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SUSTAINABLE YOGA APPAREL

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The two major purposes of this study are to establish whether there is an interest in sustainably regarding locally made yoga sports equipment and to create a design concept for a product line of yoga apparel which is genuinely eco-friendly. The product line consists of a yoga mat bag, straps, pillows and a bolster.

Research into issues surrounding sustainability and yoga guided the design process. In order to meet user requirements, yoga classes were observed, a survey was conducted and subjects were also interviewed in the form of free conversation. This project also included research on textiles appropriate to sustainable yoga apparel.

Results showed definite interest in locally as well as sustainably produced yoga apparel. Yogis tended to convey real concern beyond the superficial characteristics of products such as style or color. They were sincerely interested in the deeper aspects of their equipment, e.g. the origins and safety of products they use. A product line concept was designed as well as evaluated while keeping in line with sustainability.

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- Appendix 2 The fashion cycle
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1 INTRODUCTION

The aim of this thesis is to design a small product line of yoga sports equipment with a strong focus on sustainability. The line includes a bag for a yoga mat, pillows, a bolster and straps. What inspired the theme for this thesis was my involvement in yoga, which has been my hobby since my teens.

Another goal of this study is to establish whether there is a market for sustainably as well as locally made yoga gear. If this is the case, the goal was to find out what kind of market, as well as what the target group and its needs were like. A product line concept will be designed based on sound design principles, gathered information on user needs, materials etc. The research will be the base of the design concepts. Visually, the line will reflect the designer's style, influenced by current trends as well as market demand. A finished design concept marks the conclusion of this thesis, but the project will hopefully continue into production within the year.

What drove the project was a motivation to see how applying sustainable values to a design process works in practice and what it entails. The intention of this project is that the product line will be realized within a year. Creating more awareness and perhaps prompting more dialogue about some of the issues modern-day industries are facing is something that the author hopes to also continue after this project is finished. For clarity's sake the more unfamiliar terms are explained in a glossary in Appendix 1 to make the text more accessible.

2 FRAMEWORK

2.1 On product design, concepts and values

The idea for this thesis project came from the simple observation of the lack of appropriate yoga apparel in any of the yoga classes I was attending. For example, no one seemed to own a big enough bag which could fit their yoga mat properly. This inspired the idea of a product line of yoga apparel which could be realized one day for Finnish yogis, i.e. yoga practitioners. Yoga gear or apparel – both words are used interchangeably throughout – are different equipment and products used in yoga. These include the following:

- Props and blocks, which are different shaped blocks usually made of cork or strong foam which help with mastering a pose

- Pillows and bolsters of various sizes, which are used during long, slow poses or adding extra support in case of stiffness or injury

- Straps which are used for deepening stretches or assisting poses

- Mats and bags for carrying them

- Towels and blankets, which are laid over a mat to provide extra comfort, warmth and help keep the mat clean from sweat etc.

Nobel laureate Herbert Simon (1998, 129) wrote, “To design is to devise courses of action aimed at changing existing situations into preferred ones.” Product design is a complex creative process, which along with considering the aesthetic aspects incorporates the physical qualities of a product, e.g. functionality into a working whole.

The line will be yoga apparel designed according to sustainable practices. Put in another way, the three main components of this thesis are: yoga, design and sustainability (Figure 1), all of which will be discussed further in more depth.

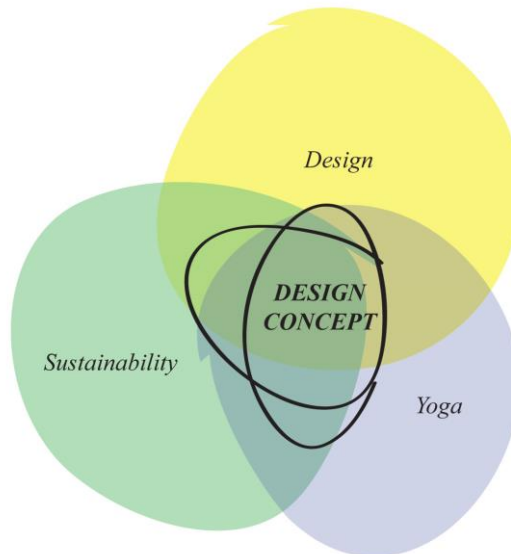


Figure 1. The three main components for the design concept of the product line: yoga, sustainability and design. The values and what methods and materials are used in this project stem from these three concepts.

The more these themes were studied, the more apparent it became how they overlap as well as corroborate each other effortlessly – they act more like facets of a single concept rather than separate ideas simply flung together.

As an example, one of the core principles of yoga is *ahimsa*, which means non-violence, being compassionate and kind to each other as well as ourselves (Stiles 2012, 18). Along with other ethical guidelines of yoga – which will be discussed briefly further on, we find that these values translate very naturally into sustainable thinking and offer an alternative approach to a design process.

Sustainability is a key concern in this project also. It represents the pressing need to address the growing scarcity of natural resources, environmental destruction and the various flaws found within our industries, from labor conditions to legislation. Considerable changes are needed in both our societies as well as our systems (economic, environmental, political and

ethical) to stay within the planet's capacity to sustain life. Cullingford defines sustainability eloquently:

[Sustainability is] at once, an inescapable dilemma of our time, a matter of study and reflection, and a challenge to action. It raises questions about globalization and personal responsibility. It constitutes, in fact, all that a discipline calls for: a greater understanding and a basis for the moral authority of knowledge. (Blewitt & Cullingford 2004, 268.)

I strove to keep both of the above mentioned concepts, sustainability and non-violence, in mind during the different stages of this project. As well as providing the value base for this project these two have very practical implications also – they determine things like material choices and work methods used in the product line.

2.2 Project process

Roughly, the project stages (Figure 2) are: creating a design brief of the project, collecting data and information, drafting sketches and concepts based on gained information, followed by a concept which is then evaluated. Conclusions are then drawn from the entire process.

Although the above description is quite linear, in practice the process was quite different; moving from one step to the next was not always clear-cut. Many of the different stages overlapped, and the project took unexpected turns, as new information, ideas or contacts emerged. This all made for a lot of re-evaluation, reflection and changes throughout.

Creating a design brief starts the design process. It outlines the information required to form a viable design concept, starting with generalities going into specifics. This background information, e.g. what current trends, design practices, sustainability and yoga are - their terms, values and concepts become a guide to make decisions best suited for the line. The vast amount of information feels overwhelming in the beginning, as does gleaning the information relevant to the project. Organizing the research in a logical and applicable manner is the next step. Once a clearer picture of the whole is achieved, focusing on the main points becomes easier.

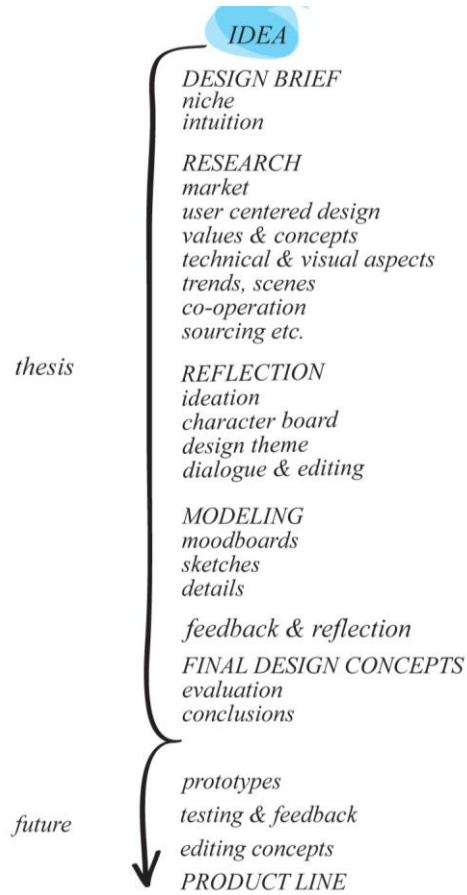


Figure 2. The project's design stages in a linear manner detailing some of their parts and future intentions.

In order to achieve a relevant design concept, understanding the market, trends, user needs and the different aspects and stages of product development are crucial (Figure 3). User needs are defined as an aspect of user centered design, which requires research into user behaviors, scenarios and needs. (Hardt 2006, 18.) This information was gathered through interviews in form of casual conversation, observation, conducting surveys and following the media etc. Doing the research enables one to have an informed, thoughtful approach to the work at hand and makes problem solving easier, generates ideas and different perspectives, and also deepens understanding.

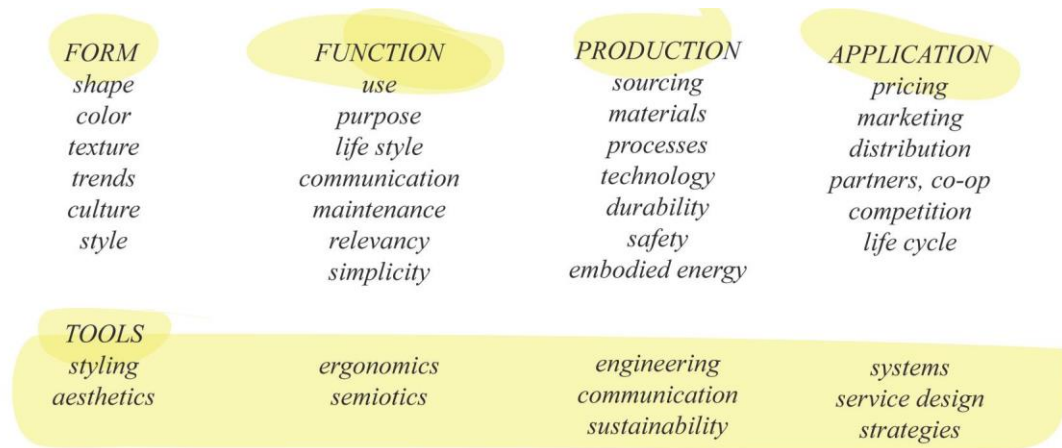


Figure 3. Different aspects of the design process according to Hardt (2006, 20).

Information, ideas and inspiration were sought from articles, books and magazines, also in varied places such as documentaries, blogs and lectures.

To understand the tactile aspects of the project – for example the feel and weight of different materials, or how easily they can be sewed – a lot of the research was very hands on. Also, just locating different materials – seatbelts and bike tires, eco and vintage fabrics was an adventure in itself and new contacts were discovered. There were several dead ends too: working with unconventional materials has its drawbacks as they can be a lot more difficult to work with than anticipated; the sourcing falls through or the materials have been housed in bad conditions. For example, I was generously given a huge banner for a music festival by the city of Joensuu, but could not use it for the project as it reeked of mold even after persistent scrubbing. After trying to get rid of the smell for days with soaking the banner in tubs of water and vinegar, I finally gave up. Bleach probably would have worked, but the use of such a strong cleaning agent would undermine the whole idea of sustainable practices.

Next, design concept proposals based on the requirements for the yoga apparel are generated. As aesthetics play a big role in how the sketches turn out, an eye is kept on current and possible future trends. Visual material is gathered and generated throughout the process; these include a design theme, mood boards, sketches, photographs and mind maps. The different proposals and product sketches are then evaluated and narrowed down – the

best ones will be further refined and detailed. The final touches are added and finalized for the product line concept.

Dialogue and co-operation between the designer, a few fellow yogis, students and supervisors are kept going through the entire process. A textile artisan and fabric importer agreed to consult on the project – which has helped focus the project and keep up the momentum as well.

The project ends with a final design concept for a line of yoga apparel detailing the technical and visual specs, which are then evaluated. Making prototypes of the designs and testing them will happen after the thesis, as time and resources were limited.

