first time.


EXIT


EXIT


EXIT


EXIT

Figure 34: Experimentation with Hanging Panels

Review: Design Development Phase II

Even during the prototype building, design development continued, and the designer continued to evaluate and change the design. One concern that came to light during this stage was the rough metal edges to the panels. The designer resolved this issue by braiding a long strip of felt around the edges of the panels.

After meeting with the committee members, it was determined that more details needed to be figured out before moving forward with the configuration of the textile screen. Up until this point the final configuration of the divider had not been decided. The designer still had two choices, hanging the panels or creating a freestanding divider.

However, the option of the freestanding screen was determined to be more appealing for the application of creating privacy. Hanging the panels provided interesting effects but did not portray the privacy and personal space as well as the freestanding model. During the discussion another option came to light, the idea of a freestanding screen that encompasses a bench or seat as well. In this arrangement the panels would drape down over a seat and onto the floor. The designer also created another model that draped onto the floor providing a place to sit. It was felt that there needed to be increased small model making experimentation in order to figure out the best configuration of the screen.

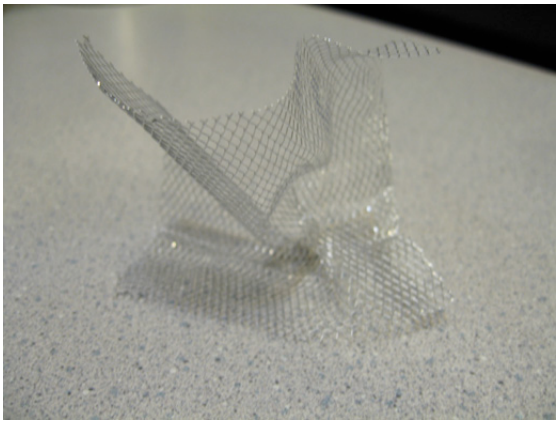


Figure 35: Small Model of Screen with Draping on Floor

Figure 36: Small Model of Screen with Bench

Another issue that was discovered was the lack of context for the final textile divider -- was this divider created for residential or commercial application? Unanimously the committee agreed that the scale of the screen suited a commercial environment more. The goal of creating personal space is applicable in a hotel lobby, or office space, and the texture and softness associated with the product is a great counter to a commercial space overall. Many other ideas resulted with the decision of the context of a commercial application. Often the commercial application necessitates a certain level of customization. In order to provide options, the designer determined that the client can choose a custom fabric color, metal color, or custom felt length.

After meeting with the welder who assisted the designer with the construction of the framing for the screen, another consideration came to light. Three bases were constructed out of steel with steel rods welded to them. The designer experimented with attaching the panels to the rods with wire. The panels were also wired together three high

making the screen 6 feet tall. The fourth panel could not be attached since the rods were too short to support another panel. However, overall the three panels were supported well by the rods and bases. At the beginning of this phase, the designer researched varieties of metal mesh. Stability and flexibility became the key factors in choosing the appropriate material. Square- welded stainless steel mesh from McNichols proved to be the best solution in regards to stability in remaining upright while maintaining some flexibility to create the serpentine shape. However, this material proved to be too expensive, over one thousand dollars for the size needed. For this reason, the designer chose to continue on with the stainless steel metal rods and bases.

Figure 37: Creating the Bases

Figure 38: Experiment with Attaching Panels

The designer wired all four of the panels together tightly to provide a more secure structure. The wiring of the panels increased the stability greatly, the panels three high were able to stand up without aid of bases and rods. Additionally, the rod lengths were increased by a foot and half each to 7.5' to provide more support to the screen and accommodate the fourth panel.

Figure 39: Three Panels Standing without Support of Bases

Figure 40: Panels Assembled Four High

After the designer extended the steel rods the realization was that the rods were now too long to allow for overhang at the top. Additionally, the panels needed to be cut into the curve at the top to allow for this overhang just on the ends of the screen. The rods were cut to 7' and the panels were cut to 7' in the middle, curving out to 8' on the ends. This allowance was still not large enough to really allow the panels to curve down at the top for the overhang. To resolve this problem, the designer added an additional felted portion to the top of the screen to accommodate an overhang on one end. This additional section allowed the end to be situated straight up or flipped to either side providing a slight overhang. The designer also painted the steel rods and bases off-white to blend with the color of the felt and created felted covers to be attached to the screen to cover the bases.

