Hint Prints

Sustainability from a Design Perspective

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Abstract
The topic for my thesis is sustainable design in the light of critical design. The only simple thing about sustainability is to pronounce it, which is one of the vital results that this project displays. Wearing my critical goggles while digging into the discourse of sustainable design I saw the many factors that play a role in this complex system of networks. Creating reflections rather than fulfilling a new commercial need, posed as a spotlight on the whole design process and also on the context to appreciate this. My artifact is an attempt to visualize the complexity around sustainable development and by pointing out the importance of having a holistic approach to this; my aim is to encourage a new way of looking at products. Seeing them from their entire life, from birth to death, and metaphorically speaking how we, the human species, keep on affecting a product's ecological footprint all through its time here on earth. The mediator of my message is a game and by apostrophizing a part of the complexity, my aim is to reach routine-like actions and acknowledging by letting the visitors play an active part in the exhibition, since active actions lead to consciousness.

Keywords
Product Design / Sustainability / Complexity / Critical Design / Rules of play - Games / Human footprints = our ecological impacts on earth
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1 Introduction

Living in a world that feels anything but sustainable is what constitutes the biggest trigger in this project. Al Gore talks about our energy usage and shows how we, the human species, are changing the chemistry in the atmosphere, which leads to catastrophes all around the globe. We are daily exposed by news linked to our environment, in papers, on television, from the neighbour, the family and friends. They all display that; our world is sick and we are the reason to it. I see it like a plague, a climate plague, which the majority of today’s society is infected by and as with all plagues it is hard to not get infected. The underlying reasons for this huge extension is linked to the fact that this is one of our generations’ most severe issues, causing serious environmental problems phasing past and present societies. Where would we live if the earth were uninhabitable?

Combining this plague with the notion that we live in one gadget loaded world, one realizes that this will affect my future role as a product designer. The world is not in need of more products, but of radically better ones. This project is therefore dedicated to the debate concerning sustainability from a design perspective and stretches over the spring 2008 and rounds up with an exhibition in June. Since I could not find any motivation for providing a new gadget fulfilling a commercial need, I have chosen to take a critical design approach, with the objective to enhance reflections and debate. My aim is to catalyze a critical discourse to sustainable design by using artifact, a human-made object, and the context as mediators. I see that my role of becoming a product designer is to inspire a positive circular flow and I want to give a hope and an insight that, even though we are responsible for contaminating the earth’s sickness, we are also the cure. Displaying that we all can and need to contribute with something in the work toward sustainability, by transforming our talk into actions.
2 Background

We tend to twist and turn the meaning of sustainability, to fit in our consuming lives. Initially I wanted to critically reflect upon; what is sustainability in its purest form? From the Cambridge Dictionary (2008) I found two definitions of sustainable: (1) Able to continue over a period of time and (2) Causing little or no damage to the environment and therefore able to continue for a long time. These make up the starting point and pose as an overall goal while studying the discourse of sustainability.

2.1 ‘Green Washing’: Washing Away Sustainability?

Some argue that we consume to fill up our homes and as a result we also badger on the worlds resources. “Unfortunately our consumption participates in filling our refuse dumps as well as polluting and using up resources. Things, stuff, gadgets, widgets, devices; our homes and our lives are more than full.” (Carlson 2007) A few have realized that we do not need any more products in this already gadget-loaded world. Others just re-do some product to make it fit in our new ‘greener’ society. John Thackara, opines that green washing often means changing the name and/or label. (Thackara 2008 b) Another view on this is that we are too yellow to be green, which the following part of an article in I.D. Magazine displays.

“What are the Americans made of? Corn and denial. We don’t want to know the ingredients of our food, or anything else-like our houses, cars, furniture, or clothing. We like processed food products made with lots of high-fructose corn syrup better than we like raw foodstuffs. And we like plenty of plastic around, although we may not know that it’s plastic, and 72 percent of us don’t know what plastic is made of anyway. (It’s made of petroleum.)

The more we know about materials and methods, the better we can understand how industrial processes can be significantly improved, and the better we can welcome advances that are semi-green. Not all natural stuff is good. Not all synthetic stuff is evil. It’s not that simple.

While our houses and cars are built of artificial materials treated to look like natural ones, our supermarkets are stocked with products that are just the opposite. They’re made of natural ingredients processed and molded into edible playthings: cookies, chips, hot dogs, pizzas.