3 SUSTAINABILITY

The fashion and textile industries were examined for this project due to the product line being made almost entirely out of fabric. Sustainability in industry means manufacturing products without pollution or depleting non-renewable resources, whether planetary or human. It refers to textiles and materials which can be absorbed by the environment when they have become obsolete. Very few products fulfil this concept of sustainability to the letter. (Brown 2010, 9.)

3.1 On the fashion & textile industry

The production of fabric has a massive environmental impact worldwide; in terms of pollution, the textile industry is considered one of the worst offenders (NRDC 2011). The amount of chemicals, such as the pesticides and fertilizers used in growing crops, the solvents and dyes used in manufacturing – not to mention the volume of water consumed throughout these processes – is staggering. The water used in a fabric's manufacturing process becomes infused with bleaches, dyes, detergents, optical brighteners and other chemicals. Often it is simply expelled as effluent (waste water) into rivers and lakes, which in turn pollutes the environment because of its heat, high pH and said substances. (O Ecotextiles 2009, 1-4.)

Because there is such a huge variety of fabric, most textile waste ends up in landfills as recycling it is difficult. Annually, every Finn throws out approximately 9 kilos of textiles. (Räty 2013, 20.) Similarly, thousands of tons of unused textiles – called pre-waste, simply end up in landfills or are incinerated because entire batches of fabric were dyed the wrong color or finished clothing did not sell. (NRDC 2011.)

Driven by the need to cut costs and find the best locations to produce goods, the textile industry has a long history for migrating from one region/country to another. The fashion industry is mercurial, and trends change swiftly. In order to respond to these changing

trends and customer preferences fast enough, brands like Zara and H&M currently have between six to eight seasons annually. This in turn increases pressure on the suppliers (Appendix 2). Corners are often cut both ethically and environmentally – which also reflects on the quality of work and goods produced. Companies favor these countries where labor laws are not enforced actively: fearing the loss of business and to meet their quotas within strict deadlines, many of the textile industries in the Global South¹ force their employees to work anywhere from 12 to 14 hours a day (Greenpeace 2012, 6), while getting paid as little as \$0.24/hour. (Fahey & D’Innecenzio 2013, 2).

Globally, the textile industry’s supply chain is complex, with many different stages and players. Today’s international brands have several different suppliers that it sometimes takes days for them to establish whether or not they are business partners with a certain factory/field/other. For example, over a day after the incident, Wal-Mart was still unable to say if it was sourcing goods from a garment factory which collapsed this April in Bangladesh (Picture 1), killing over a thousand people – which it was. (Reuters 2013, 2.)



Picture 1. A Bangladeshi survivor is lifted out of the rubble by rescuers on April 25, 2013 at the site of a building that collapsed the day before in Savar, near Dhaka, Bangladesh (Source: Reuters, photograph by Kevin Frayer/AP Photo 2013).

¹ The term ‘Global South’ is used to refer to developing and emerging countries facing the challenges of industrial development and restructuring according to the UN human development index. Most of these countries are located in Asia, Africa as well as South and Central America. The term ‘Global North’ is used for developed countries – mostly found in North America and Europe. (Greenpeace 2012, 1.)

Product research, development and design usually belong to the brand owner; consequently, they are in the best position to influence how their products are made (Greenpeace 2012, 5). Big brand owners' claiming that they do not have a say in, or knowing what happens 'outside' of their company is a moot point – they are completely in control of who they decide to do business with and what values they wish their company to stand by.

Increasing media coverage on the issues concerning these industries creates public awareness which in turn means consumers are waking up to the fact that they vote with their wallets. Every time they lay their money down, some company turns a profit - and they have the power to decide whose business they want to support (Picture 2). Brand owners want to keep their customers, and responding to new demands can cause a sea-change in the company's practices. Wright cites Goldsmith:

“We have to rewrite the rules of the market, which for so long has been an engine of unsustainable, colossal destruction, so it becomes a force for good. [...] There are so many signs that it can be transformed, so many examples: if you make waste a liability, waste is minimized; if you put a value on something, it's valued” (2009, 1).



Picture 2. Protesters demonstrating outside the flagship Primark clothing store in London, calling for compensation for victims of the factory which collapsed on 24th of April, 2013, in Dhaka, Bangladesh. (The Huffington Post 2013, photograph by Getty Images 2013.)

These issues are complex, and while there are positive trends emerging within these industries – e.g. in organic farming, alternatives to hazardous substances are being tried, labor rights becoming actively enforced and so forth, there are a lot of things needed to change before the textile industry can be called genuinely sustainable. For example, what is the true cost of a particular textile, what its embodied energy or carbon footprint is. Furthermore, is there any point shipping ethically made, organic fabric half way around the globe if it is not durable?

3.2 Chemicals in fabrics

Because they are everywhere, the textiles surrounding us – our clothing, our sheets, our kitchen towels - rarely make us stop and wonder how and what they really are made of. Conventionally produced fabrics usually are, depending on their intended use, bleached, dyed and further treated with functional finishes, such as stain inhibitors, waterproofing or flame retardants. Residual traces of these chemicals are still found in fabrics when they reach the user. A test published last year by Greenpeace found various chemicals, such as nonylphenol ethoxylates (called NPEs), which are toxic to the reproductive system in dozens of garments randomly selected from brands such as H&M, Armani and Mango. (Greenpeace 2012, 3.)

We absorb these chemicals through our skin and the air we breathe daily. We also further unintentionally pollute our environment when we launder these textiles as these chemicals wash out and are expelled with the wastewater. (Greenpeace 2012, 15.) While not all chemicals are dangerous, others, e.g. formaldehyde and the heavy metals used in some dyes, pose health risks that can vary from causing minor allergic reactions to being carcinogenic. The chemicals we use are also persistent, which means they are difficult to break down and bio-accumulative, which means they accumulate in living organisms, often travelling up the food chain. (KEMI 2009, 16-20.)

One might argue that the quantities of chemicals in question are so small that they could not possibly be harmful, but we are now discovering that this simply is not true. Scientists are discovering that even trace amounts of a chemical can already have significant impacts on our health. (Myers & Hessler 2007, 2.)

There are over 80,000 chemicals used throughout the different industries today. Of their potential health and environmental impacts, only a fraction have been thoroughly researched (NDCR 2011). For example, The EPA (the Environmental Protection Agency) in the U.S. has approved an estimated 11,000 different pesticides which have undergone little or no safety testing whatsoever. These pesticides are used in both agricultural and home use on the condition that the companies will perform safety tests sometime in the future – also known as conditional registration. This loophole is exploited by companies, which was added later to the 1972 Federal Insecticide, Fungicide and Rodenticide Act, which was approved by congress. Incidentally, the act was initially created to protect people and the environment from exposure to possible hazardous chemicals. (Formuzis, 2013, 1.)

Toxicology as a field is often simply too expensive for universities and labs to study comprehensively (Chaeffer, 2010). Likewise, there is little research into what all the chemicals we are exposed to are doing to us cumulatively. While consumers' exposure to these toxins is quite gradual, the same cannot be said of the workers (Picture 3) in the textile industry and the communities surrounding them - especially in the Global South, where the majority of our textiles come from. The Blacksmith Institute and Green Cross' annual report (2012, 7) states:

Populations of developing countries are particularly vulnerable to toxic pollution resulting from industrial processes. At the local level, participants in small-scale industries often do not have knowledge of best practices or may not be aware of the toxicity of the chemicals and processes they use. Poor communities, in which small-scale industries are often located, have little ability, either financially or culturally, to take measures to reduce their risk of exposure. Additionally, these communities have limited or no health care infrastructure that can address the health effects of toxic pollution. To further exacerbate the health risk, poor communities often have low overall standards of health, due to poor nutrition and other causes, which increase health risks and impacts from toxic substance exposure, particularly for children.



Picture 3. A mother, father and son whom all work in the same factory display their hands after dyeing silk in India. Dyes often have toxic components, and all contact with skin should be avoided. (Photograph by Lisa Kristine.)

One of the goals of this thesis is try to find genuinely viable alternatives to these materials which are which are harmful both for people and the environment. The line will be made from fabrics of natural origins as well as reappropriated materials, e.g. vintage fabrics.

3.3 Legislation and certification

Extensive legislation and policies, such as The Product Safety Act and Environmental Code ensure that companies in Europe are responsible for their products' safety for both people and the environment. Our biggest problem lies with the control/monitoring of *imported* textiles– it is not nearly as strict, and with a market driven economy, it leaves a lot to be desired in terms of improvement. (KEMI 2009, 9.)

On a positive note, eco-certifications, also called environmental certifications, are used to encourage producers to act more transparently and adopt more sustainable practices. Companies that are certified are allowed to apply eco labels, which is a logo of the certification service (Pictures 4-6). These help consumers identify and provide credibility to companies striving to incorporate sustainable practices.



Pictures 4-6. Eco-certification logos: Ecocert, GOTS and Oeko-textiles.

Certifications issued by different organizations focus on different aspects of production, such as sustainability in production methods, labor laws, material or chemical safety and so forth; the problem is that different certifications often overlap, and for consumers it is not always clear what they mean. The Global Organic Textile Standard (GOTS) aims to be the single global standard for organic fabrics covering all the aspects and stages of textile manufacturing, from social criteria to material safety from the fields to stores. (NRDC 2011). The GOTS certification covers fiber products, yarn, thread, textiles, and clothes as well as covers the entire life cycle of a product from production to packaging, exporting and distribution (O Ecotextiles 2011, 4).

4 YOGA

4.1 Yoga now

There were 62,000 yogis in Finland in 2010, most of them practicing ashtanga yoga (Kansallinen Liikuntatutkimus 2009-2010 2010 21). Dozens of different types of yoga are offered in Finland. The majority of yoga is taught at yoga studios, community colleges, sport centers, and gyms.

Yoga has become a significant international phenomenon. According to a 2012 survey collected by Sports Marketing Surveys USA for Yoga Journal, 20.4 million people are now practicing yoga in the U.S., which is an increase of 29% from 2008. They also spent \$10.3 billion on yoga classes and products alone in 2013. Out of current yogis, 44% started practicing yoga between the ages of 25 to 44 and 82% of them were women. The survey also revealed that 44.4% of Americans would be interested in trying yoga (Yoga Journal 2012).

Yogis also love their social media, the same survey revealed. Over 17% reported using websites and apps for information about yoga and to share their experiences. (Yoga Journal 2012) Some of the more popular social media sites, such as Facebook (facebook.com), Pinterest (pinterest.com), YouTube (youtube.com), Tumblr (tumblr.com) and We ♥ it (weheartit.com), have thousands of photographs, tutorials, videos and other media related to yoga posted by people and businesses from around the world.

The appeal of sharing ones' involvement with the yoga lifestyle is easy to understand, given its trendiness and potential for self-empowerment. It shows a different aspect of ones' identity, giving the impression of being into a healthy lifestyle and taking care of ones' self (Pictures 7-9). With many celebrities advocating yoga, including Madonna, Gisele Bündchen, Gwyneth Paltrow, Matthew McConaughey, Elizabeth Gilbert, Robert Downey Jr., and Jessica Biel, it is easy to see why yoga keeps cropping up in the media.



Pictures 7-9. Various image search results for “yoga” from different websites (Tumblr, Pinterest and Instagram) indicate that people regard yoga as a lifestyle – rather than just exercise.

4.2 Background

Yoga is one of the six classical schools of philosophy in India – and as such, to represent it as just a form of exercise would not be telling the whole story. What we Westerners consider ‘yoga’ is actually just a really small part of a whole. While this thesis is more concerned with the more practical aspects of yoga, it would seem worthwhile to briefly examine the history and philosophy which have shaped yoga into what it is today.