Figure 41: Bases Unpainted without Overhang

Figure 42: Final Screen Configuration

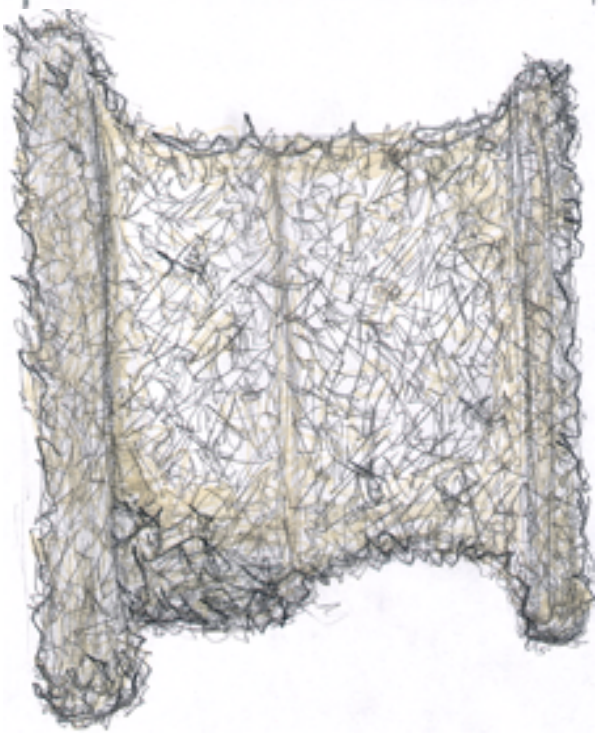


Figure 43: Renderings of Screen

The designer sketched future ideas of products that might fit within the line of products called cocoon. Included in these ideas was a wall-mounted table that houses a privacy textile screen, a coffee table that has a textile sling that gives a place for storage on top and a place to put your feet underneath, and a cocktail table that hides personal items in a textile pouch. All of these designs continue to play with the idea of privacy and personal space while incorporating textiles.

