loop

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MA degree project

LOOP

intimacy, one touch away

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ABSTRACT

Tactile interaction plays an important role in human relationships, alleviating anxiety, stress and depression, through the release of endorphin and other physical functions. In several societies touch between people is either seen as a taboo or decreasing in behalf of the heavy use of technology. New parents are particularly affected by lack of touch (and consequential lack of intimacy) partially because of evolutionary traits of constant focus on the offspring for survival reasons. This project explored the possibilities of creating a motivation for couples to increase tactile interaction in the shape of an object. Throughout interviews with different couples I recognized a need for this object to not increase sexual pressure. Different objects were tested, and the credible scenario for usage became an issue. Considering the moments young couples spend together and their technological inclinations, a wristband that uses tactile interaction as power was developed. The band assists the couple with their technological needs such as navigating through movies, raising and lowering volumes, playing in different devices, among others. It requires the couple to record touches on each other which will then be read as actions, such as a remote control. The wristband is a potential object to be used deliberately when couples feel the pressure of the lack of touch, however, it does not stand against the use of technology as a barrier-creating agent between people.

DEDICATION

To my entire MID14 class, and their constant source of inspiration.

To my focus group interviewees, and their marvelous input and inspirations.

To my international sisters in Sweden, Elena, Ylva and Sophie. Without the hundreds of daily phone notifications, I wouldn't have made it.

To my real brother and borrowed sister, Rafael and Juliane. For maintaining me sane and keeping the laughter flowing.

Finally, to my partner Pierre Lindell, who has been the psychological and physical rock I could build upon and alongside, and hope to keep always building on. Du är också min klippa.

And last but not least, to my parents, Ana and Ivano, who have made all this possible. Thank you for all these years of support.

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INTRODUCTION

This research begun through the general wonder towards the psychological effect of objects on people. The initial focus came from how the daily habits and routines can be affected or influenced by everyday objects. How can unawarely squeezing an object between our fingers evoke a memory or release endorphins that translate a pleasurable feeling? I became interested in identifying how to stimulate people through objects tactually, and consequently improve their routines through careful consideration. Being unaware of how much the environment affects us was my main personal curiosity. Is it possible to achieve stress reduction or positive health impacts through tactile stimuli?

Attachment Objects

The first step of the research involved grasping the nature of the general attachment of humans to objects. The very first encounter between the two occurs as children, with attachment objects. Those are characterized by the objects children unconsciously deposit extreme fondness into. Those objects are likely a representation of a transition period into independence - therefore they are called transitional objects. As explained by Christian Jarret in his article *"The psychology of stuff and things"*;

> *"Consistent with this, there's evidence that children make less use of such objects if their mothers practise so-called 'attachment parenting', involving co-sleeping and feeding on cue (Green et al., 2004). There are also cross-cultural findings showing that fewer children have attachment objects in Tokyo, where children more often sleep in the same bed or bedroom with their parents, than in New York, where co-sleeping is less common (Hohara, 2003)."*

These objects may follow us into our adulthood, and are scattered along our personal possessions. According to *Jarret,* they tend to represent an extension of self, depending on our self-esteem, or social statuses.

The importance and affection given to regular objects brought the following question: if people deposit that much importance into possessions, how much do they affect them physically? How can the different tactual stimulus in those possessions influence humans in a psychological level?

Decision Making

The influence on people's decision making capabilities is higher than it is generally believed to be. In a conducted research, *Joshua Ackerman* and *John Bargh* **(2010)** managed to prove that haptic influences can impact daily lives and decisions unconsciously. The weight of a resumé on someone's hand was proven to change their perception of the candidate. Additionally, the temperature of a cup can be directly connected to the impression one has of whoever they are engaging in conversation with. According to behavioral psychologist *Susan Weinschenk* in her article *"Hot Drinks, Soft Fabric, and Heavy Objects"*,

> *"We are very influenced by the meaning that our sense of touch perceives."*

Those aren't the single examples that have been verified by *Ackerman* and *Bargh's* research. Additional textures, such as rough or smooth, or the malleability of an object, meaning hard or soft, can bring diverse associations to the mind and have an impact on impressions.

The central idea contained on *Weinschenk's* article is that it is possible to achieve a certain degree of malleability of a person's opinion or actions through the thoughtful use of applied haptic sensations. If the possibility of change of a person's mindset exists, could also a psychological healing occur upon carefully planned tactile stimulation?

Attachment Objects
in childhood

Transitional Objects in Adulthood

In his doctoral thesis, *Rob Solway* analyzes how the existence of transitional objects in adulthood can aid therapy.

> *"[...]the transitional object helping them develop a sense of, "a) continuity of the therapist's existence, b) connectedness with the therapist, and c) the development of a new sense of self"*

In his thesis, "Developing a Psychological Understanding of Museum Object Handling Groups in Older Adult Mental Health Inpatient Care", he evaluates the positive outcomes of object handling in the health of terminally ill patients. In a comparison between three different groups, there is a slight but notable improvement on the health of the group that was handed museum objects (theoretically of an important value) to be touched and felt. The other two groups were either not handed any objects, or only allowed to look at them without touching. These observations are additional clues to the healing capacity of haptic sensations.

Objects Re-Design

An important step for this research was understanding the powerful meaning behind tactile objects in our daily lives. For that reason, a class in Delft University in the Netherlands served as a meaningful contributor.

The class is called *"To Learn to Feel: Developing Tactual Aesthetic Sensitivity in Design Education"* and its purpose is to de-construct the paradigms of basic touch mechanisms. The final project for the course asks students to re-design objects in a way that may transform them into a personally pleasant experience. Students then were asked to evaluate personal objects and ask themselves "why is this not tactually working for me?", so that later they could provoke the necessary changes.

An example of a project comes from a student who believed his keychain was a burden and hurt his legs every time it was inserted into his pants pocket. Secondly, the keys were tough to choose from with your fingers when pulled out from the said pants. He decided to re-design that object in a way in which the keys were protected by a spoon-like shape that would feel good against his leg, as opposed to the prickly feeling of the keys. Also, the shape allowed him to easily unfold the needed key for quick and painless use.

This method of projecting allows for considerations that reflect on how many objects around us are not properly designed for touch, or even considered for that matter, even though we constantly touch the vast majority of them.

About Touch

Touch is the very first sense developed in humans, even before they are born. As described by Rob Solway, the haptic system is comprised basically of cutaneous signals, which explores temperature and/or texture, and the kinesthetic signals, which explore size and shape of the objects (2014). Touch sensations are related to the sense of self-awareness, of belonging. As explained by the authors Marieke H. Sonneveld and Hendrik N.J. Schifferstein under their Tactual Experience chapter of the book Product Experience,

> *"A world in which touch is poorly addressed is likely to weaken the feeling of being in contact with the world, which may lead to a disappearing feeling of self-awareness. Touching is being in physical contact and, as such, is the basis for the feeling of being in contact. Within this contact, touch is a strong basis for the development of feelings of affection and intimacy (Fields, 2003; Montagu, 1971) and is necessary for physical and mental development."*

The authors conceive a term for the effects of lack of physical contact between people when they are young, which they name Touch Hunger. They believe this can continue throughout people's lives and directly affect their interpersonal relationships and behaviors. They also cite the use of transitional objects mentioned before, and how their tactual feelings are connected to the idea of pleasantness. The examples involve soft, furry teddy bears for children that are missing the presence of their mothers, or soft walls for demented elderly.

Following the same thought, Solway discloses that the tactile sense is not only focused on analytical skills. The sense of touch may also transmit emotional aspects such as a pleasurable feeling, separately from functionality. This means that those emotional sensations take a diverse path to the brain than the ordinary, in a direct connection to the emotional areas, which are "...believed to support emotional states, guide behavior and reinforce memories" (Solway, 2014). In a nutshell, touch may be connected to sensual pleasurable areas of the brain.

The authors also cite *tension x relaxation* connected to touch. According to them, physically interacting with a specific item can have effects on a person's energy levels.

Another compelling point described by Sonneveld and Schifferstein, is the fact that touch is the only two-way sense there is. It always involves touching and being touched. There is no possibility of touching something without also being touched by that object or person, unlike other senses. Consequently, there are two ways of dealing with touch: active and non-active. When a person reaches out to touch an object, his/her attention is focused towards the object in question, and thus the analytical aspect of it. Nonetheless, when you are touched by an object, there is a shift in attention, which then is aimed to the sensations it causes on you. Also, distinct body parts may be more suitable for this active or passive touch explained above. As an obvious fact, skin from the palms or soles of the feet are most suited for active touch, while the rest of the body, which is covered by what is called "hairy skin", is most suited for passive touch, or feeling the sensation provoked. (Sonneveld, Schifferstein, 2008)

A third type of tactile interaction exists, and it can be defined as an indirect touch. This sort of touch happens when we feel the world through another object. A few examples shown in the book Product Experience are feeling food through a cutting knife, or the ground through the bicycle. This form of touch displays a different tactile experience, but should not be ignored.

Healing Touch

From a healing point of view, touch is the very first sense used for basic comforting principles. According to touch researcher Helena Backlund in her Göteborg TedTalk, how could it be possible for a parent to comfort a small child without the possibility of a tactile interaction between those two people? (2015) How could affection be conveyed between human beings in a complete, meaningful way otherwise?

In her lecture, Backlund describes a situation when a mother in labor benefited from the healing touch power from a midwife. The midwife in question convinced the soon to be mother not to intake any sort of heavy painkiller medication, and instead, profit from a pain reducing whole body massage. The mother (who was Backlund herself) completely acknowledged, even though baffled, the healing power of the massage from the midwife.

Helena continues to describe the beneficial aspects of touch in regards to connecting people and creating bonds. It is the main sense connected to fighting loneliness, and she describes young monkeys that grow up lacking touch as having a much lower capacity to deal with stress in later stages in life and having a lower tolerance to pain, additionally to growing up more aggressive than other monkeys who receive appropriate amounts of tactile interaction as babies.

Not only for infants or baby animals, touch is the main aspect of creating interaction between adult humans. During the lecture, Helena reminds how loneliness has developed in society to be a life hazard, since it is "... as associated to mortality as being severely obese, an alcoholic or a smoker" (Ecklund, 2015). She reminds that more than half of all the households in Europe are inhabited by only one person, with Sweden having the highest ratings of people living and dying by themselves in the world. There seems to be a correlation between societies where touch tends to be a taboo and the ones where depression rates are higher.

The Science Behind Emotional Touch

Recently, scientists found that touch can be more connected to the emotional aspect than they expected. It was previously believed that the discerning, analytical touch (used for describing what is it you are touching) was the very first response of our system, so that then emotional touch could be discerned. However, fibers called C-Tactiles were then discovered, which may have a direct connection to the emotional areas of the brain. These fibers are closely connected to our ability to communicate with other human beings.

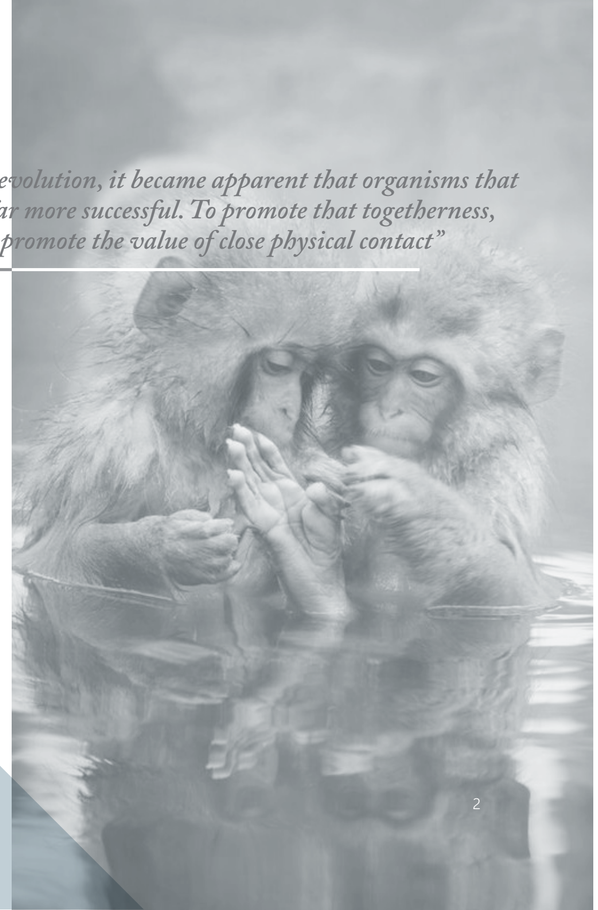
"Affective touch is a potential way in to understand the development of the normal social brain. [...] It's giving the brain knowledge of me and you, and the emotional quality of gentle, nurturing touch is a very important feeling that underpins a lot of social interaction." (McGlone, 2015)

It is believed that those discoveries are related to species survival. As McGlone mentions,

"Looking back in evolution, it became apparent that organisms that work together are far more successful. To promote that togetherness, there was a need to promote the value of close physical contact"

In other examples, there are researches that show that the grooming action between primates promotes social bonding, and results higher chances of success in reproduction. (Scientific American Mind, 2015). Light pressure applied to the C-Tactile fibers are known to provoke a continuous pleasurable feeling. (Richards, 2012)

If there are so many benefits, why aren't people developing their tactile fibers?