As a concept, yoga is ancient and quite difficult to define. It refers to both to a mental and a physical discipline and the goal to be achieved by the two (Jacobsen 2008, 4). The root of the word yoga comes from the Sanskrit *yuj*, which has meanings such as ‘yoking,’ ‘fixing,’

‘fastening,’ ‘application,’ ‘means;’ and also ‘concentration’. These terms are used quite fluidly and interchangeably in the different texts that discuss yoga. (Larson, Bhattacharya 2008, 28.) Broadly speaking, yoga is both the destination and getting there.

Yoga’s exact roots are not known, but scholars have found references to yoga in the (over 5,000-year-old) Indus civilizations in northwestern India and Vedic religious traditions. Though yoga’s origins are still left open, its various influences are easier to see. The Orient is incredibly rich in the variety of its different belief systems, and they have all overlapped and shaped each other over time. Among others, there are Hindu, Buddhist, and Jain terms and teachings to be seen in yoga philosophy and vice versa. (Jacobsen 2008, 5.)

The term yoga starts emerging in different texts such as the *Bhagavad Gītā* and the *Upaniṣads* dating back to 500-200 BCE in which it is defined as an aspect of spiritual endeavor. The *Yogasūtra* (350-450 AD) compiled by Patañjali, is considered the most important text on yoga, and defines yoga as concentration or disciplined meditation. (Larson et al. 2008, 75.) This work being brief, and at times difficult to understand, is usually read alongside with *Vyāsa Bhāṣya*, a commentary on the *Yogasūtras*. Patañjali wrote about the method known as Ashtanga yoga and the heart of this work is known as the eight-limbed path, which is used commonly as a framework for yoga practice, the limbs are as follows:

1. *Yama*: Ethical restraints, such as refraining from violence, stealing, or lying.
2. *Niyama*: Recommended practices which lead to purity, contentment, and tolerance.
3. *Āsana*: Physical exercises, i.e. yoga poses.
4. *Prāṇāyāma*: Breathing techniques.
5. *Pratyāhāra*: Preparation for meditation, a withdrawal of the mind from the senses.
6. *Dhāranā*: Cultivating inner awareness.
7. *Dhyāna*: Meditation.
8. *Samādhi*: Concentration.

The basic beliefs of hatha yoga were formulated by Shaiva ascetics *Gorakshanath* and *Matsyendranath* around 900 AD. This is the yoga that we are most familiar in the West, as

it emphasizes the physical side of yoga more than the spiritual laws. Today though, there are many, many different schools of yoga to choose from, ranging from the almost militant Ashtanga to the gentler, meditative Inyegar or Kundalini yoga, which is focused on breath-work and so on. (Stiles 2012, 19.)

Due to its roots linked with hippie-culture in the West – yoga arrived in the States in the 60s with the Beatles and B.K.S. Inyegar – it still can have a pretty bohemian reputation, and in some cases has become a joke and degenerated further into pointless superstitions and weird behavior, especially around the new age movements (Larson 2008, 28). Luckily, there is ample reliable evidence on the everyday benefits of yoga, which keeps attracting more people to give it a try.

4.3 Health benefits

The aim of yoga is to create a balance between mind and body through sequences of physical poses focused of proper breathing and alignment, called asanas. My favorite definition of yoga is meditation in motion, as it is sometimes referred to. (Stiles 2012, 4.)

Due to its versatility, yoga is easily tailored to meet the needs of people of all ages and levels of physical fitness. Observing thoughts and feelings without judging them is of key importance in yoga. The significance of understanding and accepting where one is both physically and mentally, listening to the body and working from there is brought up over and over again by different yoga teachers. The idea is to build strength and flexibility gradually, without being critical or anxious about results. (Stiles 2012, 20.)

Yoga's health benefits, which are almost taken for granted in the East, are now being studied and gradually accepted and appreciated in the West. There is mounting research on both the physical and psychological benefits of practicing yoga thoughtfully and regularly.

Current research shows that when practiced under supervision, yoga can reduce stress and anxiety (Köhn, Persson, Lundholm, Bryngelsson, Anderzen-Carlsson, Westerdahl 2013, 7),

relieve depression, lower heart rate and blood pressure (Streeter C. C., Whitfield T. H., Owen L, Rein T, Karri S. K., Yakhkind A, Perlmutter R, Prescott A, Renshaw P. F., Ciraulo D. A., Jensen J. E. 2010, 45), lessen fatigue and reduce insomnia (DeStasio 2008, 32). It is also used in learning mindfulness techniques (Baer 2003, 137). Yoga has been used to treat people suffering from eating disorders as well, as it is an excellent tool to increase body awareness (Picture 10) and create a healthier body-image (Daubenmier 2005, 1). In addition, it is easily administered in primary health care (Köhn et al. 2013, 7).



Picture 10. Yoga instructor Jamie organizes and teaches body empowerment yoga which helps people recovering from eating disorders (Source: The Grinning Yogi 2013).

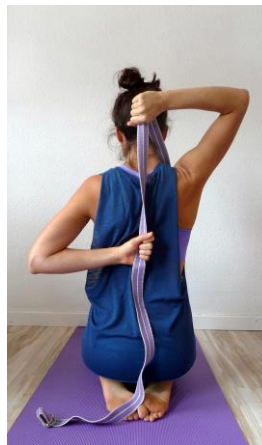
4.4 Apparel

The purpose of yoga apparel is to make asanas more comfortable and accessible, for example in cases of injuries, stiffness etc. They also ensure better alignment, and lessen strain on the body.

The product family consists of straps, a yoga mat bag and various sized pillows and bolsters. A mat is not included due to time constraints and due to the fact that there are already some excellent, sustainably produced, and easily available mats on the market. Each product will be briefly introduced.

Straps in yoga are used to deepen stretches and help in properly aligning one's body in asanas. They are particularly helpful for beginners who are not flexible enough to do a pose to its full extent (Picture 11).

Some straps have elasticity, while most do not. The straps should be made of strong materials which can take a lot of wear and tear (Picture 12). They should also be washable. Comfort is also an issue: yogis are usually barefoot, so the strap should feel pleasant and not cut into bare skin. Being able to tie a strap into a loop (using D-links for instance) increases a yogi's options for how the strap is used in practice. The length of a strap varies usually from 1.8 to 3 meters. The height of the yogi – the taller the yogi, the longer the strap and vice versa – or the type of pose the strap is intended for determine the strap used.



Picture 11. Demonstrating how a strap can be used to assist in a pose.



Picture 12. A strap which has begun to fray. Straps need to be designed to take a lot of wear and tear.

Pillows, props and bolsters are used in yoga to help align, stabilize, and add comfort and support to poses. Their use is becoming more common in everyday workouts as current peoples' lifestyles have left many with poorer posture and stiffer muscles. In some cases e.g. injury, a lack of, or type of practice can cause a pose to be unnecessarily difficult and even painful. In some types of yoga single poses are held for extended periods of time, and using a pillow helps a yogi to keep her form easier and help her focus on the task at hand. Using a pillow in the right place can be a big help in doing a set.

Three different sized pillows are included in the product family: small, medium and large. The smallest pillow is used mainly for supporting small curves and joints in the body such as the neck, or the back of the knee. The medium sized pillow's main function is to work as a meditation pillow for seated asanas. The largest pillow, called a bolster, is used in learning specific asanas, such as Crow (Picture 13) or supporting long, sustained stretches, for example, bridge pose (Picture 14).



Picture 13. A bolster being used to lessen the fear of possibly falling on one's face while practicing the Crow pose.



Picture 14. A block used to alleviate the strain of Bridge pose.

The materials used for pillow covers should be washable, durable and comfortable. They should be made of material that is not too slippery so the pillows stay easily in place. The filling in the pillow is also of special significance because a pillow that loses its shape after a couple yoga practices is useless.

A bag to carry a yoga mat should be big enough to fit the mat, a small towel or blanket and possibly, clothing. A zippered pocket or two should be included for small items such as keys, wallet and a cell phone. Ideally, the bag would be waterproof and easily washable.

As yoga mats are fairly standard in size², a one-fits-all bag will suffice. The weight of the mat needs to be balanced right so that the mat would fit securely into the bag to ensure comfort in carrying the bag. A lot of yogis prefer to go to practice by walking or bike, so the mat cannot be bulky or slippery. The bag could be carried in a variety of styles: like a backpack, messenger bag, handbag or briefcase. One design idea might be to give the user a chance to change the bag straps in different positions, according to how they would like to carry the bag.



Pictures 15-16. A typical yoga mat and yoga mat bag.

² Mats are typically 182 x 60 cm. Their thicknesses from 2 mm to 4–5 mm, which is standard, and up to 7 mm and upwards which are used for professional daily practices i.e. yoga teachers or alternately in yoga therapy.

5 MARKET DIFFERANTION AND USER REQUIREMENTS

To gain a better understanding of user requirements information from two surveys were studied: a 2012 survey collected by Sports Marketing Surveys USA for Yoga Journal as well as a small questionnaire which was made with this thesis in mind, filled out by 25 local yogis and people who do Pilates – which could be considered a cousin of yoga. The responders were also interviewed in form of casual conversations. User habits and scenarios were established through observation, another method of qualitative research.

Different media concerning or mentioning yoga was perused. Sport and department stores, studios and online shops were visited to get a better feel for the availability and character of current yoga gear on the market - price range, materials etc.

The purpose of the research was to determine what yogis' associations and feelings on different issues and materials were like, and in which kind of settings they used their gear. Of interest was also whether there was a demand for locally and sustainably produced yoga apparel. The research was an invaluable tool to better identify user needs, which help develop better design concepts and to anticipate possible future issues with products and user scenarios.

5.1 Observation

Observation is a method in qualitative research, where a designer observes how people behave in a certain situations. This is a relatively easy and low-cost way to gain more insight into what users actually do. It complements surveys and interviews well, as it gives a different view into user behavior as well as their needs. Observation happens in a casual setting, without the pressure of users trying to give the observer the “correct answer” or behavior. Simple observations were made, e.g. how yogis arrive to and prepare for a yoga class. (UK Design Council 2013.)

Most yoga studios stock mats for practice and quite a few people are comfortable using them instead of bringing their own (Pictures 17-18). However, people often bring their own blankets or towels to place over the mats for added comfort etc. Remarkably, people who did bring their own yoga mat to class rarely had an appropriate bag for it. They carried their mats in plastic bags, sticking out of backpacks and even without a bag (Picture 19) – and sometimes just fastened with a length of string or strap. It was rare for a yogi to come to class with an actual “yoga mat bag” – and if they did, it was usually a homemade bag. Because of their size, mats, while not heavy, are usually about a meter wide when rolled up rarely fit in regular sized bags and are awkward to carry.

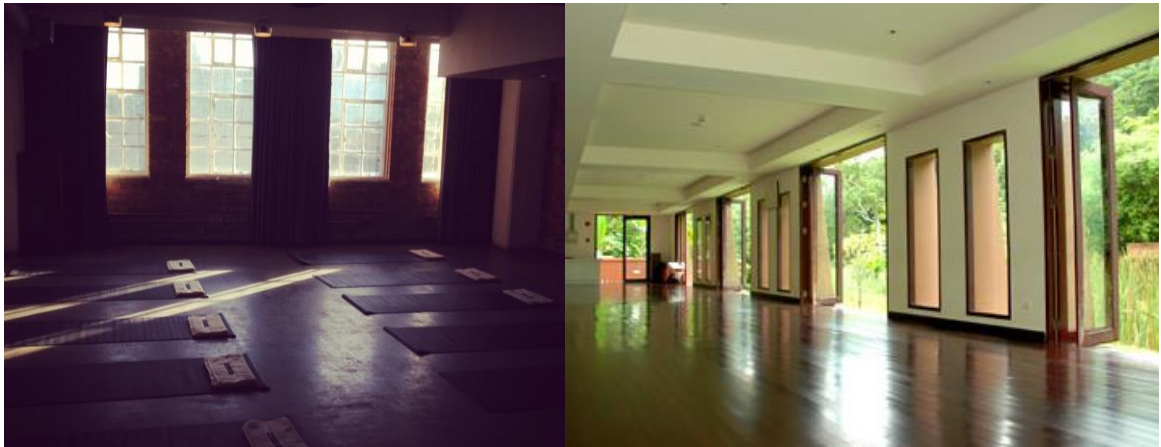


Pictures 17-18. Some studios provide permanent storage for their clients’ yoga apparel while others stock their own gear for visiting yogis to use.