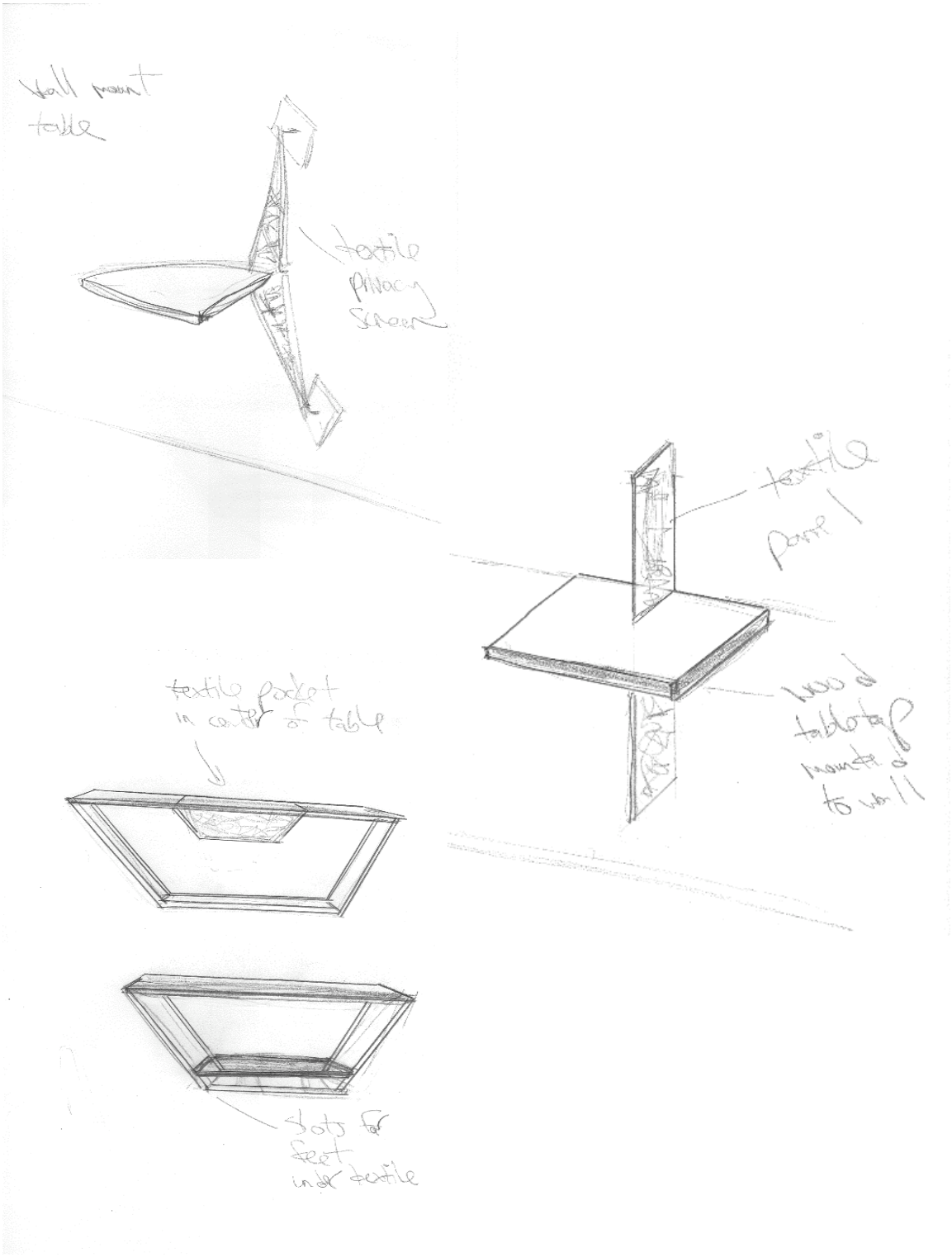


Figure 44: Sketches of Future Ideas

CHAPTER V

CONCLUSION

The literature review of inclusive design theory, craft theory, and behavioral psychology provided the designer with the basis to design a line of interior products with the express purpose of creating personal space. The goal of creating personal space merged seamlessly with the reinterpretation of traditional crafts. Additionally, the familiarity and comfort associated with crafts reinforces the coziness of personal environments. The design process focused on the creation of 3-D physical models due to the strong reference to handcrafts. Analysis by the designer, thesis committee, faculty, and students served to validate the design process and its products.

Creation of Personal Space

The line of products including cocoon: sit and cocoon: nest that resulted from this design investigation proved to be successful in the creation of personal space controlled by the user. Concerning ideas of personal space, the ability for the user to control his or her own environment or personal territory is extremely important. In terms of cocoon: sit, the occupant could fashion the edges of the chair to enclose his or her body. Similarly, the user of cocoon: nest could rearrange the screen to suit his or her needs. The creation of personal space in both of these examples was aided by the inclusion of traditional craft techniques of quilting, sewing and weaving, reinterpreted in a 21st century way.

Additionally, the tactility and warmth associated with felt, the primary material for both of these designs, contributed to the overall comfort of the products.

Design Process

In this design investigation two design processes were developed. In regards to cocoon: sit, the designer created abstract representations of Karen Franck's design principles. Franck's five principles of emotion, flexibility, ethic of care, subjectivity, and connectedness were employed to help inspire concepts and 3-D abstract representations for the beginning stage of the design process. The focus remained on physical 3-D form exploration using paper, modeling clay and foam. The reason for this physical model focus was due to the emphasis on handcrafted techniques in this investigation. In terms of establishing typology during the cocoon: sit design process, the form of a chair was defined first and then materiality was applied later. Contrastingly, in the cocoon: nest construction, the textile portion took center stage from the outset. Initially the object or screen that it would become was not defined; instead the designer focused on the weaving technique and materiality of the felt. The designer experimented with various weaving techniques to develop the main textile portion of the screen first. The structural portion of the screen was developed much later, emphasizing the importance of textiles in this investigation. The tactility and warmth of the felt was discovered in the development of cocoon: sit and led to the recognition of the importance of using felt in constructing cocoon: nest. This was a significant breakthrough with the thesis investigation since felt inherently conjures up feelings of nostalgia for many individuals, releasing generally positive memories associated with childhood or other fond remembrance.