Next, let’s promise to never call anything green ever again, as in, “We’re building a green beach house!” Calculating sustainability involves complex measurements of costs and emotion over time and distance. Dumbing things down, or simplifying them for profit or fashion, does not help. But before we do all this, we can start off with the much simpler task of greening ourselves. After all, how green can we ever be if we’re made of corn? We’re already yellow enough.” (Flanagan 2008)
These are only some perceptions and views on consumption and the issue of sustainability. Walking around this year’s Stockholm Furniture Fair charged me with words like; Eco, Green, Organic, Natural. The vocabulary differed slightly but they all aimed to be translated into: Sustainability. I could continue to state alternative views throughout the whole report, but luckily I won’t, instead I have gathered bits and pieces to create a puzzle of potential outputs.

2.1.1 We Designed It
To think that this environmental concern is something new would be faux, though it has been debated during several decades back in time. The difference is that today the majority of the world’s population is concerned. The reason is that now when we can see the consequences of our actions. Nowadays the main body knows that today’s energy equation does not equal sustainability. The era of industrialization is now showing us the downside of moving from one energy source to another. “We may not have meant to do so, and we may regret the way things have turned out, but we designed our way into the situations that face us today.” (Thackara 2007:7) He means that we designed the worlds sickness. The markets answer to this is to load the store with the new more eco-friendly, say ‘greener’, things. And we consumers love the way that we can keep up our consuming habits but with a ‘green’ tag on. In that way we can say that we care for our nature when taking the car to the other side of town just for the eco-cotton top.

2.1.2 The Cure
The cure is not as simple though, since there are several other factors that play a crucial role alongside buying the more eco-friendly products on the market. This act will surely have a positive impact on the work toward sustainability and support a change of the material and production processes used.

   One step further would be to look upon the impacts of transportation, list of contents, consuming habits and our usage of everyday products. Kristina Börjesson, PhD at Saint Martin’s College of Art and Design, means that: “We must have a more holistic approach to sustainability to avoid sustaining the unsustainable.” (Börjesson 2008) What if we all start to question our actions in our daily lives? Questions that could simply be posed as; In what way do I charge my mobile batteries? Do I boil water in a casserole with or without the lid? Do I ever read the direct advertising that daily loads my mailbox?
2.2 Too Noble for the Nobel Prize

Unfortunately you would not get the Nobel Prize just by knowing something; you need to be curious, dare to experiment and try alternative ways to go about finding solutions to the problems, and finally your results need to be disseminated to others. This is what has come to color and signify my route of advancement. We can’t continue to phrase the catastrophes that we, humans, inflict on our planet in more or less articulated ways, depending on whom you ask. What we need to do is to start acting as the Nobel laureates. I strongly believe that we are masters of our lives and I agree with Kaj Pollac while stating that “we can’t change other people”. (Zaar 2008) I can only change my own habits and by doing so I can inspire others to do alike.

“We become more and more ecological illiterates and we can’t understand the processes that our wellbeing depend on. Many of us see the environment and the society as two separate systems. But the truth is that we (the society) are a part of the environment and we are dependent on it for the oxygen we breath, the food we eat and for clean water. A clean environment also helps to prevent parasites and diseases to occur.” (SVT production 2006 – Part 3)

By looking on the rising petrol prices, Mats Lundegård is one of those who believe that our car usage is one of the human behaviors that need to be changed if we are to do something about the greenhouse gases. Though he doubts that our country’s automobilists agree with him. They believe that it is an ancestral human right to take the car in life’s all phases. In the big city are they queuing every morning and evening because it’s only losers that use the public transportations? And as a politician, even for our Minister of Environment, it is wise to shield the automobilists, rather than the environment. Since the automobilists are many and possess power in the society, while the environment occur first tomorrow. (Lundegård 2008) Having this view in mind evokes a parable to the character Dr. Jekyll and Mr. Hyde, that tells a story about the human intrinsic ability to both good and bad.