Picture 19. Just as her fellow yogis in Finland, actor Jessica Biel seems not to own a proper bag for her mat (Photograph by: Examiner 2013).

Most people get to yoga practice five to 15 minutes early. If a yogi does arrive late, they try to be as stealthy as possible. Yoga classes are not a place for chatter, music or other extraneous noises (Pictures 20-21), and usually the only thing one hears once a class begins is the teacher guiding the yogis in their workout. This is worth mentioning as the rustling of plastic bags or the sound of a Velcro or zipper closure sounds disproportionately loud in a yoga class.



Pictures 20-21. Yoga studios provide a calm atmosphere to workout in.

Most yogis set their bags, phones etc. on the floor nearby, along the walls or on window sills. Also, studios, just like gyms, have dressing rooms where people can leave their clothes and shoes.

Asanas in which straps were needed were done in classes, but no one had one, so everyone improvised and used whatever they had at hand, such as belts or scarves – even leg warmers. On a couple occasions a yogi would use a sweater or roll up their mat for extra support in a pose. Many brought water bottles with them to practice.

5.2 Survey & interviews

25 people who do yoga or Pilates were asked to complete a small survey (Appendix 3) for the project, 17 did. Respondents were interviewed in form of casual conversation while the

survey was being filled out. The questionnaires were mainly answered by hand after classes, with the exception of a handful which were answered via email.

Only one of the people who filled out the survey was male, which, though a little unfortunate, is a fairly accurate representation of the yoga scene in Finland: the number of women yogis is significantly higher than that of men. Likewise, 82% of yogis in the United States are female (Yoga Journal 2012). The ages of the people who took the survey are seen in Figure 4.

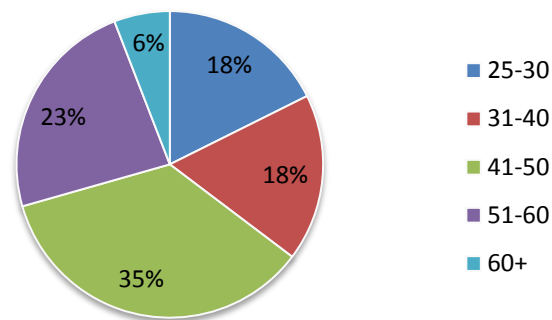


Figure 4. Ages of the people who answered the survey.

The survey questions fell into three categories, which are all aspects of user centered design:

- Function, e.g. usability, ergonomics
- Form, e.g. design, style, feel, materials
- User behavior, feelings, associations & desires.

Both during the conversations and survey answers were consistent regarding what responders wanted in their sports equipment. Besides the characteristics that should be inherent in good design anyway, e.g. using high-quality materials, functional design, durability, easy maintenance etc., yogis clearly – 82% of those who took the survey – preferred locally and sustainably made products. Finns relate to locally made materials as a guarantee of quality. (Räty 2013, 20.)

Over 80% of those surveyed preferred products made from natural or organic fibers over synthetic ones. The response to the use of recycled materials was positive but cautious. There was concern that using them would compromise style, or hike up the price unfairly. Some expressed that while they recognized that using reappropriated materials is important and on trend, it felt a little like the consumer was being ripped off if the price was too high, for example if it was known that the producer got the raw materials for free. Furthermore, lack of innovation or poorly-executed products were also considered big turnoffs. They felt that often products made from recycled materials did not really *feel* new. People reported that sometimes new products made from recycled materials felt a bit “frumpy” or home-made. The use of recycled materials in a design might affect the overall desirability of a product if they are not used in a thoughtful, skilled way.

From an aesthetic point of view people were interested in simpler, streamlined designs, especially in their bags, so that they could be used with different outfits. Also, details such as incorporating a colorful lining or pockets in designs issued positive responses. 91% wanted products with a more classic or chic feel, while a third was drawn to a more minimalistic, vintage or street look.

It came up in conversation that yogis often came to practice by bicycle, bus or on foot and thus had to carry their gear some way at least. A few mentioned that a bag which would fit into a bicycle basket would be great. Also bags which could be carried like a backpack or had a long shoulder strap were discussed. Most people were headed to, or coming from work or university to practice, so they reported having more than one bag with them and a simple solution would just be own a larger bag. Likewise, people mentioned specifically wanting pockets with zippers or other closures so that they could easily store all their small belongings.

Most preferred doing yoga at home, going to a class once or twice/week. A few who took the survey mentioned that they wanted their sports gear to be good looking, because it often is just lying around their home – often in the hallway – and it would be nice if it inspired them to go to practice, also that the bag would have a little ‘body’, so the bag would not be just a shapeless mass on the floor.

Results from the surveys corroborated what was observed in classes concerning what kind of apparel yogis usually brought to classes.

The survey also shed a little light on where yogis bought their equipment from and what happened at the end of their gear's life cycle. Approximately half of the people bought their sports equipment from either department stores or yoga/Pilates stores, while a third bought their gear from sport stores. Only one person had bought gear from online and another from a second hand shop – a few said they bought products directly from/through their yoga instructor or from the studio they went to.

When asked about what responders did with their possessions after they became obsolete, 71% reported that they donated them to charity, while only a third admitted to throwing anything out. According to an article in *Taito*-magazine, the average Finn throws out nine kilos of textiles and donates another five kilos to charity (Räty 2013, 21). Almost half said they gave their old apparel and clothing to their friends, while 12% repurposed them for crocheting, for example. A third stated that they sold their old things at flea markets.

5.3 Competition

The main reason looking into what kind of yoga apparel is being offered currently is to determine if sustainably produced apparel is already available. Avoiding possible pitfalls with current yoga products and copying someone else's designs is also a good reason to check out the competition.

The market for yoga equipment is still quite small in Finland. While there are sustainably driven brands, they are more clothing, accessory or household item oriented. Likewise, the availability and quality of apparel, as well as the stores that stock them vary a great deal. Often large department stores have mats, sometimes sold in packs along with other gear, such as inflatable exercise balls, which are not traditionally used in yoga. Most stores do not carry bags designed specifically for mats. Regular gym bags are available, but these are not manufactured to meet yogis' needs in mind. A few mats are sold along with bags that

are made from light net-type material. They may work as a carrier bag for the mat, but they lack in design. They are flimsy, not waterproof and frankly, leave a lot to be desired aesthetically. This information was gathered by observation, having conversations with store employees, taking notes and photographs.

After talking with the staff in different sport stores, the general impression was that there was an overall lack of knowledge about the products and how to maintain them. None of the regular sport or department stores had anything made of sustainable or recycled materials.

Online, the story is a little different. Well-designed apparel was available, but the shops were located abroad. Also, the shops usually offered just one kind of product, e.g. bags but not blocks. Also if one was looking for a trendier bag, the same shop would not offer blocks from the same brand or in the same style. On a positive note, these sites had good instructions how to best maintain the gear. Stores that sold sets of products also offered separately could not be found.

There are a handful of yoga stores located in Finland, but few that stock items made locally and/or sustainably. The prices of products were cheaper abroad than in Finland, but when shipping is included to the total cost, the prices leveled off somewhat.

A lot of the products seemed to be overpriced, which might drive consumers away from considering a more sustainable option. It is reasonable to expect that a product is more expensive when it is not mass produced, but it still has to be justifiable to the customer. The designs also left a lot to be desired in terms of imagination. After browsing a few sites the designs started to look very similar: earthy tones, Indian inspired themes like lotus flowers and 'Om' symbols (Picture 16).

6 DESIGN PROCESS

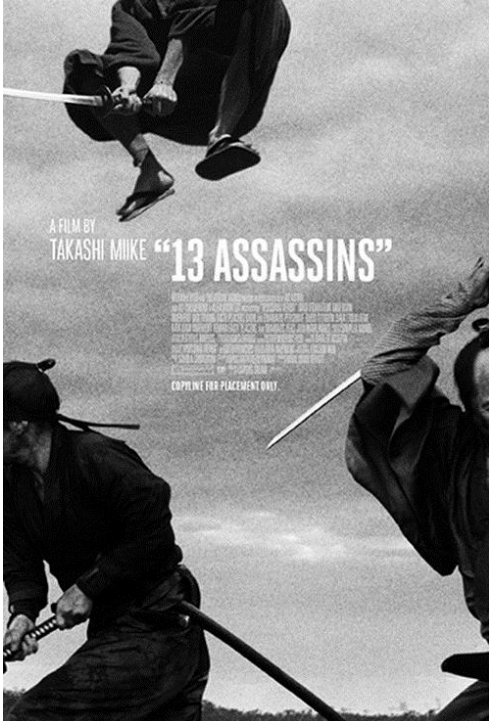
6.1 Aesthetics of the line

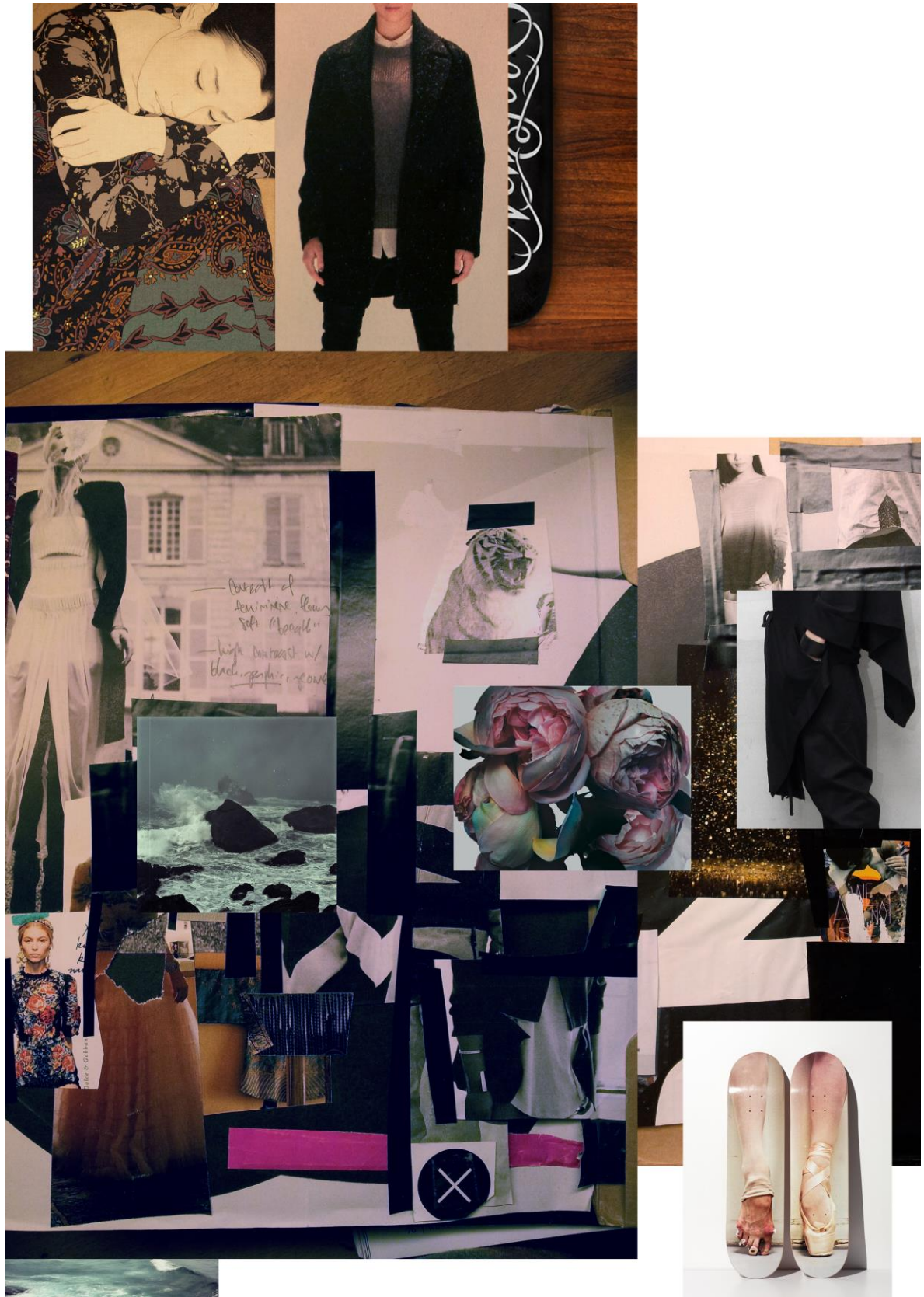
The visual impact and feel of a product cannot be underestimated. Good design in any artefact equals added value, desirability and customer satisfaction. Users are more likely to look after and take better care of things which they treasure, perceivably passing them on to future generations. This in itself is an incentive to create things which are durable as well as beautiful.