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The Distanced Society

An article written by David Derbyshire may shed a light on why humans are restraining from touch. By changing outdoor environment to an indoor at 90% of the time, people may be suffering from lack of tactile development. As buttons disappear and flat screens and clean lined surfaces become the mainstream tendency, our senses suffer from deprivation, according Derbyshire. Citing experimental psychologist Dr Charles Spence, he reveals the lack of development of tactile sensors may lead to an imbalance in the brain. Spence also cites the term "touch hunger" as the lack of tactile stimulation children and adult need. In a rough comparison to people seeking for new flavors to stimulate pleasure receiving areas in the brain, tactile receivers need the same inputs for development. Dr. Charles suggests the growing sense of self and independence is leading society towards an increasingly touch-free environment between people, and that may affect people's sense of well-being.

"The threat of litigation means that physical conduct is on the decline in the workplace, while teachers are advised not to touch children."

He advises there is a growing need for tactile stimulant objects at home and workplace environments to attempt to compensate that lack:

"There is evidence that smell and touch are linked more closely to the emotional centres of the brain than vision or hearing, suggesting that their deprivation could have psychologically damaging effects." (Derbyshire, 2002)

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With people unwilling to produce tactile contact to strangers or coworkers, how can there be a guarantee this tactile need is being fulfilled elsewhere? What situations can tactile affinity be excused in societies where touch between strangers is seen as a taboo?

Fidgeting

An additional area related to haptics, is the one portraying fidgeting. According to the Cambrige online dictionary, fidgeting can be defined as *"...to make continuous, small movements that annoy other people..."* (Cambridge University Press, 2016). The pure definition itself is attached to negative views of the action. However, researches show that fidgeting can be beneficial to the person who develops it.

Technically, the basics of fidgeting is an answer from our systems to dispose of the extra energy created in anxiety or stress prone individuals. There are a very wide variety of types of fidgeting, and they not only involve hands, although in the most part they are related. The action itself can help minimize stress effects and improve focus on an specific task. According to Meredith Melnick, health director at the Huffington Post, there are known pedagogical benefits to moving our hands while speaking. Also, an offload of possible cognitive load into movement may be a way to deal with complicated thoughts or problems, says professor Karen Pine (Melnick, 2013). The most straightforward and obvious benefit is in the considerably faster metabolism of fidgeters. The constant movement also protects from the hindrances of sitting down for longer periods of time, with a research showing women who fidgeted were less likely to die earlier than women who did not. (Sample, 2015)

Considering the beneficial aspects of (also) fidgeting, how is it possible to show people it is not a negative action and even incite its repetition amongst stressed or anxious people?

Observed Issues & Directions

In order to maintain a healthy dose of tactile stimulation, I was able to observe a need for higher tactile development, interaction or stimulation. Some of those needs were recognized in workplace environments. As a society that tends to treat touch between strangers a taboo, there could be an opportunity for action in this sector in Sweden.

Workplace Scenario

Workplace stress and anxiety affects many people and can cause demotivation, increased sick leaves, and affect people's lives through the development of unnecessary depression or social anxiety. The existence of approaches to make the workplace better suited (when it comes to physical and psychological health) that stimulates different senses usually tend to focus on vision and sounds. Tactile interactions are heavily ignored (ergonomic factors excluded).

People are reaching levels in which they realize the quantity and quality of work they perform is prejudicial to their health. The newer generations are understanding that health concerns may heavily affect their life quality. Generations Y and Z are less and less motivated to spend much of their time in antique, non sensual workplaces. This creates a need for workplaces that meet not only the basic, but also the most contemporary health needs.

Workplace Scenario Trends

2016 trends such as the "Insider Trading" may be benefit this scenario. The trend basically states that a more ethical consumerism will reach its peak - which means people will pressure brands to treat their employees in a more humane way by taking concrete (maybe costly) actions. This can be positive if you consider the workplaces that regard the well being of their employees through the adaptation of tactile surfaces and objects that enhance personal pleasure.

Workplace Scenario industry

Industry presents large selection of toys and solo objects that can be used as stress relievers. Most of these are conscious choices people have to make daily to be used or bought. This industry however, is highly saturated.

The 25% Seminar

During the 25% seminar presentation, I defined some of my goals and standings and showed an update on my initial briefing. It involved most of my research to that point, what it yielded in terms of decisions. Also, an initial questionnaire had been done, with roughly 40 people, regarding touch preferences.

I also made contact with Hand Surgery department lecturer **Brigitta Rosén,** who answered several questions and helped me directing my research.

Hand surgery lecturer

Initial Briefing

My initial brief in the very beginning of research, was the following:

"Develop object(s) that can provide haptic sensations in an unaware state to people and develop their sense of touch while in the work environment or during work functions"

The first way to tackle the information I had gathered through research and decisions needed to make, was to create a **mapping** of touch types. This included affective touch (the one related to memories or emotional areas of the brain), interaction touch, stress reduction, affection/intimacy touch, transitional objects and touch through an object (when you feel the ground through a stick, for example).

After identifying the opportunities and coming up with different areas, I then analyzed each individually in terms of what they could bring.

The first type was Rethink Design. This pathway was inspired by the Delft University touch awareness class. This design way would be an extreme focus on tactile enhancement on existing objects. It would raise awareness to the importance and negligence of tactile surfaces, nonetheless, it would present a conceptual and "trendy" approach that would possibly mean a less useful artifact.

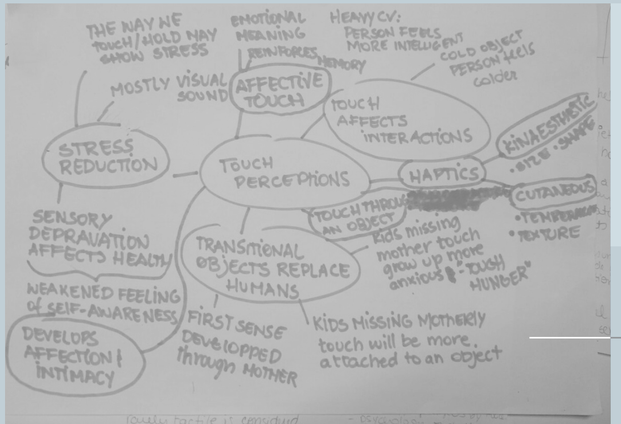
The second approach defined by Feel Through an Object is characterized by the use of a physical mean to allow different sensations or enhancements. This option could enable the use of technology and have a secondary usage by visually impaired people (or based on them). Its purpose would be to allow people to experience objects in a different way while developing tactile senses.

For the third approach, called Develop Tactile Sensations, would be focused towards people who have lost or diminished tactile responses. Said path means that it would be a way to try to train to develop brain areas, and could be used in hospitals, through medical personnel or as a preventive care for those who are diagnosed with a tactile-interfering condition. The workplace scenario for this approach would be reduced to medical professionals.

In the fourth approach, the fidgeting side to the tactile world was considered. This way would be directed towards people under stress or anxiety, and would be a break from plain, minimalist, simple surfaces. This option could also bring awareness to the benefits of fidgeting for the fidgeters.

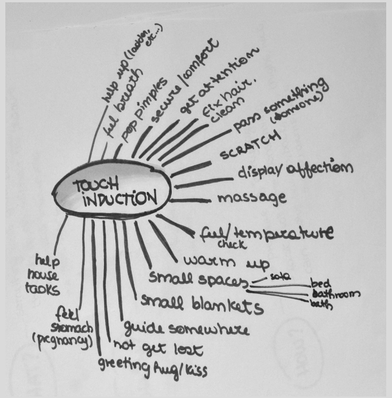
The final and possibly main direction was called Evoke Human Contact. This option became important when throughout the research, I realized the human touch was the most important type of touch. Even though I could prove through scientific data that developing our touch sensors is beneficial and pleasurable, the data towards the importance of touch between two people was much more conclusive. This area could be focused towards several groups of people: workmates, parents with their newborns, couples, friends, patient-doctors, or strangers. It could both raise awareness but also improve well being and act directly on our touch sensors and pleasure-inducing areas in the brain. Additionally, it could create or strengthen bonds between people.

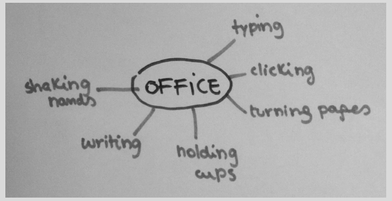
From the above options I could then re-adapt my brief based on my findings:

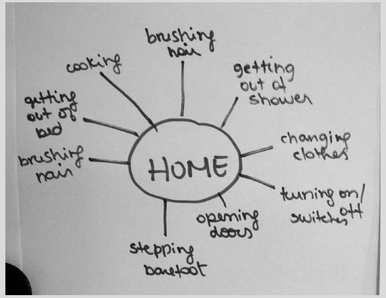


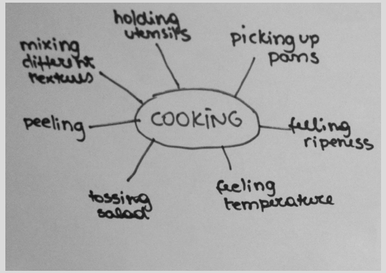
"Develop a design a solution that can train, develop or stimulate touch and/or touch between people focusing on haptic inputs (texture, temperature, weight) with the intention of stimulating C-tactiles and creating pleasant experiences."

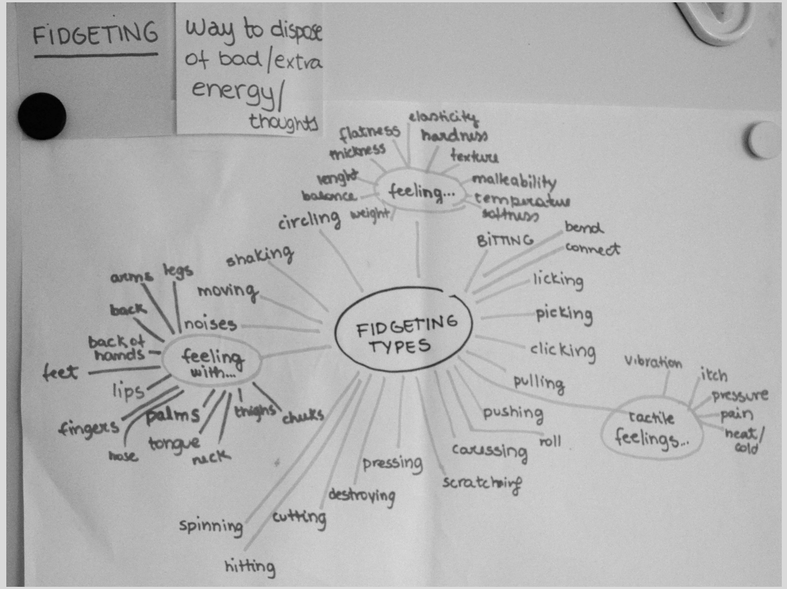
Touch types mapping











Brainstormings

Choices

Regarding design work opportunities during the 25% seminar presentations, I was advised to chose one path to follow. From the core of the research done I could easily identify the need for bigger human interactions and how much more meaningful that path could be, considering said research. Additionally, an object that brings people together is profoundly more needed, considering person-to-person interaction is lacking in a world focused on person-to-object.

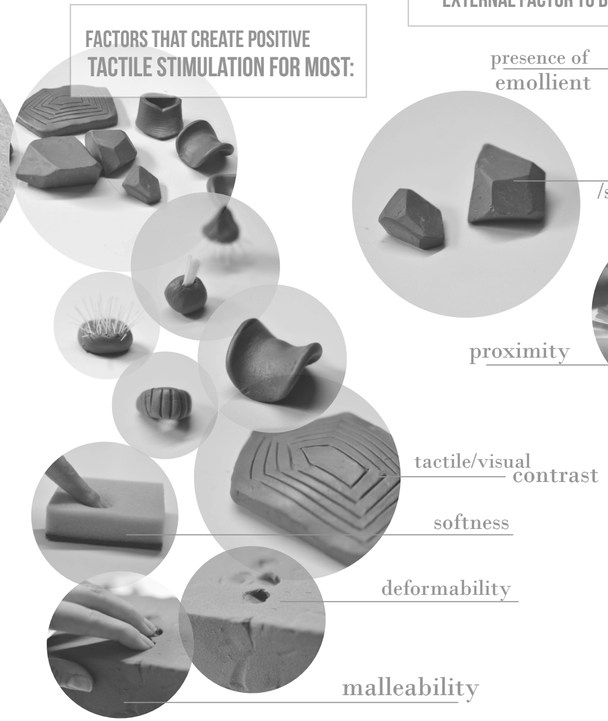
Most objects designed with a focus on touch are mainly towards touchscreen and technical usability. Not many convey the possibility of raising the amount of touch between human beings. The main idea of this project is to have minimal interference and maximum transparency, so that the focus relies on the touch between two people. Consequently, the decision made was towards the "Touch Evoking" area.