Evident in both products processes was modularity -- multiple pieces coming together to create a whole. In cocoon: sit it was the individual petals coming together and creating the chair, and with cocoon: nest it was the repeated felt strips woven into the screen en masse. Originally with both products the designer acknowledged the importance of creating quick small models to enable half-formed ideas to be expressed and to be reflected upon. The methodology employed by the designer consisted of generating numerous early tentative solutions while leaving many options open for as long as possible before narrowing them down. This recognition that design is reflective and largely intuitive served the designer throughout the process. Gaining feedback from faculty and students was crucial to the design investigation. Through open-ended discussions throughout the design process, the designer collaborated with the thesis committee and gathered suggestions for further development of the designs.

Future Exploration

Two paths suggested for future explorations included serial production of the furniture pieces, and creation of other items to add to the cocoon line. Reviewers throughout the investigation inquired about producing and marketing the products. One opportunity stemming from the theory base of inclusive design that appeals to the designer would be production by women in need, possibly meeting therapeutic purposes. In reference to cocoon: nest, the metal mesh would be manufactured but it is easy to imagine the textile portion being constructed by hand. While with cocoon: sit, the metal frame would be manufactured, the textile portion would be sewn on a machine with some minor hand sewing, and the arrangement of petals would be done by hand. Additionally,

the designer explored an interest in other products that might fit within the cocoon line. Ideas referenced by the designer included a table that contained a privacy textile screen, and lighting fixtures that enhanced privacy.

Handcraft in Modern Age

Reviewing current nostalgic trends in product design, the designer synthesized these ideas and created a design process that emphasized a handmade quality and incorporated textiles. Both of the products created in this investigation revealed their contemporary side with the metal portions of their frames while staying true to their traditional side with regards to their textiles. In this fast-paced modern age where the focus lies in digital creation and mass-produced products, it often becomes necessary to explore the internal craving people have to be considered as individuals and not just as consumers. Crafts represent authenticity and portray a human element that is not revealed in mass-produced objects. The uniqueness associated with the handmade symbolizes individuality. Crafted objects nourish the mind and soul by manifesting an emotional connection between user and maker, and user and product. The rich history associated with craft-making also further reinforces this connection.

At the beginning of this thesis investigation, the designer raised the question: Do craft-making techniques, applied to product design and reinvented in a contemporary way, help to create an emotional connection and foster psychological comfort with objects? With the completion of this design investigation, the designer (as creator and user) concluded that the prototypes succeed in creating personal space and privacy, which in turn enhanced comfort with the objects. Essential to both products was the ability of

the user to adjust the objects to suit his or her needs, meeting the privacy criteria set forth by Sommer, and creating an overall responsive environment. The second question posed by the designer at the beginning of this investigation was: Do following the Franck principles and building on the precedents of inclusive design assist in creating products with an emotional connotation? In the end, the five principles merged well with the "nostalgia remix" design ideals emphasizing emotional connections and users' needs. In particular the principles of emotion, connectedness, and ethic of care dominated the designer's process and helped to contribute to the overall approachability and comfort of the designs. Additionally, the exploration of craft-making inherently created products with a nostalgic emotional connotation enhancing comfort with the pieces. The overall tactile experience and the reference to handcraft techniques associated with cocoon: sit and cocoon: nest proved very successful in achieving a high level of user interest and interaction. While the results of this design thesis focus on two possible outcomes, these products reveal the potential associated with incorporating crafts into contemporary product design.

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Appendix A.