Leading athletes and personal trainers have stated that simply by wearing exercise clothing people feel comfortable and it boosts their motivation and confidence during their workouts (Sorgen 2013, 1). Fashion expresses a person's style, even how they feel about certain issues. This definition can be extended to accessories, which a yoga mat bag is, even if not a conventional one. It is not a stretch to extend this thinking to other sports equipment such as mats or gym bags. Using the appropriate gear lets one focus on the workout itself, instead of whether or not someone is rolling their eyes at your improvised strap substitute.

The two styles that were given a wide berth from the very beginning of the project were the "hippie tree-hugger"-style as well as the quite well established sports-look, which incorporates bright neon colors, shiny fabrics with large logos on everything. Instead, the look for this particular line was more streamlined and subtle. The aim was a visually and conceptually cohesive product line, minimalist, and graphic with an understated feel.

Playing on contrasts such as fragile paired with hard, e.g. lace and leather, movement or flow, combined with structural, rigid, architectural materials, and menswear for women seemed like intriguing concepts to look for inspiration. Visually, the line was inspired by black and white photography and typography – strong, simple, clean designs that would look good, be timeless and fit in easily in different environments. Collages and mood boards were assembled to help map out the designs' desired look (Pictures 22-27).





Pictures 22-27. Images/mood boards attempting to map out the desired feel and aesthetics of the line.

Simple designs are versatile: they can be used by a variety of people, regardless of gender, age or how involved they are in the yoga lifestyle. The line is geared both towards yogis who practice yoga either as their main form of exercise or who use it to complement their other workout routines.

What type of fabric is used makes an impression as well. Different associations which people have of various materials mean that the choice of material must be thought of carefully. For example, materials such as wool or linen can either appear rustic or chic – this depends entirely on how and where they are used. Using recycled or unconventional materials can also come off as gimmicky if their use is not justified. Eco-friendly design is luckily evolving in leaps and bounds in all fields of the applied arts, and these issues may be disappearing. Nonetheless, the intention is to make a line which has a polished look.

Visually speaking, today's trends, such as aged photographs and images, American Indian, south-western and Oriental patterns, 20s vintage, the Boho look, naïve illustration, 80s neon and geometric patterns are all seen in the current yoga scene. Eclecticism is embraced, and patterns, colors and styles are all mixed without prejudice. Yogis cultivate a love for the environment. It could be said that yogis are trying to combine “slow life” values with urban environments. Yogis as a group are quite environmentally aware, and there is clearly a demand for ethically produced gear as it is used often as a selling point.



Picture 28. A fashionable yogi doing a headstand in an urban setting.

6.2 Material choices

The main criteria for the designs are materials which are good looking, pleasing to the touch, durable, strong and easy to maintain. The choice of the material is one of the things which determine whether products are perceived as timeless and functional. The fabrics should also be non-toxic, biodegradable or recyclable. The matter of finding suitable materials for the line was not as simple as just deciding to go with the organic option as initially thought, so extensive research into materials needed to be done.

Natural textiles are made from fibers which come from plants e.g. cotton, bamboo, hemp, banana or animals e.g. wool, silk, alpaca and mohair. High quality natural fabrics are breathable, easy to work and maintain. They age well and have a natural richness to them. They can be dyed and silk screened with no trouble. Natural fibers are often mixed with synthetics, such as elastane to achieve desired properties, and are called knits. (Heath, 47, 2008.)

Compared to synthetic fabrics natural textiles usually have less toxins and have a lower impact on the environment, although the variability is still great within the field. Due to excessive reliance on crops like cotton and manufacturing cheap polyester, we have lost the know-how how when it comes to growing old crops which do not impact the environment so harshly. For example, conventionally grown cotton is one of the most pesticide intensive crops in the world. (PANNA 2013.) Cotton growing takes up only 5% of arable land. However, up to 25% of the world's insecticides are used on cotton crops annually: that is \$2.6 billion worth of pesticides. Cotton is also a highly water-intensive crop, and although organic cotton is readily available, it is not a long-term solution considering the growing scarcity of water. (Talvenmaa 5, 1998.)

6.3 Ideation

Finding solutions for the product line that meet the necessary requirements and values of the project is the point of ideation. These needs have been discussed earlier in the thesis.

People love designs which make their lives simpler (Maeda 2009, 6). Reading this little statement got the author thinking a lot harder about designs than anticipated. The principle of creating designs which do the job with the least amount of complexity is akin to Occam's Razor. In design it can be interpreted in a number of ways, which initially felt quite cryptic, but in fact turned out to ease breaking down what was necessary in the products. It is a component of user centered design: people like artefacts which benefit them and which are easy to use. Applied to design, production and material choices, simplicity translates into efficiency. (Butler, Holden, Lidwell 2003, 142.) For example, it could mean minimizing waste by ensuring that the material chosen for the job does not need functional finishes or an enormous amount of processing to be used. Practically speaking, less superfluous design features or cutting out "the bells and whistles" in a product mean fewer things which can fall off, break or wear out. In consequence, products with simple design are inherently more durable and functional, with the added bonus of cutting material and production costs.

The ideation stage is characterized by generating copious amounts of ideas and sketches concerning different aspects of the products in order to come up viable concepts. Current and possible future trends, values and acquired knowledge shape the thinking process, as well as the designer's own experiences, know-how, taste, common sense and intuition. Inspiration is sought from all corners of life, with emphasis on illustrations, photography and drawings.

The brainstorming is organized with mind maps and grouping (Maeda 2009, 36). The best ideas are given more consideration and refined further. An excessively critical eye in the beginning can stem the flow of ideas and kill creativity. Not discussing ideas with other people also leaves the designer at a disadvantage as it is easy to become blind to one's own work and lose focus on what is essential.

Another tool for ideation used was a character board, which details either a real or imagined person's daily activities, e.g. loves, dislikes, a favorite book, dream vacation plans, political stance, and whether or not they are a dog person – basically who they are and how they

experience the world around them both emotionally and physically. It serves to give an idea of what an actual user is like and how the intended product would fit their lives. I chose an acquaintance that practices ashtanga yoga to be the inspiration for my character profile.

Before starting to sketch seriously I decided to use a design theme (Picture 29) which would work as a 'go to' for me when thinking about the product line. This design tool was created by Paul Backett (2011, 1), who defines the design theme as follows:

A set of carefully curated products, attributes, materials and details that tell a clear story. It explains, for example, whether the product should be engaging and approachable or refined and technical; bold and powerful or so subtle it blends with the environment. [...] Having one or more of these themes in front of them [the design students] while they sketch, to reinforce the idea that sketching is only useful when it's helping to realize an idea.



Picture 29. Design theme.

6.4 Drafting and illustration

Sketching has been a tool for thinking during the entire thesis project. From quick doodles to more detailed product ideas and the like, it has accompanied and supported the design

process the entire way. Sketching is used to refine and shape ideas further. Sketches serve to crystallize concepts into a more concrete form, revealing flaws and areas that need more work as well as propel imagination forward. They are also easier to discuss with peers and users generating feedback, which allows the designer to take the concepts to new places. (Backett 2011.)

Three key concepts can be used in sketching when thinking about the products on different levels: *attract*, *engage*, and *extend*. Drafting concepts on the *attract*-level means figuring out the form and silhouette of, and the impression the product gives. The sketches are explored further on the next level, *engage*, as the details and how they fit the product are given consideration. Lastly, *extend* intends to find solutions to how the product changes with time, how it takes wear and tear, and what happens at the end of a product's life cycle. (Backett 2011.)

Different styles and media are used during drafting. This includes encouraging the creative process, for example penciled doodles in the margins of books when a little idea occurs, or exploring the contrasts a product could have using only abstract black shapes.

Initial sketches are many, random and varied (Picture 30). With time, the better ones are further refined and taken further as described earlier (Picture 31), culminating in 2D drawings of ready design concepts.



Picture 30. Initial 'quick and dirty' sketches and notes.



Picture 31. More refined sketches with details.

6.5 Final design concepts

The final design concepts have been illustrated and their functions, technical details as well as materials are explained in the following chapters. All products in the line are to be produced ethically and sustainably. Logos will be embroidered, and washing and care

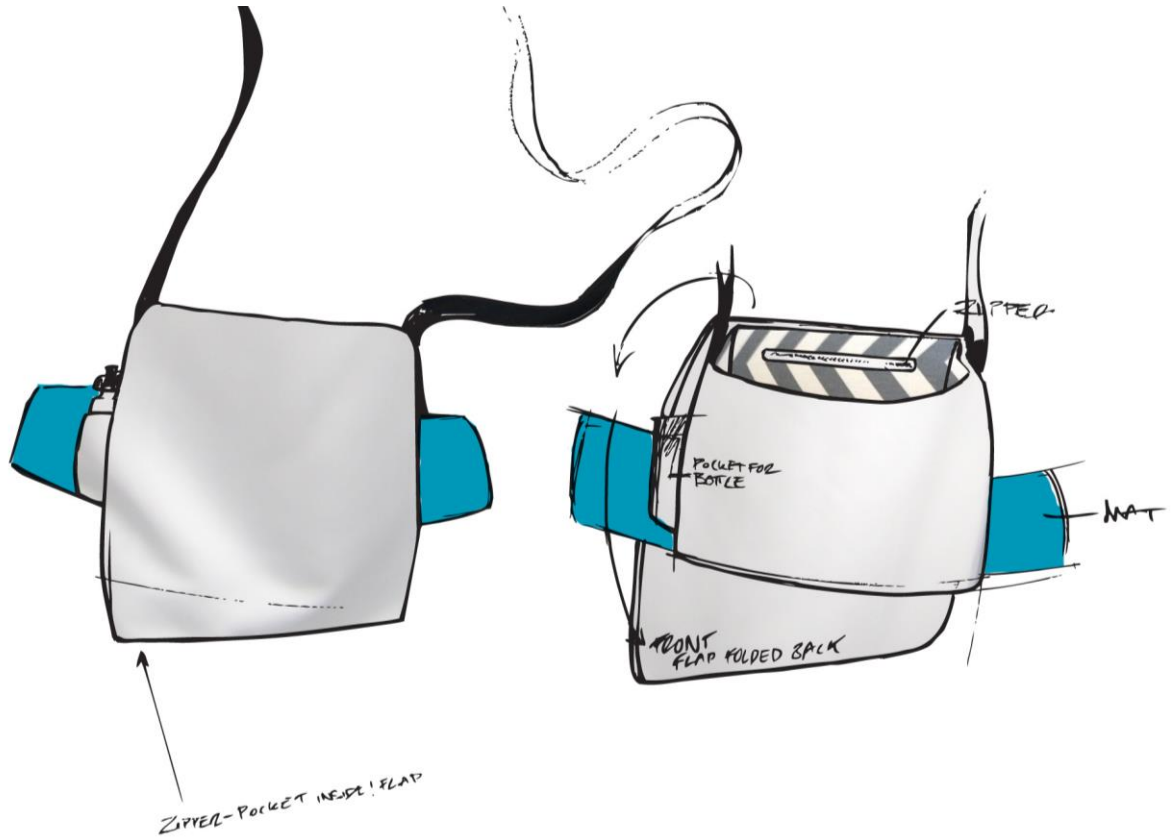
instructions will be silk screened onto the products. The line is cohesive aesthetically. It is graphic and minimalistic, coming in a small range of colors, mostly black and white. Consistency was also a concern in terms of material choice, but the purpose of the product ultimately determines the choice of fabric or filling used.