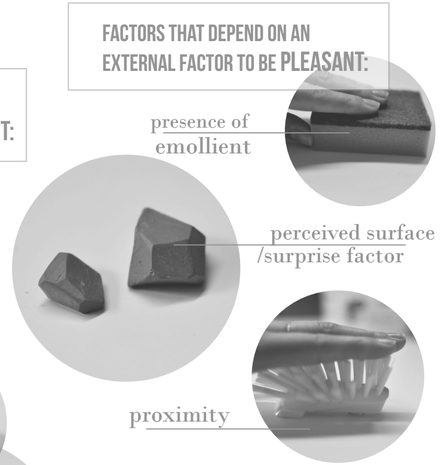
TOUCH PREFERENCES TO AID IDEATION

Alongside the ideation process, I analyzed the first interview done right before the 25% seminar, with 39 individuals. From the answers gathered, it was possible to realize that touch preferences can vary immensely from person to person, just like any visual or scent preferences. There are identifiable patterns that can be seen repeated throughout most of the answers. The main and most important one denotes a preference to surfaces that can be associated to the human skin - soft, hairy, warm. Also texture preferences tend to be higher when the pattern feels natural, fluid, found in nature, as opposed to a machine-created one (for example fingerprints, tree barks, etc…).

Translated into material preferences, those inclinations tend to reflect on: satin and soft fabrics, smooth wood, silicone or soft plastics, and fur and feathers.

I divided into a visual moodboard of factors that





contribute to a pleasant tactual experience for the majority of people as seen on the research:

The preferred tactile stimulations involve a deal of:

- Tactile contrast (ex: spaced lines in a somewhat soft material);

- Softness;

- Deform-ability (or the capacity to be altered through touch);

- Malleability (or the capacity to give in somewhat, but returning to its original or almost original states);

There are also external factors that may play a role in the preferred tactile pleasantness. One of them is the visual aspect. Perceived surfaces can alter how we actually feel said surfaces after we touch. For that, some visual cues that play with our minds can be either positive or negative. If a surface looks very pleasant to touch but it is not, would be a deception for most people. The opposite means a surprisingly positive experience. For example, if a shape has harsh edges and looks extremely hard and cold, but when is touched is actually soft and warm, can be a positive experience.

Another external factor could be the proximity of a pattern. In the case of the bristles, when they are very stacked together, they create a pleasurable sensation against most skins. However, if you separate the bristles, they can become spiky and unpleasant.

The last external factor that may change the perception of pleasure, is the presence of an emollient. That means that, in the case of a somewhat harsh bath sponge, when there's water and soap involved, it becomes highly pleasurable. Without them, the feeling is highly un-pleasurable for most.

Scenario Shift

During several particular consultations regarding the workplace scenario, a question regarding private and social occasions arouse. Several of the interviewed people believed the workplace could represent a potential moment for greater interaction. However, the people involved who believed that, tended to also represent a meaningful portion of people who did not display signs of lack of tactile interaction in other areas of their lives, such as family, friendships and personal relationships. The smaller portion of people who did not recognize workplace tactile synergy as a possibility (or even a mere pleasant thought), tended to be the ones in major need for tactile interactions in their personal lives. From these observed results, I could conclude that, by choosing work mates as a focus group, I would be projecting to an inaccurate party, and that could bear inefficient or even negative results of forcing people into an unwanted scenario. I decided that personal space cannot be overlooked when the purpose of my project is to allow people to feel better overall.

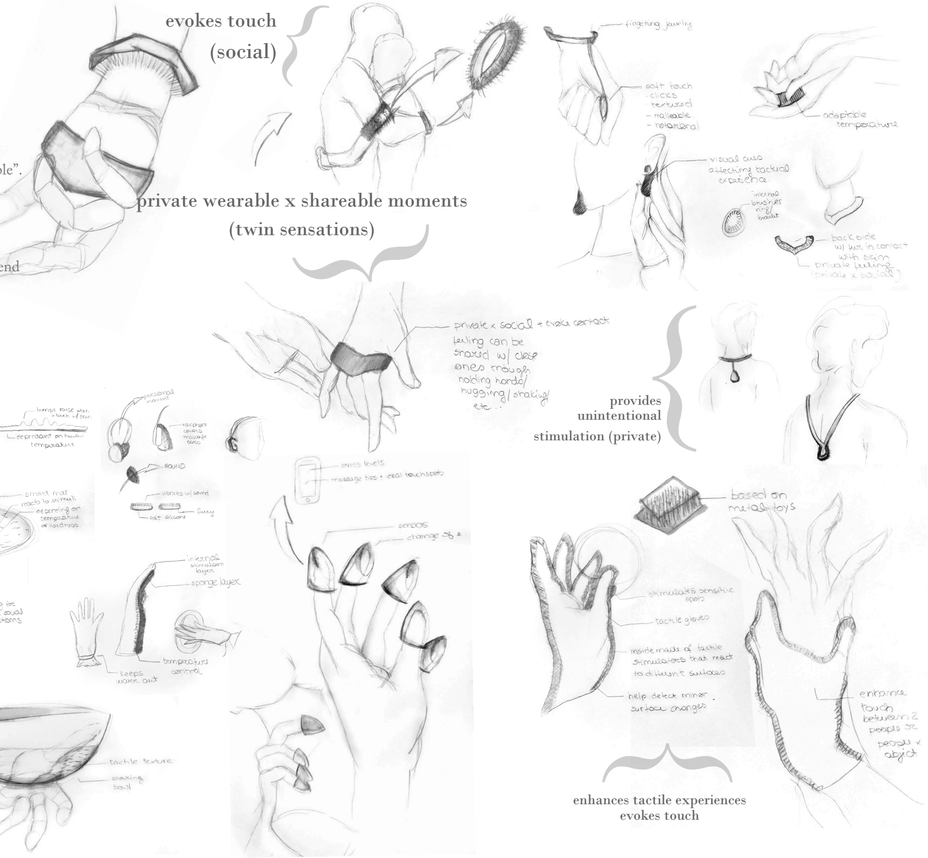
Also, my focus was mainly in Sweden and/or Scandinavia - which have a strong culture of enjoying life outside the workplace, usually shorter working hours and more pleasant than usual interiors to compensate the harsh outdoors weather (which may also comprise workplaces). For those reasons, focusing on a tactile sensors development within the work environment might not make as much sense as outside it. Thirdly, the saturation of the market for tactile objects in the workplace that relief stress and anxiety has steered me away from that choice.

From that scenario shift, I was able to begin my ideation process following the more ample premise of "Use of personal objects to amplify sensory tactile experiences & promote tactile approach between people".

There was a need to specify situations to begin the ideation process, which, while moving away from workplace, I could divide into:

· Single people living by themselves needing to extend human contact through close family (during family meetings);

· Couples who have been together long and lost physical connection.



Analysis of Ideas

Social x Private

From the options elucidated through my ideation process, I maintained the sense of importance of considering private and social moments. The main idea behind that ideation came across the constant use of objects (possibly body jewelry) only you feel versus feelings you can share while holding hands or hugging another person. The changes in temperature could be given through the use of selected materials, and could either take you out of your comfortable space, or bring comfort in situations where you need it.

Intention to touch x unintentional touch

From previous research, I identified that when we intentionally touch, our attention moves to the object, and when touched, our attention is in the feeling we receive, so the sensation is heightened. In that sense I imagined a situation where I could play with those both instances when it came to fidgeting - while wearing something someone would be constantly touched, and at times the person could touch it her/himself.

Enhance touch between two People

This possibility mainly explores the idea of enhancing or modifying the usual touch between two people, to raise the will to initiate touch between them and bring the most psychological benefits and create bonding. However this option would mean that there was a barrier between them as well.

Also, the possibility to induce massaging with a piece of object - that can warm up to touch, reduce cold or give goosebumps. This idea would follow the direction that human skin-like sensations are most pleasurable - so the device could mimic them.

From those developments, there were different project needs identified at this point in the project:

· A more specific focus group with limitations;

· Moments where the object should be used (Is it a constant use? Will you get used to the feeling? Is it a game initiated? Will it require an expert for it to be recommended?)

From the options created, the ones that most provided private/social stimulation and evoked human contact while giving shareable sensations were the personal wearable objects. I decided to follow in this direction and begin a new ideation session that comprised that group of objects.

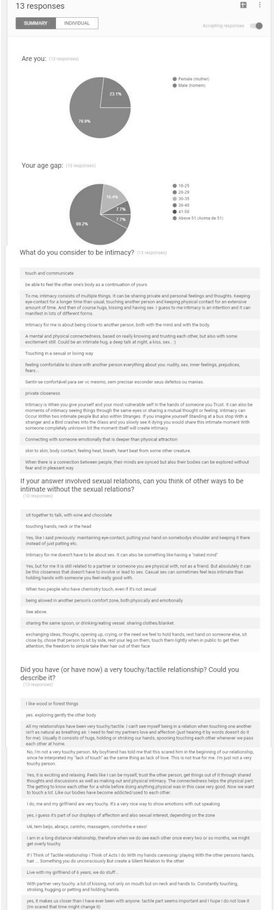
Focus Group

The new Focus Group

Through these project needs, my vision shifted to the more sociably acceptable touch interactions. Comparing between families and relationships, my attention deviated to relationships, where touch plays an important role in several aspects: from maintaining intimacy and closeness to enabling reproduction. The prospect of people who owned that closeness through touch and lost it within time is a known factor in several societies. The possibility to work with groups of people who once had a close tactual relationship and lost it meant I would not be creating a new need in people who never had it before (and possibly did not desire that outcome), but instead redeeming something that was missed.

Additionally, there were positive advices given to me, in regards to choosing a very specific focus group, in the sense that being able to design and fit the needs to that small group may be more successful than trying to tackle big groups and very contrasting people, and end up in a situation in which I do not fully fulfill anyone's needs. Also, it may be the secondary groups may find their needs granted by the same solution towards the smaller, specific group. This means that it was a choice to move towards couples who lost intimacy, instead of focusing in larger groups.

The first step was to understand this need in a semi-quantitative way. An online questionnaire could help estimate roughly if the need truly existed and could be palpable.



"[...] choose that person to sit by side, rest your leg on them, touch them lightly when in public to get their attention, the freedom to simply take their hair out of their face..."

From the questionnaire, a couple of ideas could be concluded:

· Even though intimacy does not ONLY comprise physical touch, it is present and an important and even indispensable part of it for the majority of interviewed people (9 out of 13 people);

· For all the interviewees, tactile intimacy is not only sexual intercourse;

· One interviewee talks about her boyfriend reading her lack of tactile interaction as "lack of love";

· One interviewee talks about feeling "closer than to anyone else" when there's much tactile interaction involved;

· Most interviewees (8 out of 13 with age gaps between 26–29) have answered their tactile stimulation has grown with time. From the ones who answered that it diminished, 3 were between 30–40 years old, 1 between 26–29 years old and 1 between 18–25 years old. This may point towards the possible fact that age and life stages might play an important role on the loss of tactual intimacy;

· Out of 6 people who answered the tactile interaction diminished, only 1 said they don't miss it.

The Couples Scenario

From observing these answers, a question arouse. Is there a scientific reason why those couples lost intimacy or tactual interaction? If there is, can I find real examples for projecting purposes and using as a base for developments?

This scenario came up after discussions revolving couples with children. Often they would cite their kids as the main reason for their loss of intimacy they once shared.

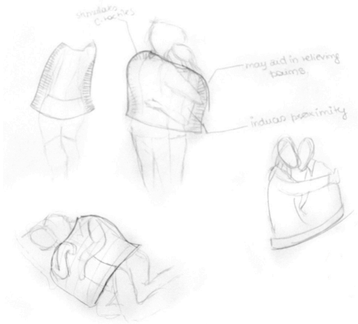
It seems as there is an evolutionary explanation as to why couples lose their tactile interaction, intimacy, and, consequently, their relationship as a whole.

As explained by Jane Callegari in her "Love - The Middle" (free translation) article, love was also an evolutionary invention to keep male humans attached to the females to grant them with higher possibility to bear and take care of children. That is when monogamy became a necessity between human race, to assure a higher survival rate between the offspring. This allowed for nuclear families, that pushed human race forward in spiking rates in terms of population. It brings biological benefits to both male and female, however, it has its downsides. After the birth of the first child, the male testosterone drops 33%. This leads to a considerably lower sexual will or intimacy, which aids in making sure the child will receive the attention needed. In a simple explanation:

> *"It would be tough to take care of the children while still dazed by that intensity of the beginning of romances" (Callegari, 2010)*

This means that scientifically our bodies are programmed to disconnect from each other when a child is born - but that was a necessity 3 million years ago, and it isn't in modern society. Human offspring are not going to be compromised by loving parents - if anything, a healthy relationship should influence children positively in current scenarios.

Additionally, research shows that one in five marriages end within 5 years after the first baby is born (Figes, 2010).



New focused Ideation

For this second Ideation process, it was advisable to chose a specific setting, environment or situation where the object could be used. Assuming couples who have lost their intimacy after the birth of their child, there was a need to identify moments in which they could regain that intimacy. Considering the amount of work a newborn presents to parents, it was safe to assume they would not have plenty of time for themselves, and would most likely present a degree of exhaustion when that time came. My solution should not present them with too much extra effort that would require them to step out of their routines, so hat it would be possible for the level of interest/object usage to be maintained. Two main times were then observed, and both involved the child being asleep: sofa moment, when both sit down to watch TV together, and laying in bed before sleeping. The latter situation was chosen because of the importance of sleep when dealing with newborn parents. The constant waking up to check on newborns can transform every sleeping minutes into precious needed time. If a device could bring intimacy and also make a more comfortable moment before bed, could be ideal.