Journal Notes

Journal Notes

9.9.09

Met with Tommy and discussed small models-

- Need to create 12” x 12” models to explore detail and scale of 2 or 3 of the promising ideas
- Idea of modularity, is it necessary to make this screen modular so that user can create their own screen?
- How is the screen installed, transported?
- What fabric should it be made out of?
- Is it a ceiling panel, freestanding panels, or both?
- Theory of personal space, creating personal space, privacy with the screen
- Environmental aspect of screen, screen shapes environment, creating space without taking up space
- Importance of applying the hand in this investigation
- Line of products called “cocoon”, products that provide privacy, personal space, warmth

9.16.09

Met with Tommy

- How are the panels put together? wire, rope
- How do the edges of the individual panels come together? Is it hidden or purposefully noticeable

- Does it hang from the ceiling or is it freestanding?
- Experiment with different scales of felt pieces, and gradation of dense fabric to sparse fabric
- Follow up on model of layered felt, gills

9.23.09

Meeting with committee

- Caught committee up on everything, showed all of the small models and the 4 larger ones
- Good response on shag model, tactility was interesting, very dense
- Next step take the shag model to full-scale model
- Research metal mesh for base of felt, larger openings, smaller openings, different shapes, how does that affect the weaving technique

9.30.09

Met with Tommy

- Need to work larger with the shag type example, most promising idea
- Think about configuration of screen, is it freestanding? Hanging? If it is hanging what is the connection to the ceiling? Braided wire, steel cable
- Schedule time with entire committee to update everyone
- Think about finishing off the metal edges of the panels, rough edge, could be a structural portion to the screen
- Make sure to check track of time spent crafting
- How would this be mass-produced?

10.07.09

Desk critiques

- Concern of cleaning the panels came up, dust collection, solution, vacuum attachment
- Transportability-is this something that might be nice? Or is it not important.
- Contact McNichols about metal mesh

10.09.09

Met with Tommy

- Think about name of screen
- Focus group-get design professionals to evaluate the products, provides analysis for thesis

10.14.09

Met with Tommy

- Names for screen-"cloud"
- "Environmental blanket", idea of providing emotional security
- Still need to figure out edges
- Still focus on configurations of screen
- Add process, step-by-step process of making panels, diagram process, include specifics such as angled edges

10.21.09

Midterm presentation-

- Good feedback-strong tactile quality is appealing especially in large scale format
- Received ideas about free-standing configuration, use rebar to provide support, chicken-wire
- Described screen as a "structural blanket

10.26.09

Desk critique-

- 1/2" rebar to provide stability to screen, talk to welder
- Option of having two different configurations of screen, one freestanding and another hanging from ceiling, make one full-scale prototype, the other shown in sketchup

10.28.09

Met with committee

- Came up with name cocoon: sit for chair and cocoon: nest for screen
- Idea of blanket draping across a bench, creating a seating configuration for screen maybe it becomes an option, show in sketches, perspectives
- Context-commercial context deemed more applicable, hotel lobby, office building, conference room, texture and softness great contrast to commercial space
- Contrasting colors, custom colors of fabric and metal backing for commercial setting

10.30/09

Met with welder

- Talked about ideas for creating a base for the screen
- Recognize trial and error process, will experiment with different ideas starting with creating three stainless steel bases that have steel rods attached to provide support for the screen while enabling a flexible overhang
- Will experiment with attaching screen next week

11.06.09

Met with welder

- Experimented with attaching the panels
- Could not attach the fourth panel, too tall, not enough rod length
- Was more stable than expected even though individual panels were crudely attached together, once they are wired completely together it will be stronger
- Surprised I had not thought of large size that the screen would eventually be, it measures 8' tall by 10' wide and need to decide it portability is a priority, if so than realize that it will not be as structural sound, if not then only a truck will be able to transport