6.5.1 Yoga mat bag

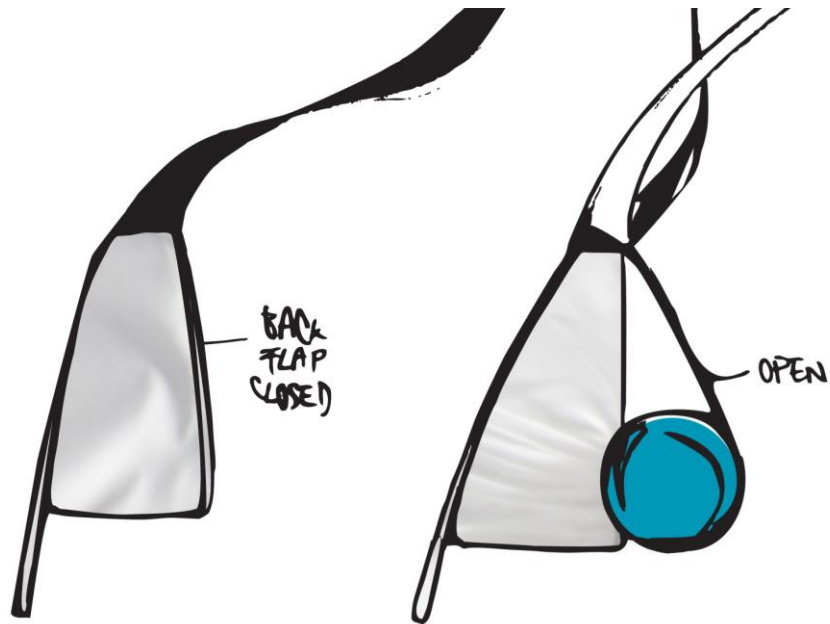
The yoga mat bag (Picture 32) is a lightweight shoulder bag. A mat can be fastened to the bag with adjustable straps, which are stowed behind a flap on the back of the bag (Picture 33). The back flap can be fastened to the back of the bag with small buttons and be used as a regular gym bag also. The shoulder strap is adjustable. The interior of the bag has a pocket, as well as a 'hidden' pocket inside the front flap of the bag for small items. The bag also has a side pocket for a water bottle.

The bag's shell is made of hemp (alternatively flax, i.e. linen) and reappropriated leather, with a lining made of vintage fabric. Hemp and flax are both bast textiles and are fabrics manufactured from natural fibers which come from the stalk of plants instead of their seeds or flowers. Insects prefer eating the latter more than the former parts of plants, so fewer pesticides are needed. For example, hemp, the most durable natural fiber, is grown entirely pesticide-free. (Lackman 4, 2012.) It is also cheaper to produce than cotton, does not deplete the soil of nutrients and requires less processing. Reappropriated leather is used on the outside bottom of the bag, for a little extra dirt and water-proofing. Leather is a durable and ages well. It is easy to care for and dirt and water resistant. The shoulder strap is made of seatbelt. Natural bees wax is used to waterproof the shell.

Visually, the bag's lines are simple and color scheme is graphic. The front flap is cut at an asymmetrical angle, and extends beyond the bag. The shell comes in white or black, the lining comes in a contrasting color or pattern. The dimensions of the body of the bag are approximately 210 x 270 x 150 – a small towel, clothing and items such as a phone and wallet should fit easily. The seatbelt colors vary.



Picture 32. The yoga mat bag seen from the front, closed and open (mat is in blue).



Picture 33. The yoga mat bag seen from the side with back flap fastened closed and open.

6.5.2 Strap

The straps (Picture 34) are strong and nonelastic. They can be threaded into a loop, in order to be used in more ways. The line has two straps, and they come in lengths of 1800 mm and 3000 mm.

Reappropriated seatbelts are used for the strap and reclaimed wood for the buckles. Sourcing seatbelts is easy, as there is a steady flow of wrecked and broken cars being disassembled daily. The belts are made of nylon, which is a durable material, which is easy to keep clean. Reclaimed wood is abundant also as it comes from leftover material of woodshops. The wood is treated with flax oil.

The color of the wood varies according to stock. The seatbelts come in black, gray and taupe.



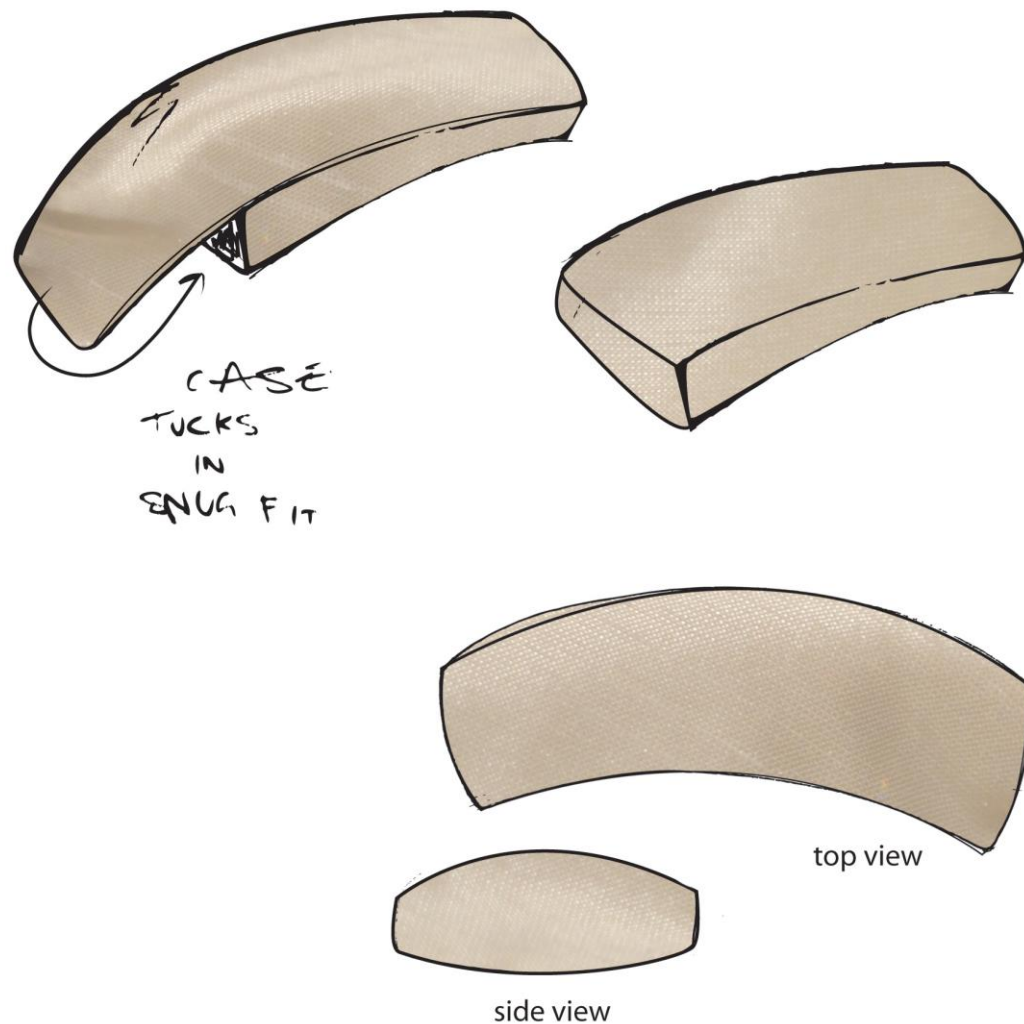
Picture 34. Detail of strap.

6.4.3 Pillows and bolster

The pillows come in three sizes: small, medium and large. Their cases are all removable and washable, as are the pillows themselves.

The smallest pillow (Picture 35) is an asymmetrical arc-shaped pillow. The pillow is made of organic felt. The felt is made of sheep's wool, which is a warm, strong, naturally fire resistant and water repellent material – and also completely biodegradable if it has not been treated with finishes. Wool will only be sources from reputable farms, to ensure that the animals are kept well. The pillow case is made of high thread count cotton, silk, or modal which are very soft breathable fabrics, almost translucent. The case fits snugly on the pillow.

The pillows come in gray, black and brown. The case comes in ivory and taupe. There are two sizes; their dimensions are 170 x 55 x 90 and 170 x 75 x 90 mm.



Picture 35. From top to bottom: illustrating how the pillow case fits the pillow without any closures, the pillow, seen from above and the side.

The medium-sized pillow or meditation pillow (Picture 36) is the heaviest and sturdiest of the bunch. It is square shaped. The color-blocked case is closed with a contrasting zipper on the side.

The filling is made of organic latex and the cover is made hemp and reappropriated leather. Natural latex comes from rubber trees. Hypoallergenic, antimicrobial, warm as well as durable, this filling is chemical-free and repels dust mites. It is a warm, elastic, high quality material which supports the body in a comfortable way. (Heath 2008, 128.)

The pillow comes in royal blue + taupe, black and white and matt black and glossy black. Its dimensions are 45 x 180 x 180 mm.

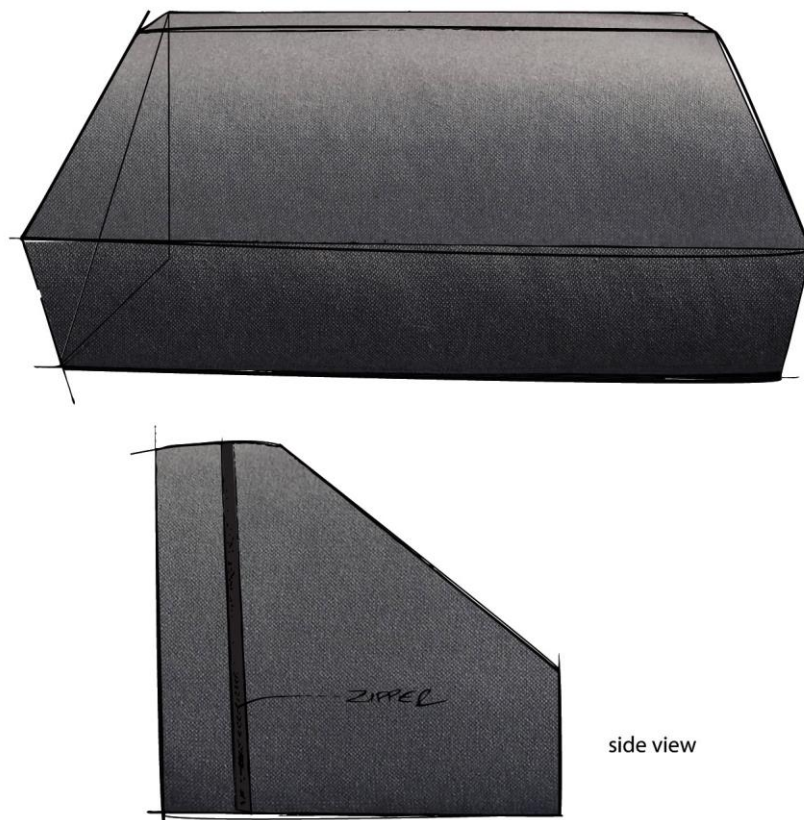


Picture 36. Meditation pillow

The bolster (Picture 37) is an asymmetrical geometric shape and the squishiest of the pillows.