Through another advisory session, it was established that there could be the situation where maybe only one of the people from the couple would take initiative to change their situation, or feel bothered enough to act on it. This also played an important role in choosing solutions.

I was able to identify a new market as well through the idea of creating an object for couples to regain intimacy that does not foresee sexual intercourse as a consequence. Even though there could be situations when it could be accepted as an end situation, this object releases itself from the pressure of sexual intimacy.

In a nutshell, my intentions could be roughly summarized into:

Recent parents have many responsibilities and worries and less time for intimacy. Evolutionarily, our bodies tells us not to crave intimacy after our offspring is born, since their health and well being are the most important factor. This sensitive moment is usually when couples begin to distance themselves, culminating in divorce for almost half of the married couples in Sweden. There is an increased pressure from society telling couples their marriage will fail if they do not have sexual intercourse. However, couples can benefit from intimacy and released endorphins through the sensation of touch between them, without having to resort to the pressure of sexual performance. I am to enable ways in which couples can benefit from the release of endorphins from tactile exchange without the pressure of sexual performance.

Second direction

From the new ideation, using the personal jewelry that induces touch as a base, I was able to refine my idea.

The possibility that presented itself as the one with highest capabilities of fulfilling my identified needs was the wearable fabric. The inspiration came from the thought of *"uniting through lack of space"*. The starting point was the following question:

What would be the easiest, most natural way to move people closer together?

The answer was through lack of space. When a couple wants to *"fit"* under a blanket, they have to squeeze together or embrace. Having Sweden as a location setting, it is common to have blankets in outdoor seating areas or in your own, indoors, to make your experience cozier.
What if it could be worn to bring two people together?

Then emerged the possibility of a "blanket-like device", that is small enough to cover both if hugging - and provides a comfortable setting for that embrace, so couples will crave that. The possibilities allow for the recording of touch patterns and styles, so it is an unique massage experience fitted for the couple. It would work as a "hug enhancer" allowing couples to crave that embrace.

The blanket could be used as a playful activity or as an addition to regular activities *(ex laying in bed before sleeping, sitting on sofa, sitting at an outdoor area).*

Couples can record their own personal touches to the malleable device which has sensors. It will record both motion, vibration and temperature. They could then wear it together, to rock them to sleep while spooning, make them comfortable on sofa, or even warm them in a cool outdoor environment, such as an outside restaurant or picnic.

To record their touches, one of them will be the wearer and one will be the massager - also inducing a playful massage moment. The blanket can also be programmed to fit the couple's busy schedule - and randomly vibrate and warm up to remind them of its function in moments when they're most likely to be free.

Since touch is of extreme importance from the moment we come out of our mother's womb, this device should be able to be worn when embracing your newborn baby as well. So the three of them can enjoy the benefits of intimacy and touch.

Issues Observed

This option, while displaying benefits, had some strong issues. The main issue would be the fact that the real "need" for that blanket would be only playful. The couple would have to develop a strong will to use it simply for massaging, and it could become a gimmick. It does not in any way facilitate their lives, but the opposite.

User-centered approach

The Real Couples

Assuming those couples did not wish to pursue the path of separation after their kids were born, I reached out to real people for interviews that could show me a real need within this area. This qualitative research would be helpful to associate the needs directly to real people and understand them in deeper levels. Names cited in this thesis were changed to protect their privacy, as well as the people portrayed in the pictures, who are just serving as a imaginative purpose.

The first person, who kickstarted the entire focused approach was Rebbeca. She is a mother in her forties who began to sleep in he first-born's room when he/she was born so as to not disturb her husband's sleeping patterns and not be disturbed by his. She has experienced diminished intimacy after her child was born, and believes there could be greater tactile interaction.

The second interviewee, Eva, is a 30 year old mom to an younger toddler. She reports to have experienced an intense change in the levels of intimacy between her and her partner when her child was born. Her words are as follows:

> *"Yes, it has been a drastic change. I definitely recognize the problem that you describe. Sadly we've lost some of our intimacy, or maybe a lot of our intimacy. I guess it is due to lack of time, tiredness (all the time) but also that we somehow lost the "routine" of being intimate. I've been thinking about this and I think that for me it is also about the fact that I cuddle very much with my son, which somehow fills up my "intimacy account". Not that it gets full, but rather that I don't feel the same need of cuddling with my boyfriend... Ah, it feels so sad thinking about it"*

It is possible to observe the need for a solution that can somehow fulfill this "routine" aspect. What is it that they are doing routinely that could benefit from a positive addition?

When the topic of bed time was mentioned, also Eva denote an obstacle: her child sleeps in the room with the couple, and initially slept in bed in between both of them.

The third interviewee, Vanessa, also a 30 year old mom to a newborn and a toddler. She has reported a drop in her intimacy levels with her partner when her first child was born. With the second child, she says she already "expected the change" and so it felt less bothering. She also said it was easier with the second child because she knew beforehand that the intimacy level drop would be temporary until the child got older (even though she would rather not go through the situation again). She also said both her kids have slept in bed between them as newborns.

It was tougher to find men in that same position of being disturbed by the lack of tactile intimacy to the point where they openly talk about it, so from that observation, it seems like the most likely person to act on it and take the first step when it comes to the change of the situation would, in a lot of the cases, be the female partner *(while my focus group is being used as example).*

Third Direction

From the answers gathered from the interviewees, it became clear that the moment before falling asleep would present a difficulty because of the presence of the children between the couples. Nonetheless, all interviewees agreed to enjoy their free time as a couple by watching television together. This fact allows for a moment shift, from bedroom in bed to in front of a TV.

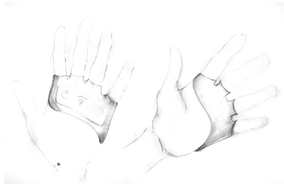
During a supervision session and the analysis of the touch possibilities with the blanket, a leading question came up: **what if the touch between two people could power up the device?**

From that question developed the idea of utilizing a person as the current to achieve actions. While analyzing the answers from the focus group, a situation that seemed to repeat itself was the constant need to interact with devices instead of each other. Screens are now constantly between the interaction of two people. What if there was the possibility to put a phone screen away and use each other as an interface? This would

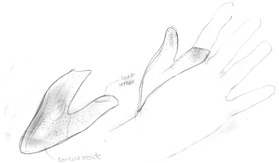
allow for a non-invasive solution that would not take much from the experience of relaxing together, while forcing the couple to interact tactually.

Real Testings

From the choice of a plausible and tangible idea, the model making process begun to give shape to the concept. Some refinements were made, and there was a lot to consider.



The idea of wearing the device on your hands presented a challenge: it would partially cover the main article for allowing touch between two people. The main aspect of having it on the hand was to allow the precise reading of movements and detect touch between them.



From a quick technology research, it became clear that the device did not need to be place on the hands or fingers to read movements precisely. According to Lorenzo Franceschi-Bicchierai, staff writter of Vice Magazine's Motherboard, it is possible for current technology in smart watches detect what is being typed in a computer just by using the accelerometer and gyroscope embedded in it. The distances between small movements and vibrations that result from the fingers moving sideways and up-and-down are measured by the device, which is pre-programmed to identify those patterns. (2015)

I decided to allow for the user testing to dictate how the shape would end up, only assuming possible sizing and placing needs. I assumed there would not be the need for buttons or screens, since the device would act as an transmissible agent, from touch to a signal sent to a smartphone. A pre-programmed app could then identify those signals received and turn into actions - be it browsing through a library, changing channels, lowering volumes or muting the sound, silencing a ringing phone, illuminating the screen of the phone so the time can be checked, etc.

touch-to-action

User testings

The device was tested with two different couples, Eva and her partner, and Vanessa and her partner. The different shapes were initially set in front of the couples, and they were told to try them. Basic instructions were given, as follows:

> *"This device will track any touch between you two and will turn into actions, on the TV or Phone. You can program them as you would like. The only fixed command is that to be turned on you have to hold hands for 5 seconds after putting it on to activate it. Try the different ones and see what you prefer, and try to browse through the TV as you would normally"*

The scenarios

Eva's partner chose directly the wristband option. When asked why he chose that one, he answered *"well, if I'm supposed to touch her...shouldn't I have my hands free to feel it?"*. Most of their testing was done with the wristband, and even after trying some of the other options, they agreed they preferred the device to be away from the hand itself.

He began initially with some movements against her hand. After that, they were then advised that any part of the body could be used. From that he decided to use her leg as a media. He asked if the device would work on top of her clothes, but then proceeded assuming it would.

Their actions involved browsing through their catalog on AppleTV, checking the selection's description, adding subtitles, playing/pausing the selection, muting the TV, exiting the selection. At some point, there was the need for silencing a ringing phone, which they also did through touch.

Vanessa did not feel so comfortable about pictures, so I agreed to only observe. They decided I would be controlling the actual remote to pretend to perform the actions while they used the device. She did describe it felt good to have a ring around her finger, and it made sense to hold on to each other hands while wearing it. However she did encounter motor difficulties when it came to performing some movements, which led her to give up and pick up another option instead. She did not pick up the wristband shape at first, instead she went for the palm band. However, instead of using it that way, she ended up pulling it all the way around her wrist and adjusting the size to fit.

She performed some movements on the upper and lower arms of her partner, as well as his palm. She used light tapping movements with the tip of her fingers for "enter" or "choosing" directions, and used her thumb to navigate while holding his hand/arm with the rest of the hand. They seemed to display a small amount of fun while doing it, and said they'd enjoy doing it another couple of times, because it felt "like a game to find out other ways to do the commands". Their actions involved playing and pausing movies on netflix, lowering/raising the volume, and also silencing the ringing phone. Even though it was a fake call, Vanessa said it would be interesting as well if she could make up a movements for answering a call on speaker, since she usually speaks to her family that way around her partner.

induce touch

Unexpected Outcomes

According to Eva's partner, the best moments during the use of the device was in between actions:

> *"It felt good, natural just holding her hand or her leg when resting [in between commands]. Like you'd hold on to a remote control while not using, the feeling of having her skin between my hand felt necessary"*

This outcome was unexpected but highly positive. The fact that the device itself wasn't the main aspect of that interaction could be described as a successful attempt. That proves that the interaction between two people is still the main desired aspect of this device, and that also drives the shape studies toward a one with minimal interference on the body, maximum level of discretion as possible.

Desired Outcomes

Additionally, one of the couples commented it felt better to interact tactfully after they were forced to do so in the beginning. *"It feels more natural to touch now"*, and *"I feel like I'd like to keep touching her"* were actual sentences said by them. They did believe that the initial "push" towards the interaction created a bigger drive to continue with it. They seemed to agree with the basic premise that the more you touch, the more you want/feel the need for it.

Observations

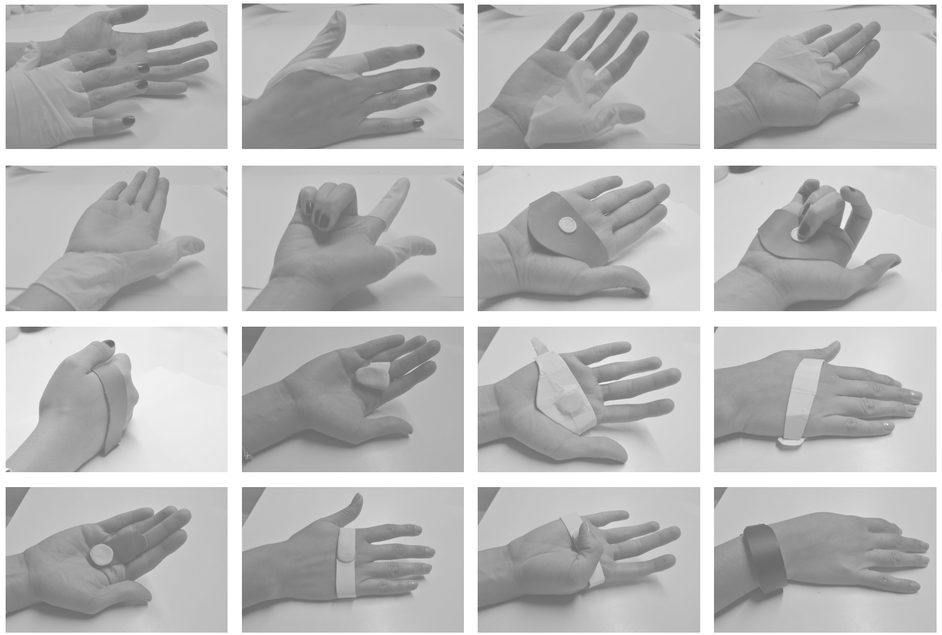
Eva commented she would see the device as a momentary device, until the couple could achieve a "cure". She mentioned how the couples who have been together for longer periods or with more than one child tend to assure her the negative no-intimacy phase is momentary, and it can slowly restore as long as she can endure it during the initial years of a newborn.

Vanessa on the other hand, believed she could have it to create a playful moment sometimes, and possibly expect the range of possibilities to grow and be incorporated to other devices and scenarios in the future.