2.3 Intentions

The project goal was to contribute with a new footprint in the discourse about sustainable design. As stated before we do not need more products in this already gadget loaded world, we need radically better ones. This is one dilemma that we, designers, will meet up in our future careers. Thackara (2006) states that, “80% of the environmental impact of today’s products, services and infrastructures are determined at the design stage.” This quote has come to play an important role in my project and its result. I like to think about design as something that is not dealing with the look of a product; it is rather about how we chose to shape our world and how we are shaped by it. The greater goal was to put a spotlight on the meaning of sustainable design and to show how our actions are critical to sustain the sustainable.
2.3.1 Context for Dissemination

The context for dissemination has also been an area for focus, since my intention with the project is to contribute with an artifact that mediate my message concerning sustainability to the user while interacting with it. I wanted to highlight that our work toward sustainability can look very differently depending on our standards of living. Common for all of us is that we can contribute with something. Deducing the key of investing in long-term thinking and to gain knowledge about how our actions will contribute to a sustainable development or not. It might not be that hard to swap for the ecological produced milk, but to cancel the monthly shopping trip to Paris might be an issue?

The intention with my artifact was to display and encourage the viewer to reflect and thereby produce knowledge, not to propose ready-made-packages. To approach this I have looked on the critical factors of products and stakeholders, and their links in this complex system. I have done my uttermost to enhance a sustainable development and leave as little carbon dioxide footprints as possible and the material are of recyclable nature, borrowed or second hand since the project should support the aim of the work.
3 Methods & Approaches

A quote by Krippendorff (2006) will open up this section dealing with methods and approaches. Which stands for inspiration, influencing my work and figures as the key guidance for the design process. It outlines his claims about the importance of not using natural science theories as a role model when dealing with science for design:

“Applying various scholarly perspectives, and using the natural sciences as a paradigm for theory construction, a science for design is proactive. It cannot be limited to theories of what exists, to patterns that were observed in the past, and to generalizations of the limits on what can be done. It must provide the intellectual tools needed to realize what did not exist before, to introduce desirable changes in the world, to project the technological, social, and cultural consequences of a design into the future, and, above all, to provide compelling justifications of designs to those affected by and needed to bring about these futures, their stakeholders.” (Krippendorff 2006:209)

3.1 Problem Framing

I think that one of the best parts of working in the area of design is that we are not limited to given problems, but instead find and formulate problems within the context of the design brief. Schön identified this as problem setting and meant that designers select features of the problem space to which they chose to attend (naming) and identify areas of the solution space to which they choose to explore (framing). (Cross 2006:102) Both Schön and Krippendorff refer to design problems should not be approached in the same way as other problems, they are of totally different nature and thereby need to be tangled in a different way. Horst Rittel, a pioneer theorist of design and planning, proposed the concept of “wicked problems”, that have incomplete, contradictory and changing requirements; and solutions to them are often difficult to recognize as such because of complex interdependencies. (Rittel & Webber 1973)

My project is based upon problems whose solution requires large groups of individuals to change their mindsets and behaviors and is therefore likely to be of a wicked problem nature. To narrow down and defining the project in a more explicit way I named some selected features as the goal and by having this something to strive for helped framing the area to explore. Obstacles and dead-end-streets was partly tangled by SWOT-analysis, which is a strategic planning tool used to evaluate the Strengths, Weaknesses, Opportunities, and Threats (Österlin 2003:108).
3.2 Critical Design
Normally, design leads to proposals for new products and its results as such are not applied in any other way. “Design is the ability to imagine that-which-does-not-yet-exist, to make it appear in concrete form as a new, purposeful addition to the real world.” (Nelson & Stolterman 2002:10). Furthermore, since “design concerns itself with the meanings artifacts can acquire by their users” (Krippendorff 1995). According to this meaning is therefore not something fixed but is constructed in the relation between artifact and its user.

This project takes design further inspired by the more exploratory approach that design can take, within the area of critical design. Some of the designers working with critical design are Dunne and Raby who define the approach as being “design that asks carefully crafted questions and makes us think” with the objective on creating discussion and thereby knowledge (Dunne & Raby 2001). Critical design is often of a provocative and challenging nature, with the purpose to stimulate discussion and debate amongst designers, industry and the public. An informative approach, that aims to create artifacts that display and hopefully encourage the viewers to reflect and make them question what they take for granted.

Instead of working with specific materials and measurements I have looked for ways to display my message through an artifact in use.

3.3 ‘Can-do’ Approach
Applying Thackara’s ‘Can-do’ approach (Thackara 2008 a) onto my work opened up for a positive view on the problem. Since earlier experiences say that it is easier to find motivation when you get a taste of the carrot rather than the whip, it was worth trying. This approach which was mentioned in his work with Dott 07 (Designs of the time 2007) launched the railway age – but the Dott 07 project had another objective: designing people back into centre stage. This project has a user-centered orientation, and aim for the creation of meaning and reflection that the artifact-user relation can inspire in their approach to sustainability.