The case is made of a textile made from a bast fiber such as hemp, jute or nettle. The filling used is organic latex. A zipper runs down one side of the case.

The interior pillow is ivory; the cover comes in black, taupe, gray and white, with a matching zipper. The dimensions are 450 x 350 x 300 mm.



Picture 37. From top to bottom: small pillow, medium sized meditation pillow and large bolster.

6.5 Evaluation of the design concept

The product family is cohesive in terms of looks and feel. The products' designs are versatile, but still kept simple. They meet the small survey's responders' preferences by being minimalistic, durable and suiting different styles. The materials are mostly of organic or natural origin.

The line meets the standard of sustainability when considering the ethical aspects and the material choices except for the seatbelts. On one hand, using reappropriated materials such as seatbelts refer to re-purposing used or discarded materials for new products, thus extending their lifespan, but I cannot shake the small feeling of unease about using them in the line. Seatbelts are usually made from synthetic fibers such as nylon or polyester, which are petrochemical based fabrics. Ultimately it is not a long-term solution to rely on anything produced from crude oil. Also, as unconventional materials have not been used expansively in products such as bags, it can be difficult to predict how the materials will perform in the long run. (Heath 2008, 46-49.)

Also relying on using vintage fabrics in excess, such as “granny florals” can quickly come off as gaudy and dated – while the same fabric used in a lining of a bag can be trendy, create contrast when paired with a modern fabric, and create added value. Reappropriating textiles rescued from friends’ parents’ attics and second hand stores from around the world also inject different cultures, styles and character into designs. Reusing old fabrics is not only a low-impact practice, but also a cost-effective and smart one – old textiles are often good quality and keep well. (Heath 2008, 46-49.)

One issue that quickly became clear when relying on vintage fabrics sourced from e.g. flea markets is the inconsistency and/or uncertainty of available stock. Not only is browsing markets time-consuming, but also the quality, price and aesthetic properties of the textiles all vary dramatically. Flexibility is required from both the customers and producers. The designer may also face creativity challenges in these circumstances. In order to avoid the customer possibly feeling duped, transparency is essential. Informing the customers where the materials come from makes them understand that some parts of the designs may vary, or that each piece is unique. An alternative is that products could be made in limited edition batches only.

I would have also been interested in using technologically advanced or man-made eco materials for the project because of their properties. Eco materials are manufactured from protein or cellulose of natural origin e.g. eucalyptus tree wood pulp, which can be mixed

with other natural fibers. These include materials such as biophyl, tencel, modal, micromodal, corkshell and ingeo. They are low-impact, have great properties and are slowly emerging, but still hard to find in Finland. These materials have a sleek, minimal appearance and make an interesting contrast with more familiar fabrics. (Heath 2008, 46-49.)

In terms of functionality, the projects requirements such as being ergonomic, simple to use etc. are met, but I feel the designs could have been pushed further and made a bit less severe and more fun.

Luckily, settling on this first design concept for the product line of yoga gear is not the end of the design process, but it is the final stage of this thesis. It is the hope that after this project is brought to a conclusion, prototypes of the products will be made, which will undergo testing by yogis. After the testing phase, feedback will be gathered verbally and in written form and will be used for further product development. Sourcing for materials and manufacturing partners are secured during this phase. When the reformed concepts are finished, they will be made into final patterns and they will be put into production.

8 CONCLUSIONS

Definite interest in yoga equipment which is sustainably and locally produced was established during this project. Offering products which are ethical, yet feel luxurious is something that requires a lot of research and work, though. It was a theme I kept mulling over during the design process. People do not want to live like ascetics, nor should they be guilt - tripped into buying only certain products or expected to live a certain way. The impulse to make ethical choices should come from an informed, genuine place, otherwise the choices and changes are not lasting. (Heath 2008, 6.)

The current state of affairs in textile industry is alarming, but not conclusively hopeless. Naively, the depth and extent of its problems on all levels of the system came as a bit of surprise when I began the research for this thesis. There were days, when after reading an article about some pesticide or other, I would just sit there and wonder if it is really worth looking into. My good friend actually asked me to stop telling her all the new things I was learning while researching textile manufacturing as it was “depressing the living daylight out of her.” The cynicism about things never changing, and the feeling of not being able to really affect anything is a very real obstacle. The general consensus seems to be that it is everyone else’s job to change how things are run – the governments’, companies’ or manufacturers’; the feeling of personal responsibility is a bit underwhelming.

For me personally, I feel it is doubtful that the biggest changes will begin with corporations. As Shah (2012, 219) put it, fashion retailing is not about education but driving a bandwagon. The ideal of buying fewer things which are higher quality and longer-lasting is something that both consumers and producers need to adjust to. The real cost of throwaway fashion as well as other products is something that should be more discussed. And as Rätty (2013, 20) points out, when something is cheaply bought, throwing it out a few months later is not really that big of a deal. The issues need to be changed from the grassroots, from the consumers, and that is only achieved by getting educated on the matter. Designers are in a good position to positively engage in that change as well, and despite the initial gloom and doom I felt, discovering many different organizations,

designers, stores etc. working to create sustainable solutions in all walks of life is very encouraging as well as empowering. I was surprised how excited people were to be able to donate excess leftover materials when they heard of this project. What I found is that cheap, even free, good materials are abundant; what is missing are the opportunities and networks for these materials to be used as just that: raw materials and not leftovers destined only for landfills.

I learned that using sustainable materials, the research backing decisions, as well as designing within certain parameters does drive up price. Creating products which are sustainable is a real labor of love, and it is a real concern, whether or not people are willing to dish out money for products which will not cause harm to them or the environment. A way to connect and communicate the reason behind potential higher prices, for example, could be through a blog or brochures.

This project taught me a lot about the industry, the design process of a product, as well as the importance of networking and research. It was a real eye-opener to see how many things a designer needs to juggle and figure out. It also deepened my understanding and appreciation of yoga profoundly. My biggest issues were time-management and the actual writing part of the thesis. It is very hard for me to work in a linear manner, and I found myself often writing about three to four different topics simultaneously. The turning point for me was when I decided to stop beating myself up about it and just roll with it. It was interesting to realize that self-criticism takes a surprising amount of energy. I also now understand why my supervisors emphasized the importance of a compact, well-defined framework for the thesis, because it is an enormous task to research topics and then try to edit them down into understandable English for someone else to read.

Nearing the end of this project, I stumbled upon a book called *Cradle to Cradle*, written by William McDonough and Michael Braungart. This book is revolutionary in its approach to the design process, and unlike anything I had ever come across. It felt somewhat like the mat was pulled out from under me when I started reading it and comparing it to my efforts to make a viable product line. Overhauling the entire project because of this book did not

happen, though, but it definitely will be a guide for the next one I embark on. This book comes warmly recommended.

It is my wish that this thesis might give some small insight into yoga and sustainability in design and is hopefully of some use to other students.

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Glossary

Yogi (pl. *yogis*): people who practice yoga and could be involved in the other aspects of the lifestyle.

Apparel/gear: different equipment and products used in yoga. These include the following:

- props and blocks (different shaped blocks usually made of cork or strong foam) which help with mastering a pose
- pillows and bolsters, coming in various sizes, which support with long, slow poses or alternately, add extra support in case of stiffness or injury
- straps which are used for deepening stretches or assisting poses
- mats and bags
- towels/blankets, which can be laid on a mat or used instead of one to provide extra comfort, warmth and help keep the mat clean from sweat/dirt etc.

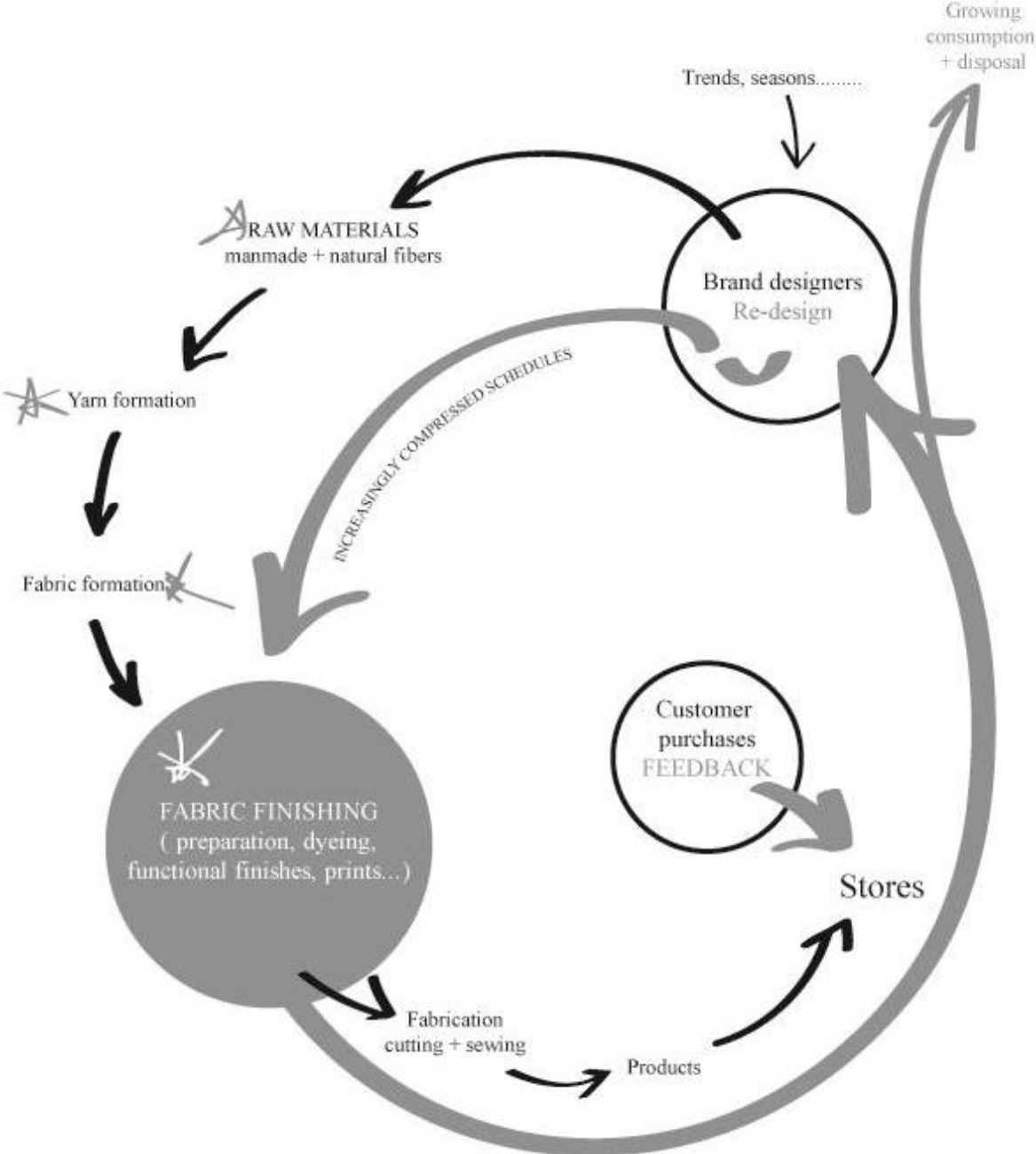
Vintage³, upcycled, recycled and reappropriated materials: Re-purposing used or discarded materials for new products thus extending their lifespan. To follow environmentally sound practices though, they need to be either biodegradable or otherwise easily recyclable. Also new materials which are made from recycled material need considerable processing, which undermines the entire point of recycling. (Heath, 2008, 49.)