One of the couples observed that displaying the need of this device for target groups should not be a burden. They remarked that as a soon-to-be parent, you are inclined to believe that everything is needed and you tend to overbuy or over-borrow items. The couple both agreed they would feel inclined to buy the device during the preparations for the newborn to arrive. They said, however, that it might be that they would not focus on it in the very first months after the baby is born because of the high levels of stress and occupation, until they realized the need

INITIAL MOCKUPS

The following were the models created prior to the user testing scenarios and taken for choosing:



for it was growing and they felt more comfortable with the tasks involved in maternity.

Electric & Information Technology Engineer

For the feasibility of the device, Electric & Information Technology PHD Joachim Rodrigues was consulted. His knowledge led to the definition that the technology needed for this device already exists, and would require some programming skills to be achieved. The simplest way to arrive to a solution would be to utilize an existing smartwatch as a base and take unnecessary components from it. The only extra technology needed would be a simple Infrared Sensor, that could detect the presence of the other person while the movements are done, so that the device only works in conjunction with another person. This sensor can be programmed to detect human temperature ranges in different directions, which means it would be possible for it to detect two different people.

Other components needed are:

· BLE, or a Bluetooth Low Energy, used in most smartwatches and fitness trackers, is a very energy efficient and cheap option for connection between the product and the smartphone;

· Accelerometer with a Gyroscope, also present in all smartwatches and some fitness trackers, allows for the detection of movements in different axis and turning motions, and would be used to detect even the small movements made only by fingers or the hand as a hole. According to Lorenzo Franceschi-Bicchierai, staff writer in Vice's Magazine technology section, it is currently possible for smartwatches to detect what you are typing on keyboards or numeric pads from the short movements and vibrations of the wrist and its geo-positioning (Franceschi-Bicchierai, 2015). This means that it would be possible to program those sensors to detect the vibrations of movements from fingers or positions of the entire hands and arms and translate into actions. For that reason it would be ideal that the presetting of the device is done manually by the owners. The device would give them the option to perform any movements for each of their desired outcomes prior to use, which means it would only have to recognize those same vibrations and movement patterns and associate to the related actions;

· Rechargeable Li-Ion Battery, same as the very small lithium batteries used in most smartwatches. The battery for this device could potentially be smaller than the existing ones, for there is no need for the same amount of power usage in this device;

· Small LED to signal different usability cues. When the device has turned on and is acknowledging movement, while it is charging, etc.

Since the device would not present a screen or haptic feedback (the way devices vibrate to show they are responsive), this means the energy usage would reduce considerably, allowing for a much smaller battery.

For the transmission of the Infrared wavelengths, silicone rubber is one of the materials widely used in wristbands that also allow that transmission. This means that the infrared sensors would have to be positioned on the lower part of the band, on the underside of the wrist (where the veins are present), so that it could detect those interactions with a second person.

Usability

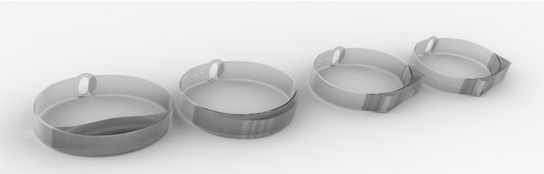
Ideally, the device would be charged through induction charging on a designated charging dock. It would also be programmed to turn on the Infrared detection once the device has been taken out of the charging dock. To increase contact and tactile interaction, the device would turn on completely and begin tracking movement after it has registered proximity to human temperature for a set amount of seconds. This means the couple would be required to hold hands for a short period to turn on the device. Additionally, the device would turn off by itself after 10 minutes of inactivity, requiring the holding of hands to reactivate the signals. This also allows the couple to freely interact tactually without disrupting their settings. In case there is a call or any other important notification on one of the phones or the television, the device would then automatically turn on and wait for the gesture input.

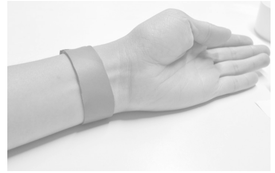
The couple may choose to be able to control both phones and the television at the same time, or only one or two of the devices.

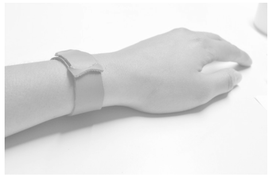
moodboard inspiration

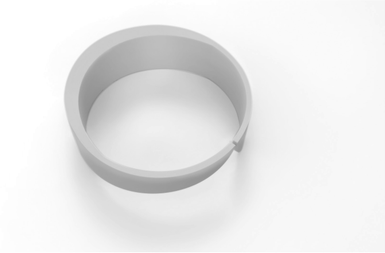
development sketches

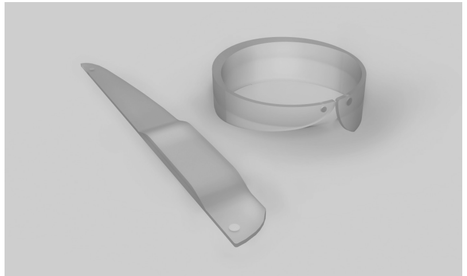
Shape development & Material choices







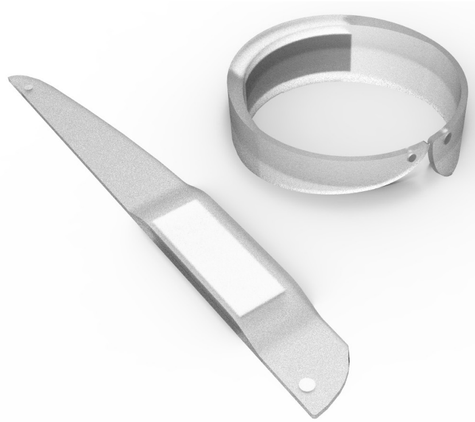


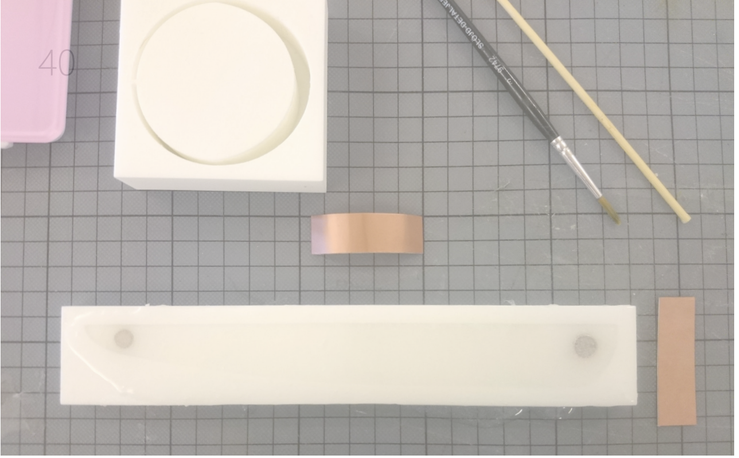


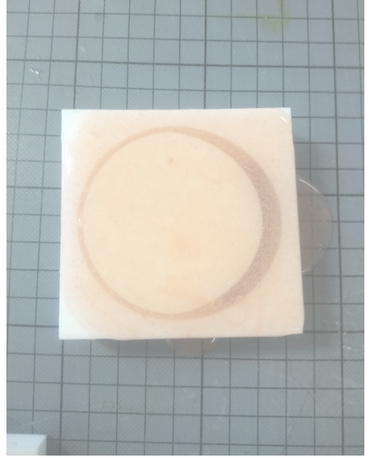
Shape development & Material choices

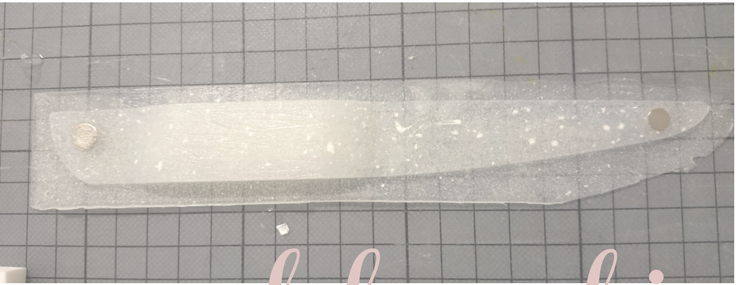
According to user test, need for it to be somewhat tricky to put on to allow for help from partner and increase touch (ex. Jewelry gifts between couples)

From initial questionnaires, silicone rubber is closest to human touch and conveys pleasant feeling - comfortable wearable material - used in most watches and fit trackers. Also it is a material that allows infrared waves to cross through without interference - which means there would be no need for an extra material, such as a window, for that sensor.

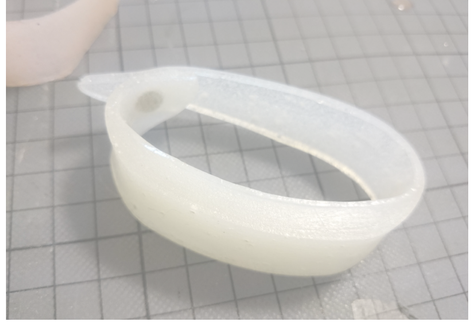


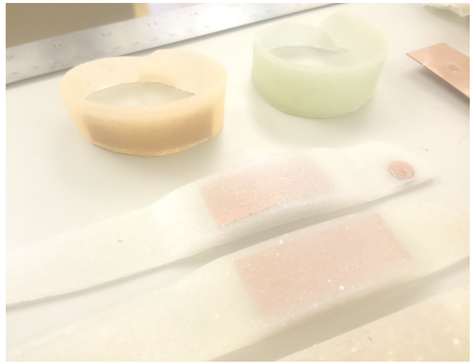






model making





Environmental Considerations

The market that revolves around newborn families tends to present itself as expensive and extensive. The high amount of changes and additions soon to be parents have to go through usually pushes the market towards a sharing community. It is extremely common for mothers with a lower income (or simply to save money for the child) to inherit nurseries and other baby paraphernalia from other moms who have already gone through that phase.

Additionally, the interviewees with older children agreed that the intimacy can be restored after the first years of the newborn. That means that this device would be ideally focused for parents going through the first months to the first years, most likely of their very first newborn, even though one of the couples agreed they would like to keep the device for when their second child is born.

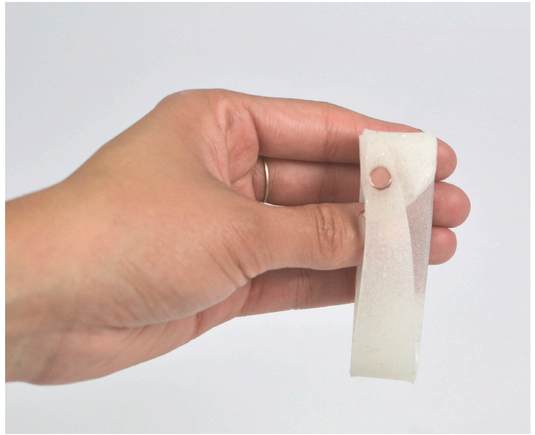
This presents a challenge when it comes to technology. Through the rate of growth and development in technology related to smartphones, there is a strong possibility that the technology involved in this watch can be difficult to connect to future smartphones. The acceptable timeframe that could be expected from the device to work between pregnancies could vary from 1 to 3 years. Within this timeframe, there is a high chance the device will still function with the following generations of phones or that the family will maintain the same smartphone. However, a possibility for changing the internal technology for updating the technology without having to dispose of the entire device. That would also aid the recycling aspect, when there is the possibility to easily separate its components and materials.

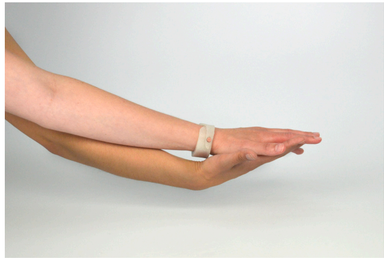
Ideally, there is a desire that the wristband part of the device can be detachable from the technology core. This can be achieved through utilizing a soft, malleable material, that can easily give in when stretched and reveal an opening for the core. The components do not need to be attached to this material, so they can be easily pulled out and exchanged if there is the need, or recycled separately.

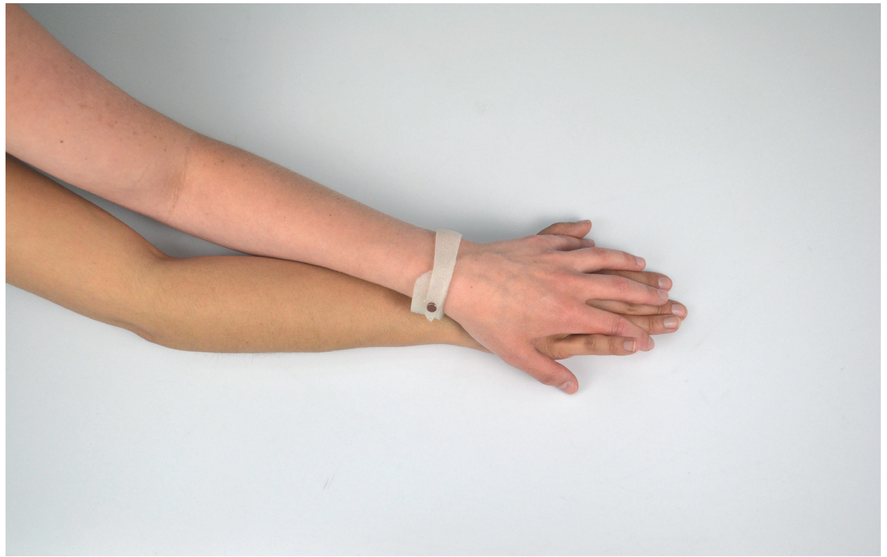
Couples Therapist and Midwife Roles

An initial possibility concerning the distribution of the device involved the participation of the Midwives, who follow closely soon-to-be couples and new parents throughout their process. The concept would be for the device to be distributed by the midwives towards the final stages of the pregnancy or after the children is born. According to the couples interviewed, there are several meetings with the midwife postpartum to check on the baby, and they continue happening as the child develops. In their point of view, the meetings were mostly to aid new parents by checking on how they were handling the situation, and reassure them. This may present an opportunity for the device to be introduced in case the midwife detects issues.