3.4 Sketching
Sketching pose as one of the core methods in a designerly process and has been applied throughout the whole project. Sketches; to find ideas, to get ideas of the mind, to visualize something complex into something more graspable, to discuss my ideas with others and to document the entire process.

3.5 Creativity
Creativity as a tool usually nurtures a design process. To find creativity it can be useful to have a drive/curiosity to learn new things, start questioning things and have a strive to break rules. (Edeholt 2007) This has been one important engine in my process.
3.6 Research
The research involved a critical scan of today’s sustainable discourse from a design perspective. The perspective that I refer to, that differs from having a natural science perspective, is the concern with how things ought-to-be and thereby focusing on future potentials. (Edenholt 2007)

Christopher Frayling, rector of Royal College of Art in London, differs between research with capital R and small r in one of his research papers (Frayling 1993), where R stands for basic research and r stands for applied research. Having this view in mind the research part of the project focused on research with r. Secondary research with the main intention to gather various kind of data in the area of investigation using different techniques. (Patel & Davidson 2003:12-13) My research focused on using knowledge that is already produced, not to originate any basic research producing new knowledge.

To augment knowledge and insight in sustainable design and how it can be achieved I searched for critical factors of products and its stakeholders. I did this by scanning the sustainable discourse and their links in this complex system by looking from a wide perspective and to be open-minded, concerning everything from reading, watching a movie or walking through the food store. All different kinds of sources for inspiration have been welcomed, since everything and nothing can be inspiring. This inspired me to take an active part in both the design discourse and the discourse concerning sustainability. Attending to the seminar days at Konstfack dealing with design and consumption (8-9 January 2008) and the Furniture Fair in Stockholm (9 February 2008) are examples of sources for inspiration.

3.7 How to Communicate?
Krippendorff’s approach to communication means that the designer creates and the user acts on something received: the designer creates an artifact, which embodies the designer’s objectified meaning as form. The user acts on the artifact and tries to make sense of its form, thus trying to construct meaning. (Krippendorff 2006:77) The original communication theory means that a message is transmitted from the communicator to the receiver through the channel. (Fiske 2001) The messages are cultural texts; manifestations like pictures, things and language etc. that can be read. These texts are signs, since everything that we can read consists of signs, are bearers of meaning that through denotation (What we see? How we see it?) and connotation (What we interpret? How we interpret it?) can come to mean something to us. (Stam 2007) One complication by using methods for culture studies is that they tend to focus on groups of people in the society. By adding Krippendorff’s approach to the original one in the design process the purpose was to involve different peoples interpretations and production of meaning through interaction, seeing groups of people as a bunch of individuals.
3.8 Second-Order Understanding
A theory of meaning for artifacts in use by others has to be embedded in second-order understanding. Artifacts are not entirely stable entities, their meanings change with use. To get a grip on how stakeholders understand their worlds and how they gain knowledge there is a need of second-order understanding, “there is the world that a designer understands first hand, and there are the many worlds that stakeholders understand... Each is positioned in his or her own understanding; the designer in the designer’s world, the client in the client’s world, the ecologist in the ecologist’s world, and the user in the user’s world. Design semantics crosses these worlds by relating the artifacts as seen by designers to the same artifacts as interacted with and described by their stakeholder.” (Krippendorff 2006:66-67) This means that second-order understanding treats humans not as mechanisms but as knowledge producing agents and cannot presume commonalities and single truths. It is based on a dialogical nature since meanings held by others cannot be observed. This perspective needs to be considered while creating my artifact, since I have had the intention of catalyzing the meaning of sustainable growth.

3.9 Documentations & Guidance of Process
A weekly diary, continually producing and saving sketches, and Post-its helped me keep on track and noting down experiences and reflections. The methodology of zooming in and out was used frequently since it is so easy to be blindfolded by your own work and thoughts.

Tutoring and feedback has mainly been together with Bo Westerlund. To get a more widespread and fresh look upon the project the industrial designer Marie-Louise Gustafsson and the management consultant Per-Key Björcke was asked to interject with their comments and opinions. The main reason for this is because it enriches the work with the importance of having peoples different interpretations, which goes together with Krippendorff’s approach of communication, and make use of other people’s knowledge and view on the project.
4 Activities & Results

This section outlines the actions and results that the project inspired to. Design projects usually do not follow a straight line, but take jumps when you least suspect it and can take you into other possible ways, based upon decision makings all along the process. This section is an attempt to sort this projects jumps out and to guide you to the design proposal.