11.09.09

Meeting with Tommy

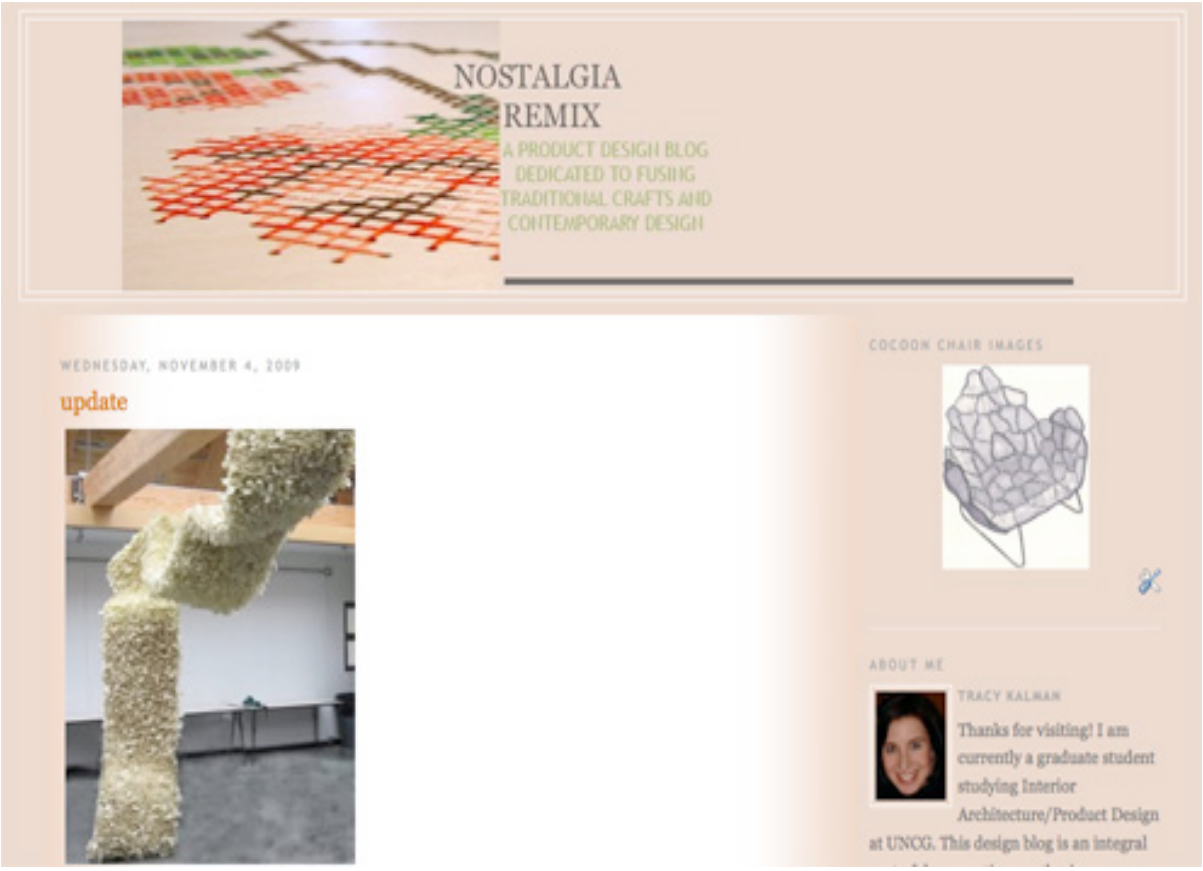
- Decided on lobby space to start off thesis defense then move to conference room
- Discussed idea of panels floating on the floor covering up bases

- Discussed concluding thoughts, modularity in design, pieces coming together to form a product
- Idea of handcraft in modern age, reminds us of our place in digital world
- Application of inclusive design theory base, creating opportunity for women of diversity producing these products

Appendix B.

Blog Screen Captures

Blog Screen Captures



I am still working on figuring out the configuration of this textile divider. I have now completed 2 panels that are 24" x 10' and plan on experimenting with different configurations, hanging them from the ceiling, fastening them together, etc. Originally I planned on creating a free-standing textile screen but maybe a better idea would be to hang it. Any ideas?

POSTED BY TRACY KALMAN AT 6:23 PM

1 COMMENTS:

jjmascar said...

I like both the free standing and the hanging ideas. However, I think hanging the divider will allow you more options in the size of your panels. With the panels, you can also, if you desired, alternate colors or color values to create patterns -- sort of like a quilt. I am communicating with Tiffani this week about getting the name of the artist/welder in her class in case you still need it. Call me if you want to talk about your project -- or anything else for that matter!