Additionally, couples therapists could as well spread the knowledge or prescribe the usage of the device as part of an ongoing treatment of a possible loss of intimacy, not only to this focus group, but also to the additional couples that are not in that specific child bearing situation and would like to regain intimacy.







Usability

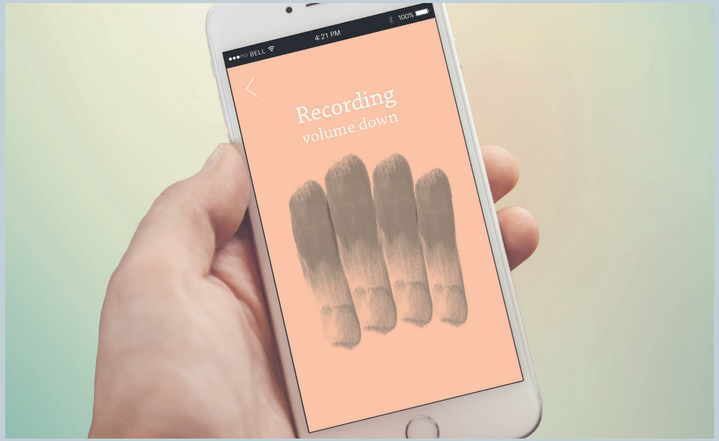
When first unboxing the device, the couple will be instructed to download the app and follow the instructions. The first task from the app will be to instruct the couple to chose a wearer and help each other while putting on the wearable.

Subsequently, they are required to hold hands for approximately 5 seconds to activate the device. When the device is activated, there is the possibility to pair it with the app.

Following that step, the app will then give them the option to record their personal touches and associate them to actions, or pair other devices. These actions can include anything that could be done through a remote control or a smartphone.

They can chose from the pre available actions, and the app will then begin recording their motions - the light on the device will let them know they can proceed. While they move, an on-screen pattern will be draw as a visual feedback that can also help them remember later on. Those movements can be made on each others arms, hands, legs, shoulders, or wherever they desire, as long as the Infrared sensor can detect the other person's presence. Then they will have to accept or cancel the input. After the movements are stored, the couple can then pair the desired devices, which can be the television, each other cellphones, or a sound system. All that can be achieved through bluetooth capabilities. The device will turn off in case it doesn't not detect the specific movements saved within a 10 minute frame - to allow for free movements between each other. To activate it again, the couple simply has to hold hands again for 5 seconds.

If a notification requires their attention while they are watching TV, such as a phone call from one of the phones, the app will automatically show a quick visual feedback for the pattern they initially set on the TV or phone screen. That means that they can quickly cancel (or pick up the call on speaker) without touching it - but touching each other.



Usability extras

In order for the device to justify its price and utility and encourage people to wear it often, there could be extra add-ons using the same technology already present in the wristband and controlled through the all-around app or third party apps.

Lighting control

The first aspect would involve the control of lighting inside the home. There are several home controlling gadgets available that can control lighting in the house through apps, set moods and preference patterns of usability. The wearing of the wristband could allow for an integration with those pre-installed lightning systems, and the presence of the person could be detected when entering rooms to allow for automatic lights without the need for extra sensors. This possibility could use the lighting system own app.

Temperature Control

Just like the lighting systems, there are also smart thermostats that can be purchased and installed and will allow for a presetting of time and appropriate temperatures according to the user's schedule. With the wrist band, there could be the possibility of an integration that would sense small differences on the user's temperature to determine a better thermostat change, fitted to that user. When used together during tactile interactions, the wristband could also calculate an average comfortable temperature for both people through its InfraRed sensor.

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Re-analysis

After the final presentation, a question arose regarding the real issue behind the focus group.

The intimacy issue between the couples considered in the focus group could have a deeper meaning that was not being considered. As considered by me throughout the research, there is a constant sexual pressure on couples (especially married couples and parents), who tend to have to prove to society they are still supposed to be well together through constant sexual activity. My solution did not consider sexual moments because I wanted to steer away from that pressure and give couples a new way of experiencing the lost but wanted intimacy. However there was no previous considerations of the implications of this new pressure that was put on them, to interact tactually. In that sense, this device presents different type of social pressure (but pressure nonetheless). The idea that touch is beneficial to human beings is valid. However, also the idea that our bodies naturally detach and disengage from tactual interaction in certain moments of our lives. There is a possibility that the lack of interaction in itself is making people unhappy - but there is also the possibility that the pressure society adds on these couples is what is making them unhappy. There may be groups of people who are truly looking for rescuing exactly what they had before in their relationship, because they believe that's what made them happy - but there may be groups of people who are willing to accept the side effects of having a child as an ordinary life course, without the need for spending extra energy on the subject. This group of people is the one who would find themselves pressure by the added necessity of worrying about constant tactile interaction.

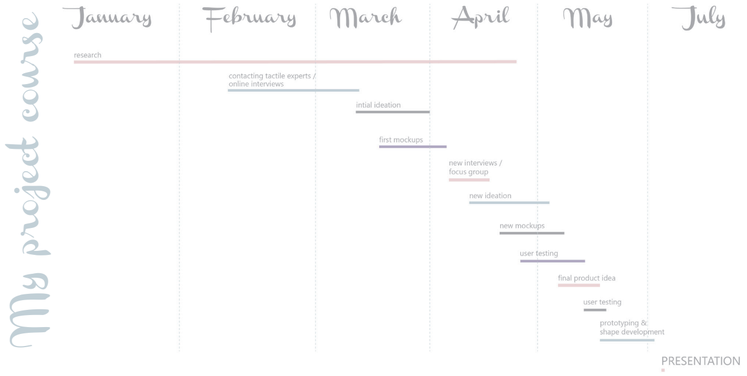
Considering those aspects, there are two courses of action for my project:

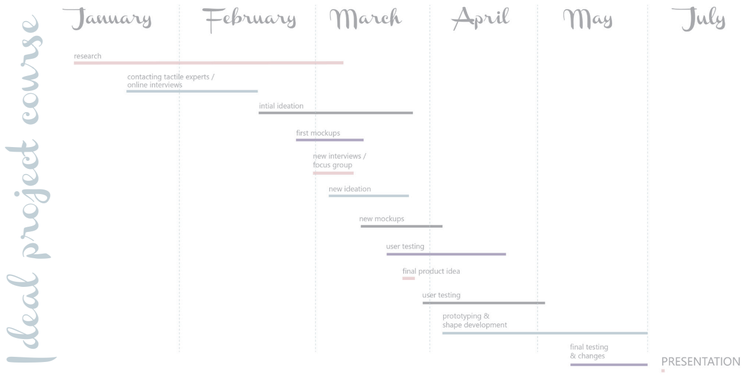
One considers the people who have identified an issue in their relationship and are set for changing it and recovering what was common in the interaction before whatever events brought a change to it. These types of couples (such as some members of my focus group) are constantly missing the tactile interaction and have decided beforehand that that's what they want for their idea of an ideal relationship. Since they had already decided that they needed that tactile interaction beforehand, the device could be helpful to bring back that interaction with the possibility of not creating a new pressure. This device can be used by these couples who have difficulty accepting the reality of how new events influence ongoing relationships and present changes;

For the rest of the couples who believe there is enough stress and pressure in their life as it is, and do not wish to be constantly reminded of how they have "failed" in the eyes of the society, there could be other projectual options, presenting a bigger breakthroughs in this area. One example of a project that could possibly benefit these couples would be a way to show the reality that most couples face and go through. Most of the couples in the world go through similar issues (especially parents, but not exclusively) that define them as a couple. However, society is structured in a way to only show the bright side of being in a relationship - initially through movies, books and television, and now most recently through social media. As the first mentioned options are rarely a portrait of the truth, social media came to make people believe that that is a peak of life people are actually living in everyday. However, those fractions of reality are only a very small part of what's real - and most of the time they portray happy, beautiful, healthy people - or the new era of the "perfect magazine life". For this reason, people are led to believe that their lives are worse when they compare to the social media version of everyone else's lives. A new way of looking into the relationship of couples on social media would therefore be a beneficial therapy for the focus group. Instagram or facebook accounts that shows imperfect couples so that the focus group can relate and accept their reality as absolutely normal.

Project Course

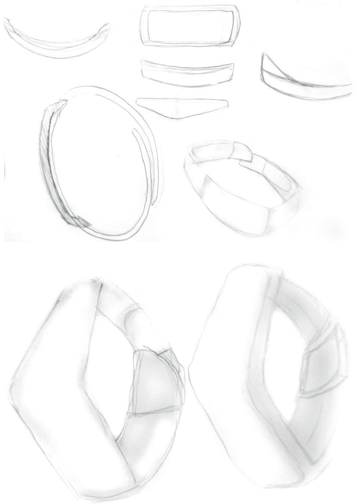
After finishing my project, I was prompted to create a visual demonstration of how my course of action was, and how it could have been if it had been an ideal project.

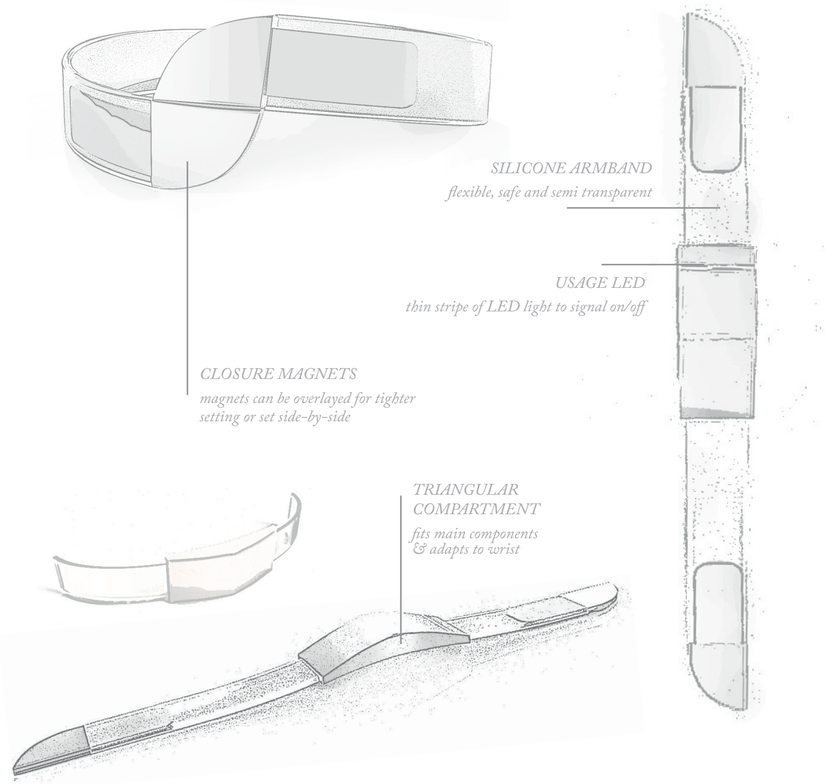




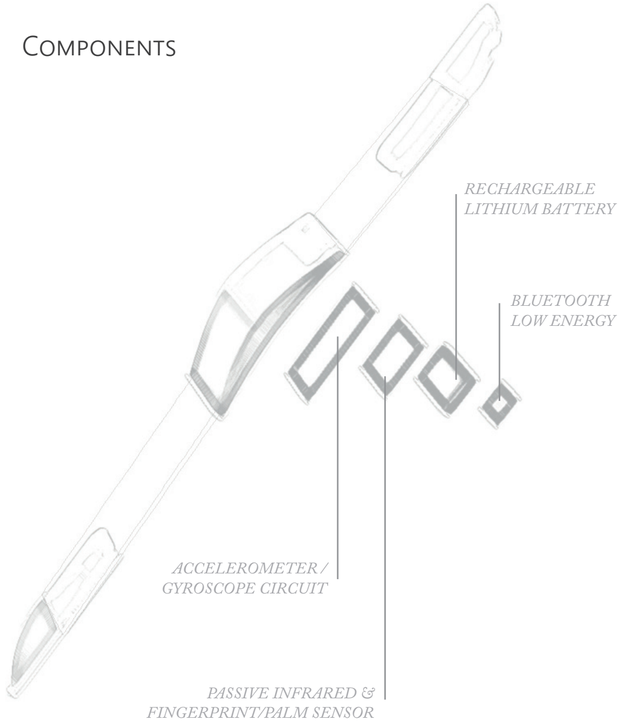
Final Direction

After presentation, I began making changes to the final product shape. I decided to follow with a triangular shape that allows to sit comfortably on the wrist, but also displays more luxurious feel, such as a piece of jewelry. The closure of the band would be done through magnets in the same metallic color and finish as the main component holder.