4.1 Research Coma

The point of departure for the project was to gather information and keep updated in the discourse of sustainability and design. With no specific goal other than creating a critical design discourse about sustainable design, this extensive and popular area to work within soon made the research process huge and beyond reach. I was stuck in a major research coma. The result was a heavy mind loaded with various thoughts and reflections, though very interesting. I had reached a point where I needed to start producing things, by visualizing and writing my thoughts down enabled me to move on and welcome new and fresh ideas into the system.

While presenting the sketches to Bo at the next tutoring it became quite explicit that when you communicate with pictures it inspires and encourage discussions more easily than of just talking out of the mind and in words. The comments and reflections told me to push and continue the process forward. Having all the sketches spread out on the floor made it easier to categorize them according to issues and give them a deeper analyze in the search for common areas.

Fig 1. Sketches - Creativity Challenge
4.2 Positive Circular Flow

The next obstacle to tangle was the getting-sick-and-tired-of-the-project one. Overwhelmed by comments from people around, made me begin to question myself. Why did I have to choose to work with issues as complicated as such? This questioning though made me more skeptical to the project, since it made me focus on a negative feeling around my work and the issue. The result of this negative spiral was not especially encouraging and a nurturing way to find creativity, the need of zooming out was knocking on the door. So, instead I started to pose questions like; What do I want to achieve with this project? What footprints do I want to leave behind me with this project? What is the aim for this?

While answering these questions I started to see the things that first made me want to explore the area of interest at first. Thinking about the definitions and meaning of the word sustainability I saw the positive part of the concept again. As a designer my aim is to propose possible futures, and when I do I can’t see any other way than of taking the sustainable way. Meeting the dilemma of creating products to this world the urge to know more about this and how to use it in my future career arose. This part involved naming (see section 3.1 Problem Framing) the project goal.

4.3 Zooming Out

By looking back on things produced at an early stage of the design process gave me new inputs and other perspectives on the project. Screening sketches, old and new, showed on the big scope of diverse ideas that could be traced under the process. From the idea of visualizing how we can create our own fuel (ethanol) by using the same process that many people in the north of Sweden does for creating their own hooch. But with a twist of using clothes and other textile fibers to produce the raw material (starch) needed for the process. I wanted to criticize the way that media has come to point out ethanol cars as a big environmental threat, showing that it is not the fuel in itself that raise these complications but the way it is produced and transported.

Fig 2. Sketch - Cotton Fuel
Another idea was picked up from the principle of energy, the law about energy preservation; that energy can’t be created or extinguished, only transformed. Playing with this law I visualized the future gym where you convert the energy used during your exercise and preserve it for future needs. For example to reduce your energy bill or to charge your MP3-player. From these two examples I could bring forward the idea of creating a positive circular flow in mind. This was a fruitful act to do since it helped me to frame (see section 3.1) the project goal by searching for common areas, needling down and finding the core issues to bring forward.

4.4 Creativity Challenge
Creativity as an approach needs to be nurtured and treated in the right way to occur. You need to feed it with nutrition’s like; curiosity, a strive to break rules, looking from different perspectives and it can many times be useful to tangle and break your own borders. My sketch work tended to be too focused around the act of sketching, which caught me into one specific thought. A new sketch approach was up for test, where the sketching stage would be more concerned by producing a big quantity of sketches rather than precise ones. By doing this I got more free and produced right on top of mind. With the focus on producing 50 sketches in 1 hour I needed to break my sketching border and let everything out, everything from nonsense to actually quite bright ideas. This flow of creativity took me into the area of product identities.
4.5 Identities for Sale
The fact, that we nowadays more or less buy and display our identities through our material supply, can be used when analyzing our products’ identities. “Postmodern theorists, like Pierre Bourdieu, Jean Bourdillard and Mary Douglas has shown that consumption has come to deal with marking out an identity... Through our consumption we have the possibility to choose our identity.” (Bjärvall 2007:24) If we construct our identities through the products we possess, by seeing this as a circle means that we also construct the identities of the products through our purchases. Scanning through David Report issue #8 (Carlson 2007) gave some reflections on consumption; “It would be simplistic to think that we can discard consumption completely, but, we do have the opportunity to, through our consumption and our choices, create a better world (one mustn’t forget that the power of the consumer is enormous). It’s all about WHAT we buy and WHAT we choose to invest in, the world we live in will be the result of those choices.” The products that the market is willing to pay for are most likely the ones that will survive, following the theory and tracks of market and demand.