Embodied energy: The sum of all energy used to design, develop and manufacture a product, measured as if that energy was embedded or part in the product itself.

Life cycle analysis: Covers the lifespan of a product or material. It considers the embodied energy of a material/product, as well as its entire cost from production to usage to finally, disposal. (Heath, 51, 2008.)

³ Vintage vs. retro – the term retro is usually used to describe e.g. the 1960s *Marimekko* aesthetic, but a more accurate definition would be a new product which is designed to look older than it is – e.g. a *Tivoli* radio. Vintage, a word which originates from wine making tradition is usually used to describe artefacts from the 1920s onwards, but yet are not treated in same fashion as antiques.

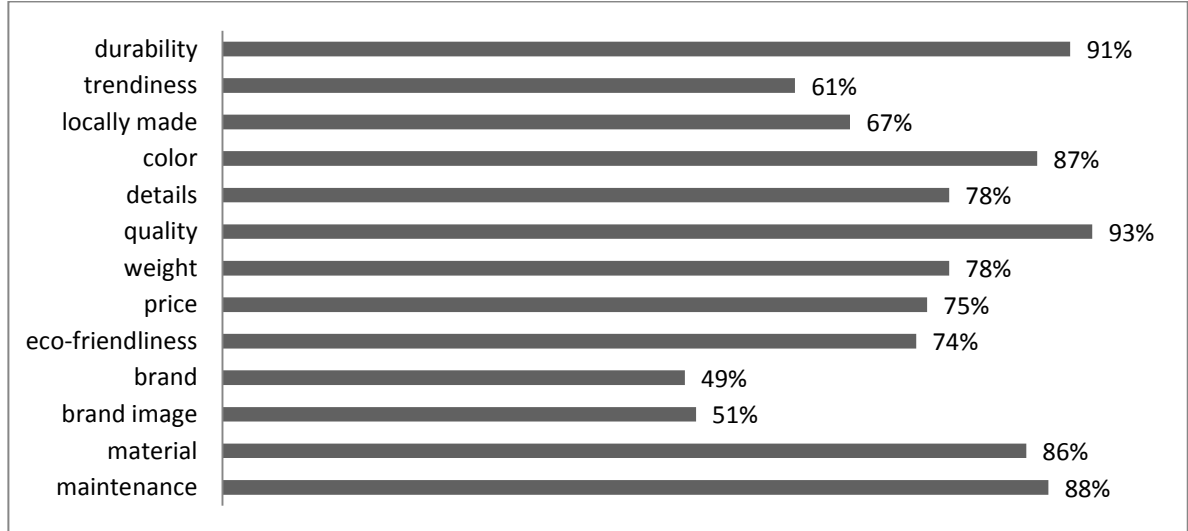
The fashion cycle



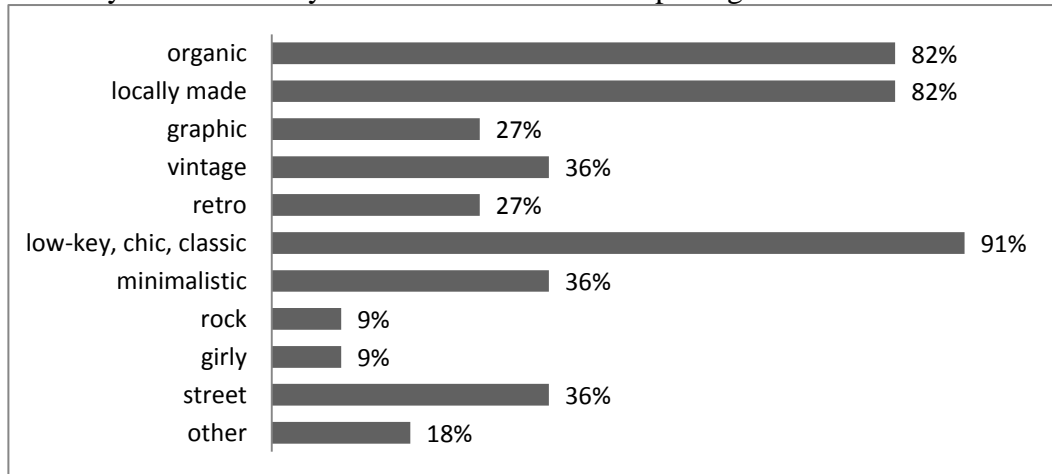
A chart illustrating the fast fashion cycles e.g. the different stages of clothing production in today's companies. The asterisk indicates stages where large quantities of water is used. Originally illustrated by Greenpeace, 2012.

Survey results

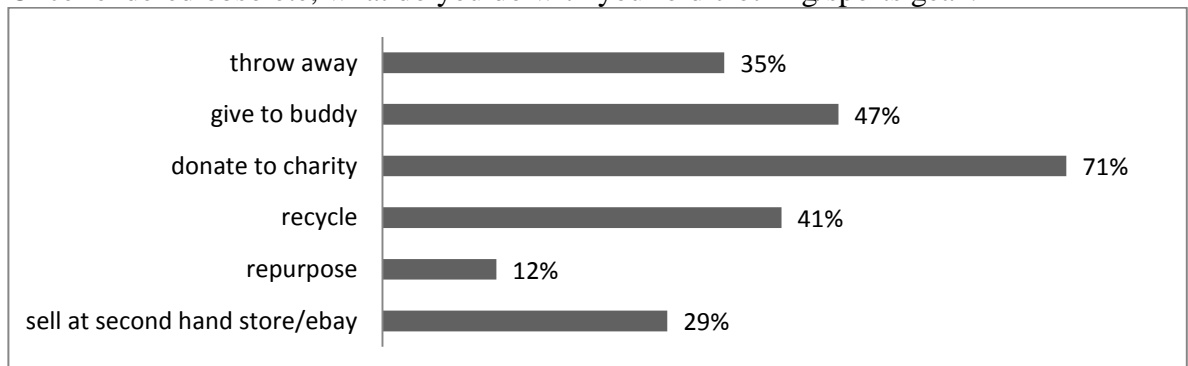
What is important to you when deciding to buy a new bag/other sports equipment?



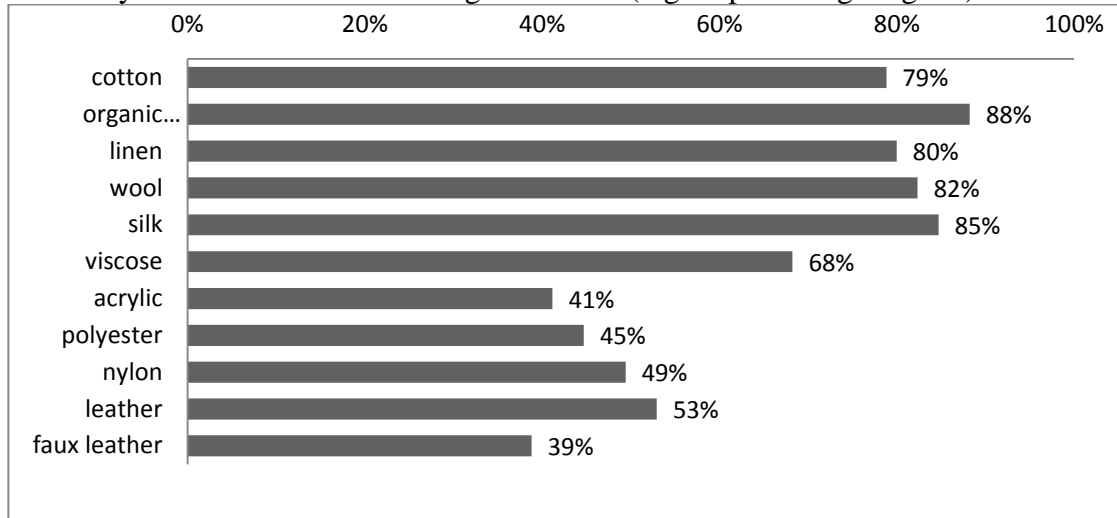
What style/look would you like to see more of in sports gear?



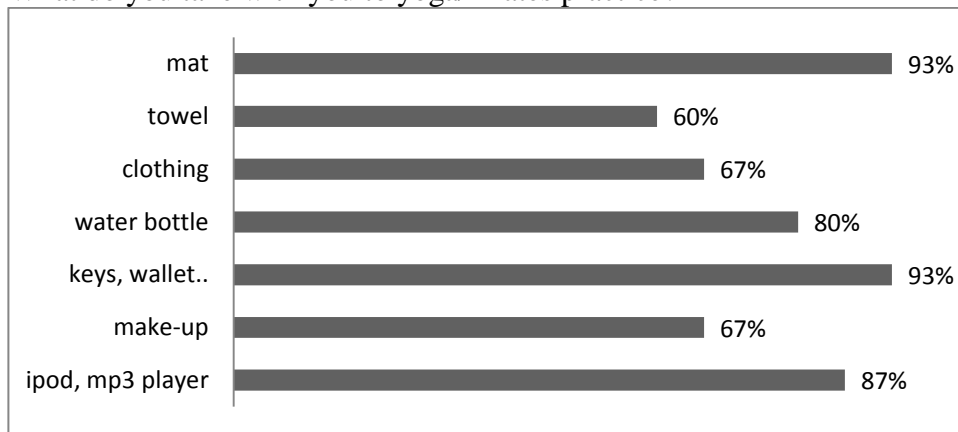
Once rendered obsolete, what do you do with your old clothing/sports gear?



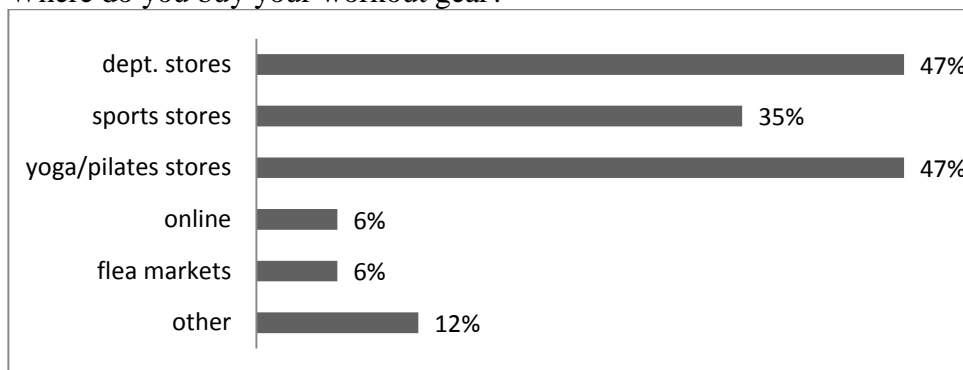
How do you feel about the following materials? (higher percentage = good)



What do you take with you to yoga/Pilates practice?



Where do you buy your workout gear?



Number of respondents: 17