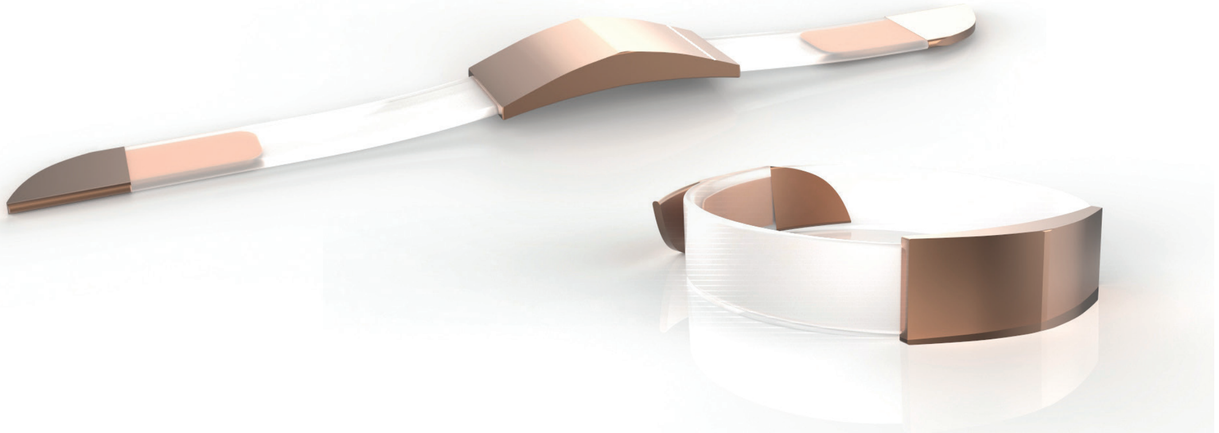


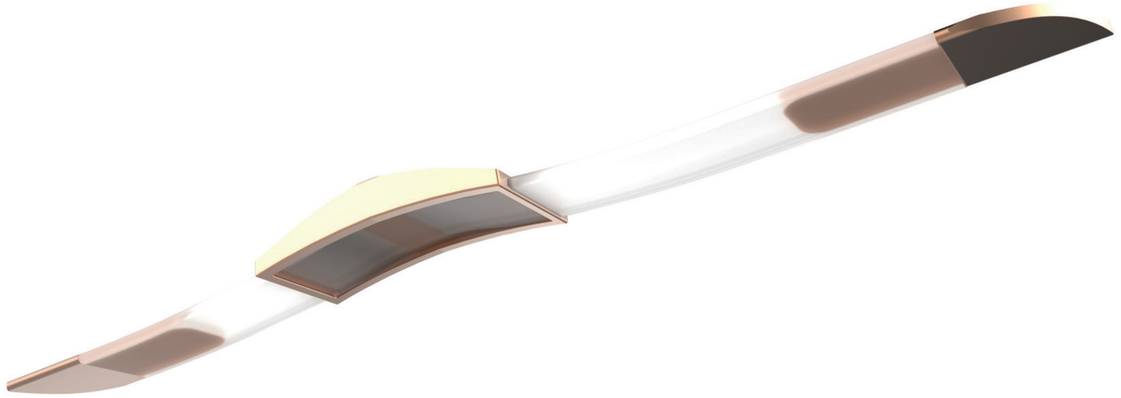
Components



Technical Views

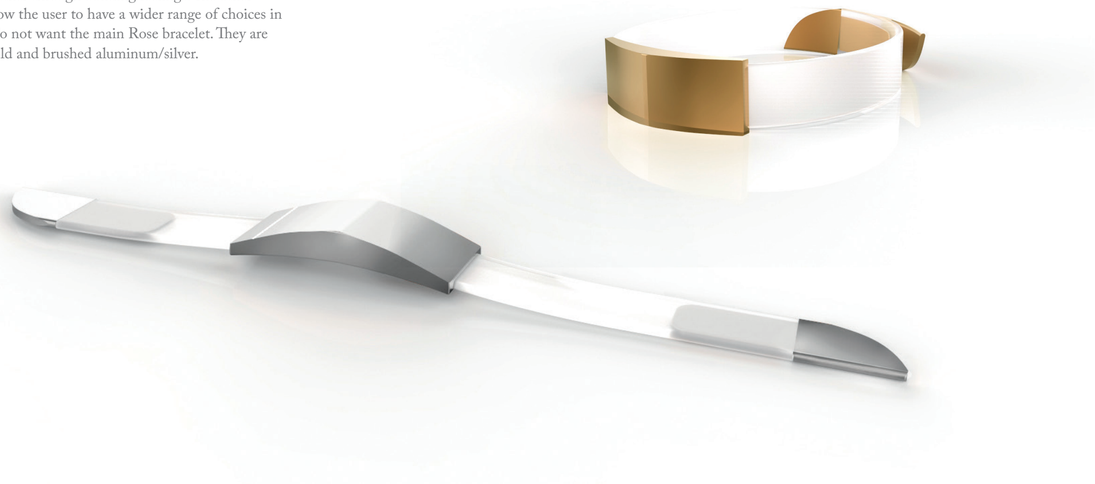
Final Direction





Color Variations

For the color variations whitin the product, I decided to maintain the wristband in the same frosty white version and change only the metallic finish of the main compartment and the closure magnets. The main option is the Rosé gold finish, witch was chosen based on the idea that the main aspect of this gadget is to bring intimate moments back to people. This intimacy is represented by the salmon/pink tones that are associated to flesh and simbolically associated to a heart. This brings out the sensual idea of the product bringing people together through bonding feelings. The other options allow the user to have a wider range of choices in case they do not want the main Rose bracelet. They are brushed gold and brushed aluminum/silver.



References

Alfano, A. (2015, July 1). Discover How Nerves Translate Different Types of Touch Sensations [Online Slide show]. Retrieved February, 2016 from https://www.scientificamerican.com/article/discover-how-nerves-translate-different-types-of-touch-sensations-slide-show1/

Alonso, H. (2015). INTER-ACTING [Online portfolio]. Retrieved March, 2016 from http://www.haydeealonso.com/project/inter-acting/

Argenox. (2016, May 19). A Guide to Selecting a Bluetooth Chipset [Online article]. Retrieved May 2016 from http://www.argenox.com/bluetooth-low-energy-ble-v4-0-development/library/a-guide-to-selecting-a-bluetooth-chipset/

Attention Group (2016, February 9). Tink Things: Sensory-Intelligent Furniture for Kids [Online article]. Retrieved February, 2016 from http://designeering.dk/tink-things-sensory-intelligent-furniture-for-kids/

Baggaley, K. (unknown). Why We Like to Touch Soft, Fluffy Things [Online article]. Retrieved March, 2016 from https://www.braindecoder.com/post/why-we-like-touching-soft-fluffy-things-1262780083

Blincoe, R. Your keyboard knows that it's you and you're stressed [Online Article]. Retrieved January, 2016 from https://www.newscientist.com/article/dn18350-your-keyboard-knows-that-its-you-and-youre-stressed/

California Institute of Technology (Caltech). (2012, June 13). How do different types of touch affect our emotions? [Online article]. Retrieved March, 2016 from http://cordis.europa.eu/news/rcn/34719_en.html

Callegari, J. (2010, June 3). Amor - O meio [Online article]. Retrieved May 2016 from http://super.abril.com.br/comportamento/amor-o-meio/

Cambridge Advanced Learner's Dictionary & Thesaurus. (unknown). Fidget [Online Dictionary]. Retrieved April 2016 from http://dictionary.cambridge.org/dictionary/english/fidget

Cerio, D. (2004, April). Touch, The Unspoken Language - Healing from Sexual Abuse (Part II) [Online publication]. Retrieved February, 2016 from http://www.thecerioinstitute.com/publications/touchpartii.html

Crucianelli, L. & Metcalf, N. & Fotopoulou, A. & Jenkinson, P. (2013, October 8). Bodily pleasure matters: velocity of touch modulates body ownership during the rubber hand illusion [Online article]. Retrieved February, 2016 from http://journal.frontiersin.org/article/10.3389/fpsyg.2013.00703/full

Daymut, J. (Unknown). Fidgets—Tools that Take Away Stress! [Online handout]. Retrieved January, 2016 from https://www.superduperinc.com/handouts/pdf/261_Fidget.pdf

Derbyshire, D. (2012, May 27). Modern life can make us take leave of our senses [Online Article]. Retrieved January, 2016 from http://www.telegraph.co.uk/news/uknews/1395471/Modern-life-can-make-us-take-leave-of-our-senses.html

Dobson, R. (1999, February 23). If you want to get fit, get fidgeting [Online Article]. Retrieved January, 2016 from https://www.theguardian.com/lifeandstyle/1999/feb/23/healthandwellbeing.health

Edmund Optics (unknown). The Correct Material for Infrared (IR) Applications [Online article]. Retrieved May 2016 from http://www.edmundoptics.com/resources/application-notes/optics/the-correct-material-for-infrared-applications/

European Agency for Safety and Health at Work: Milczarek, M. & Schneider, E. & González, E. (2009). EUROPEAN RISK OBSERVATORY REPORT - OSH in figures: stress at work — facts and figures. Luxembourg: Office for Official Publications of the European Communities.

Ferdman, R. (2014, December 9). The color of your coffee mug can change the way your coffee tastes [Online Article]. Retrieved January, 2016 from https://www.washingtonpost.com/news/wonk/wp/2014/12/09/how-the-color-of-your-coffee-mug-can-change-the-way-your-coffee-tastes/

Fidges, K. (2010, January 14). Are you heading for divorce? Think it'll never happen to you? The cracks in your marriage could already be forming [Online article]. Retrieved April 2016 from http://www.dailymail.co.uk/femail/article-1243036/Are-heading-divorce-Think-itll-happen-The-cracks-marriage-forming-.html

Franceschi-Bicchierai, L (2015, September 11). A Smartwatch Could Reveal What You're Typing by How Your Hand Moves [Online article]. Retrieved May 2016 from http://motherboard.vice.com/read/a-smartwatch-could-reveal-what-youre-typing-by-how-your-hand-moves

Friso, R & Silva, J & Landim, P & Paschoarelli, L. (2015, October 23). Ergonomic Analysis of Visual and Tactile Information of Materials Used in the Manufacture of Toys. Retrieved January, 2016 from http://www.sciencedirect.com/science/article/pii/S2351978915009099

Hakala, K. (2015, March 24). If You've Ever Wanted to Hug Someone Over the Phone, We've Found Your App [Online article]. Retrieved April 2016 from https://mic.com/articles/113548/this-new-app-reminds-us-what-we-really-want-from-each-other#.Yrq1sIgHt

Harvard University. (2010, June 25). Tactile sensations influence social judgments and decisions. ScienceDaily. Retrieved January, 2016 from www.sciencedaily.com/releases/2010/06/100624140908.htm

Hullinger, J. (2015, March 24). The Science Of Why We Fidget While We Work [Online Article]. Retrieved January, 2016 from https://www.fastcompany.com/3044026/the-science-of-why-we-fidget-while-we-work

Jae. (2010, August 20). Body language: the importance of touch [Online blog]. Visited on February, 2016 from https://jaefiction.wordpress.com/2010/08/20/body-language-the-importance-of-touch/

Jarrett, C. (2013, August). The psychology of stuff and things [Online Article]. Retrieved January, 2016 from https://thepsychologist.bps.org.uk/volume-26/edition-8/psychology-stuff-and-things

Karlesky, M & Isbister, K. (Ongoing). Fidget Widgets [Blog/Tumblr]. Visited on January, 2016 from http://fidgetwidgets.tumblr.com/

Koler A., C. (2012). HAPTICA - A multi-disciplinary study on the role haptics play in the aesthetic gestalt process for culinary artists [Online PDF Presentation]. Retrieved January, 2016 from http://www.vr.se/download/18.1527332b14b23612d894eb5f/1422266197600/CHerylAknerKoler+Bor%C3%A5s+2014.pdf

Koler A., C. (2007, September 7). Evolution of Form [Online Article based on Book]. Retrieved January, 2016 from http://www.cherylaknerkoler.com/evolution_of_form.html

Mamo, E. (2013, December 2). Guide to Anxiety in the Workplace for HR [Online Article]. Retrieved January, 2016 from http://www.hrzone.com/lead/culture/guide-to-anxiety-in-the-workplace-for-hr

Melnick, M. (2013, October 30). Why Do We Fidget? [Online Article]. Retrieved January, 2016 from http://www.huffingtonpost.com/2013/10/30/why-do-we-fidget-benefits_n_4170170.html

Philips, J. (2014, June 21).The 10 most likely sensors in a 10-sensor Apple smartwatch [Online article]. Retrieved April 2016 from http://www.pcworld.com/article/2366126/the-10-most-likely-sensors-in-a-10-sensor-apple-smartwatch.html

Popper, B. (2016, May 5). New tech turns your skin into a touchscreen for your smartwatch [Online article]. Retrieved May 2016 from http://www.theverge.com/2016/5/5/11597878/skintrack-carnegie-mellon-skin-tracking-smartwatch-userface

Richards, S. (2012, September 1). Pleasant to the Touch [Online Article]. Retrieved January, 2016 from http://www.the-scientist.com/?articles.view/articleNo/32487/title/Pleasant-to-the-Touch/

Sample, I. (2015, September 23). Always fidgeting? Well, you just might be doing yourself a world of good [Online Article]. Retrieved January, 2016 from https://www.theguardian.com/society/2015/sep/23/always-fidgeting-well-you-just-might-be-doing-yourself-a-world-of-good

Solway, R. (2014). Developing a Psychological Understanding of Museum Object Handling Groups in Older Adult Mental Health Inpatient Care. D.Clin.Psych. thesis, Canterbury Christ Church University.