OCTOBER 21, 2009 9:22 AM

I have been busy working on the large scale prototype shown above. In its final state it should stand about 7' tall and 10' long. The small metal model shown directly above is the current idea I have for the configuration of the textile screen. The idea is that the serpentine screen wraps around the occupant and curves overhead creating personal space.

POSTED BY TRACY KALMAN AT 6:44 PM

1 COMMENTS:

jjmascar said...

I like the idea that the screen wraps around and curves overhead. The texture you have created in your textile has a "nest-like" look to it that I think works well with your objective create a personal space.

OCTOBER 9, 2009 5:46 PM

Here is another larger model creating a gradient of small to large felt strips woven through metal mesh.

POSTED BY TRACY KALMAN AT 2:41 PM

1 COMMENTS:

Sarah said...

This is looking really cool Tracy! Keep up the good work!

SEPTEMBER 28, 2009 10:48 AM

It is amazing how many different ways you can weave felt, it has a density that gives way to a variety of shapes and forms.

POSTED BY TRACY KALMAN AT 2:07 PM

3 COMMENTS:

Penguin & Fish said...

These are absolutely gorgeous. Can't wait to see what you do with them.

SEPTEMBER 15, 2009 6:00 PM

Harmony said...

Tracy - this is so great! I've always loved felt...it must be a childhood anchor - I used to love felt applique' (although I must admit I've never actually done it). Thank you for sending your blog- I look forward to watching what unfolds!!
Pam

SEPTEMBER 15, 2009 9:14 PM

Lana said...

These felt weaving techniques are great, I never would have thought of doing that. Such a simple idea but so effective!

OCTOBER 12, 2009 1:52 AM

Picking up where the Cocoon chair left off, I have started on my first project of the semester, a soft wall/ textile divider. Here is an example of my first model exploring this idea. I have sewn felt pieces onto the metal mesh panels, varying up the heights of the felt. Shown is just upholstery felt but I think maybe industrial felt would give a more sculptural feel.

POSTED BY TRACY KALMAN AT 12:13 PM
LABELS: IDEATION 1, SOFT WALL, TEXTILE DIVIDER

2 COMMENTS:

jackie mascarella said...

I like the choice of felt and floral/ribbon sort of pattern. There is a graceful sense of movement.

SEPTEMBER 8, 2009 9:29 PM

angeltreats said...

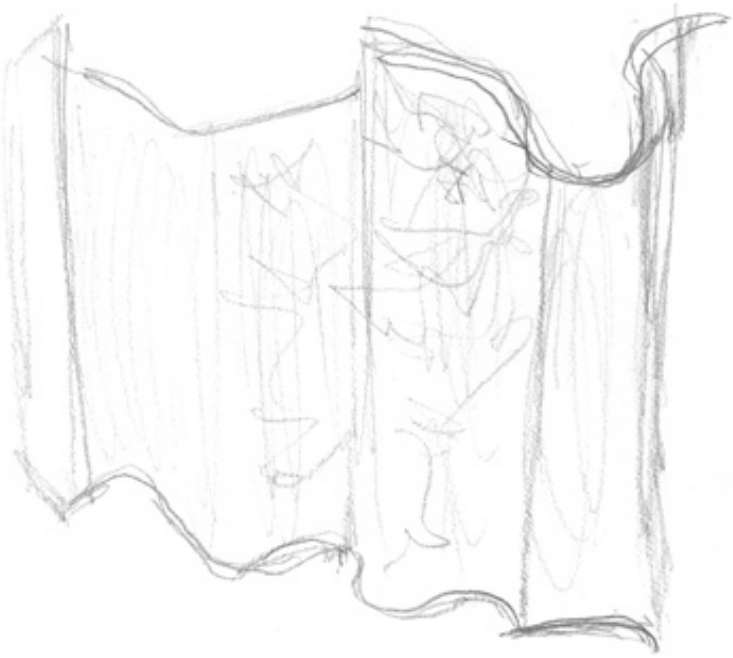
I love this idea. I'll keep an eye on this to see how you're getting on, it's a really interesting project.

SEPTEMBER 11, 2009 11:22 AM

Appendix C.

Sketches

Sketches



Appendix D.

Additional Photos

Additional Photos