References (cont)

Sonneveld, M. & Schifferstein, H. To Learn to Feel: Developing Tactual Aesthetic Sensitivity in Design Education [Online Handout]. Retrieved January, 2016 from http://tinyurl.com/zffwrbh

Street, J. (2015, January 14). Incredible Technology Lets You Feel Objects Without Touching [Online Article]. Retrieved January, 2016 from http://www.theblaze.com/stories/2015/01/14/incredible-technology-lets-you-feel-objects-without-touching/

TEDx Talks. [Helena Backlund]. (2014, December 30). Fight off loneliness with touch | Helena Backlund Wasling | TEDxGöteborg. Retrieved January, 2016 from https://www.youtube.com/watch?v=omIWt3xq648

Unknown. USING ERGONOMICS FOR LESS STRESS AT WORK [Website]. Retrieved January, 2016 from http://www.ergonomicsmadeeasy.com/using-ergonomics-for-less-stress-at-work/

Unknown. Anxiety and Depression Association of America - Complementary & Alternative Treatments [Website]. Retrieved January, 2016 from https://www.adaa.org/finding-help/treatment/complementary-alternative-treatment

Vaas, L. (2015, September 15). Smartwatch sensors can be used to eavesdrop on the keys you're typing [Online article]. Retrieved April 2016 from https://nakedsecurity.sophos.com/2015/09/15/smartwatch-sensors-can-be-used-to-eavesdrop-on-the-keys-youre-typing/

Weinschenk, S. (2013, April 22). Hot Drinks, Soft Fabric, and Heavy Objects [Online Article]. Retrieved January, 2016 from https://www.psychologytoday.com/blog/brain-wise/201304/hot-drinks-soft-fabric-and-heavy-objects

Bibliography

Denworth, L. (2015, July/August). Wired for Touch. Scientific American Mind, 35, 32-39.

Garger, S. (1990). Is There a Link Between Learning Style and Physiology? Educational Leadership, Volume unknown, 63-65.

Grunwald, M. (2008). Human Haptic Perception: Basics and Applications. Basel, Switzerland:Birkhäuser Verlag.

Katz, D. (1989). The World of Touch. New Jersey: Psychology Press.

Klatzky, R. L. (1985). Identifying objects by touch: An "expert system". Perception and Psychophysics, 37(4), 299-302.

Kreuzbauer, R. & Basu, S. & King, D. (2015). The Mind in the Object — Psychological Valuation of Materialized Human Expression. Journal of Experimental Psychology, 144, 764–787.

Norman, D. (2013).The Design of Everyday Things. New York, NY:Basic Books.

Norman, D. (2004). Emotional Design: Why we Love or Hate Everyday Things. New York, NY:Basic Books.

Pallasmaa, J. (2012). The Eyes of The Skin. Chichester, WS:John Wiley Sons Inc.

Schifferstein, H.N.J. & Hekkert, P. (2007). Product Experience. San Diego, CA: Elsevier.

Turkle, S. (2007). Evocative Objects: Things we Think With. Massachussets, BO: The MIT Press.

Visual references

1 [Digital image]. (n.d.). Retrieved January 5, 2016, from http://www.lauvely.com/wp-content/uploads/2015/02/lauvely-isadora-2.jpg

2 Ogawasan, %. (n.d.). Jigokudani hot spring [Digital image]. Retrieved January 5, 2016, from https://www.flickr.com/photos/ogawasan/sets/72157623188009363/with/4315313973/

3 [Digital image]. (n.d.). Retrieved January 5, 2016, from https://lh6.googleusercontent.com/-jtO6kIcFPtc/UXKmRvFyg1I/AAAAAAAABXw/2f4BfDVnNlc/w1200-h630-p-nu/love aesthetics work accessories.jpg

4 Rosén, Birgitta. Tactility in a Digital World. Digital image. The Conference. N.p., 2013. Web. 25 Jan. 2016. <http://videos.theconference.se/birgitta-rosen-tactility-in-a-digital>

5 Horvat, Zrinka. Tactile picture book for blind children Wondrous World. Digital image. Behance. N.p., 29 Jan. 2016. Web. 30 Jan. 2016. <https://mir-s3-cdn-cf.behance.net/project_modules/max_1200/180d5130101433.5613a39a675ac.jpg>

6 Peterson, Richard. Gray rabbit bunny baby fur ball view from back. Digital image. Shutterstock. N.p., n.d. Web. 4 Feb. 2016. <http://www.shutterstock.com/subscribe?clicksrc=full_thumb>

7 Henderson, Emily. Luxe Fur Pillow. Digital image. Pinterest. N.p., n.d. Web. 4 Feb. 2016. <https://s-media-cache-ak0.pinimg.com/236x/9e/9f/6e/9e9f6e84907c139127c95d52d405921d.jpg>

8 Pink Feather. Digital image. Pinterest. N.p., n.d. Web. 5 Feb. 2016. <https://stagingrensite.s3.amazonaws.com/uploads/post_photo/3373/8487/post_d28e88bbbcbd9f58145b08125d92e787.jpg>

9 Quintelier, Jelka. Shameless Jewelry. Digital image. The Carrotbox. N.p., n.d. Web. 5 Feb. 2016. <http://thecarrotbox.com/news/2013/0816.jpg>

10 Benett, Julie. Ghost Photography. Digital image. Pinterest. N.p., n.d. Web. 5 Feb. 2016. <https://s-media-cache-ak0.pinimg.com/236x/ae/8e/6b/ae8e6b84e7939f662217a6a088ad2415.jpg>

11 Lemke, Mailin. Textural Tangible Interface. Digital image. Pinterest. N.p., n.d. Web. 5 Feb. 2016. <https://s-media-cache-ak0.pinimg.com/564x/2b/49/69/2b496935f096828f846dfd1121ca61a6.jpg>

12 Ha, Gam. Noir Black Beauty. Digital image. Pinterest. N.p., n.d. Web. 5 Feb. 2016. <https://s-media-cache-ak0.pinimg.com/236x/79/ce/1c/79ce1c7012897f25d0a83640a8b666e5.jpg>

13 Mills, Tom. Continencia. Digital image. Jeannine Marchand, n.d. Web. 2016. <http://www.jeanninemarchand.com/jeanninemarchand.com/work/Pages/folds.html#3>

14 VERHOEVEN, RENEE. Anatomy of the Hand. Digital image. N.p., n.d. Web. 5 Feb. 2016. <https://www.reneeverhoeven.nl/x8e1pms7qhcsjm4j1tp6ludoa57lgh>

15 Arima, Shinpei. DD Sugi. Digital image. K-system. N.p., n.d. Web. 5 Feb. 2016. <http://www.k-system.net/#/K_product/DD_SUGI>

16 Body Manipulation. Digital image. Pinterest. N.p., n.d. Web. 5 Feb. 2016. <https://s-media-cache-ak0.pinimg.com/564x/f1/be/fe/f1befe069002f55882a62e988c9df5f9.jpg>

17 Mandrescu, Andreea. Skin Textile. Digital image. Studio Andreea Mandrescu. N.p., n.d. Web. 5 Feb. 2016. <http://www.andreeamandrescu.com/#>

18 Magnolia Micro Tile. Digital image. Element Clay Studio. N.p., n.d. Web. 5 Feb. 2016. <http://www.elementclaystudio.com/store/p85/Magnolia_Micro_Tile.html>

19 Baker, Talia. Modern textile dress. Digital image. N.p., n.d. Web. 5 Feb. 2016. <http://exercicedestyle.tumblr.com/post/132325054317/talia-baker>

20 Spooning Couple. Digital image. Ta Certo. N.p., n.d. Web. 5 Feb. 2016. <http://tacerto.pw/wp-content/uploads/2016/03/197.jpg>

21 Mcvey, Erich. Couple hugging. Digital image. N.p., n.d. Web. 5 Feb. 2016. <http://www.erichmcvey.com/wp-content/uploads/2015/08/Fine-Art-Film-Editorial-Photographer-Erich-McVey-2.jpg>

Visual References (cont)

22 Knitting. Digital image. Pinterest. N.p., n.d. Web. 5 Feb. 2016. <https://s-media-cache-ak0.pinimg.com/236x/e0/70/d8/e070d858201566831a619c6c7ee172dd.jpg>

23 Mcconnell, Jackson. Digital image. Spicytec. N.p., n.d. Web. 15 Feb. 2016. <http://4.bp.blogspot.com/_f-yNhfYNz3c/THblBCdJuoI/AAAAAAAACj0/20eqNS89qO8/s640/touched-Music.jpg>

24 Transparent Skin. Digital image. Pinterest. N.p., n.d. Web. 5 Feb. 2016. <https://s-media-cache-ak0.pinimg.com/564x/c4/0b/1a/c40b1a2df8bfaa073ca9f0b037c02f79.jpg>

25 Pin Art . Digital image. Amazon. N.p., n.d. Web. 15 Feb. 2016. <https://images-na.ssl-images-amazon.com/images/I/512vtx-gOaL.jpg>

26 Brexit and Chill. Digital image. Reddit. N.p., n.d. Web. 15 Feb. 2016. <https://i.redditmedia.com/SFQ_BNWoWKdBkYNtCsxclHtMnfYB10qdtwouz9ky4mc.jpg?w=1023&s=ff046f71157d813d93ee862b360ec4c7>

27 Benett, Julie. Ghost Photography. Digital image. Pinterest. N.p., n.d. Web. 5 Feb. 2016. <https://s-media-cache-ak0.pinimg.com/236x/ae/8e/6b/ae8e6b84e7939f662217a6a088ad2415.jpg>

28 ouchScreen with a Finger. Digital image. Free Great Picture. N.p., n.d. Web. 25 Feb. 2016. <http://www.freegreatpicture.com/gestures-album/touch-screen-with-a-finger-26357>

29 Hand Pain. Digital image. Dreamstime. N.p., n.d. Web. 25 Feb. 2016. <https://thumbs.dreamstime.com/x/hand-pain-24185324.jpg>

30 Kreafunk Earphones. Digital image. Kreafunk. N.p., n.d. Web. 25 Mar. 2016. <https://se.kreafunk.com/alla-produkter/ahead-gra-kfss09.html>

31 Apple Watch. Digital image. Apple. N.p., n.d. Web. 10 Apr. 2016. <http://www.apple.com/se/shop/goto/watch/bands>

32 Olive Smartwatch. Digital image. Iphoneness. N.p., n.d. Web. 15 Apr. 2016. <http://cdn2.iphoneness.com/wp-content/uploads/2014/10/02/olive.png>

33 Textured Ceramics. Digital image. N.p., n.d. Web. 15 Apr. 2016. <https://s-media-cache-ak0.pinimg.com/564x/65/a0/21/65a0214a00b518c9323bbc3efad9fd7e.jpg>

34 Thompson, Christy. Woman's hand gripping boyfriend's leg while he rests his hand on her thigh. Digital image. 123RF. N.p., n.d. Web. 15 Apr. 2016. <http://www.123rf.com/photo_4934363_stock-photo.html>

35 Digital image. Lu0fr. N.p., n.d. Web. 15 Apr. 2016. <http://www.lu0fr.org/wp-content/uploads/2016/12/friends-header.jpg>

36 Couple holding arms. Digital image. Pinterest. N.p., n.d. Web. 25 Apr. 2016. <https://s-media-cache-ak0.pinimg.com/564x/3d/e3/11/3de31104b3d2db777da66feadf101282.jpg>

37 Bielen, Agata. FINE LINE. Digital image. Agata Bielen. N.p., n.d. Web. 25 Apr. 2016. <https://cdn.shoplo.com/8600/products/th640/aaaw/570-4s.jpg>

38 Pocketband. Digital image. Pocketbands. N.p., n.d. Web. 25 Apr. 2016. <https://cdn.shopify.com/s/files/1/1231/2024/products/Pocketbands_2.0_Clear_1024x1024.jpg?v=1460364750>

39 Fingerprint. Digital image. Istockphoto. N.p., n.d. Web. 25 Apr. 2016. <http://media.istockphoto.com/photos/fingerprint-picture-id515436074>

40 Nest Thermostat. Digital image. Nest. N.p., n.d. Web. 20 May 2016. <https://nest.com/thermostat/meet-nest-thermostat/>

41 Philips Hue. Digital image. Amazon. N.p., n.d. Web. 20 May 2016. <https://images-na.ssl-images-amazon.com/images/I/51c0TJpNkwL._SL1000_.jpg>