4.5.1 Evolution Theory
From the animal world we have been taught Darwins theories about ‘Natural Selection’, a process by which favorable heritable traits become more common in successive generations of a population of reproducing organisms, and unfavorable heritable traits become less common. (Stauffer 1975) In the natural world it is Mother Nature that designs and drives the selection among the species. Moving to the world of culture, one simplistic view on the differences between nature and culture is that the world of culture is designed by the human kind. “Everything that is an artificial artifact has indeed been designed. In other words, everything that is not ‘natural’ is designed.” (Carlson 2007) Having this view on the product flora you can translate Darwin’s theory of ‘Natural selection of the animal species’ into ‘Human selection of the product flora’.

4.5.2 FLOW Market
“Every time you spend your money, you’re casting a vote for the kind of world you want.” Quote stated by Anna Lappe that I picked up from the FLOW market exhibition in Copenhagen, which is a shop designed to inspire consumers to think, live and consume more holistic. The core of the FLOW market is the scarcity goods collection where present imbalances have been addressed and transformed into physical products. The products are in the shape of aesthetically designed (empty) packages that the consumers can buy. (Hagstroem 2007)
This exhibition and the act of buying empty packages made me question consumption and its powerful forces. I saw a possible outcome with my project by showing the crucial act of spending our money and how it affects the earth’s future situation. Trying to point out the essence of having a conscious consumption and displaying that we purchase the identities of our products. This approach was translated into the Swedish saying ‘as you sow you shall harvest’ and was visualized by buying seeds (products), planting them in a pot, feeding them with nutrients (like sun, water, fertilizers) and the harvest is what you get and displays your choice of future.

4.6 Road Junction
Welcoming other peoples’ opinions and reflecting on their comments gave worthwhile insights. Discussing my work with the industrial designer Marie-Louise Gustafsson derived the fact that my message will probably be stronger if the audience can be a part and interact with the exhibition. By adding sounds and scents to the visual can be forceful tools, making the audiences perception of the message stronger. Meeting with the design manager Per-Key Björcke opened up for other reflections upon my work. My focus on the act of buying was brought up and discussed and Per-Key pointed out that the purchase in itself certainly contributes on a products’ environmental footprint, but he adverted that it is important to understand that there are many other factors that play a critical role in this, like the ones affected by its stakeholders when in use. And that it might be good to show the possibilities rather than displaying that you have to blame yourself.
4.7 Complex Issues Need Complex Answers

So, unfortunately it is not as simple just to ban the non-sustainable buyer, there’s a need to look at the bigger picture realizing that a great deal of our products cause the settling footprint, together with their stakeholder when in use. Since the project is aiming to create a learning atmosphere and alongside my increased understanding, I was convinced that the result should visualize the complexity that sustainable design beholds. This is one of the critical insights that the project has enlightened me with. New tips and discoveries are steadily stirring around in the discourse of sustainability. With the aim to acknowledge that stakeholders behold a vital role in defining if a product is sustainable or not, the artifact should display that we can affect the sustainable development by doing the right choices. And to be able to do the right choice we need to gain knowledge in the complex world of sustainability.

4.7.1 Ecological Footprints

Arpad Horvath, Ph. D. Associate Professor University of California, means that “we need a paradigm shift for our built environment: sustainable development... We are rapidly realizing what an enormous ecological footprint that the built environments in our societies are causing. The new paradigm is: The future needs to be based on the principles of sustainability.” (Horvath 2008) Thackara’s recent work focuses on how we can reach sustainability by design. “Design plays a critical role on products environmental footprints due to the fact that design decisions shape the processes behind the products we use, the materials and energy required to make them, the ways we operate them on a daily basis, and what happens to them when we no longer need them.” (Thackara 2006, 2008 a)

4.7.2 Sustainable by Design

‘In the Bubble’ conveys that “it sometimes turns out to be better to use materials that have a high environmental load per kilogram to manufacture, if it means energy use can be reduced during their life of operation. This is particularly true in transport equipment, in which less weight means less fuel consumption... Most products could be recycled, but only a few will be, because only products that are easy to disassembly and yield a decent return when one does so will be chosen for recycling.” (Thackara 2006) By taking in all these factors I realized that I could not come up with one simple way to cover this complex field. Since it is affected by multidisciplinary question formulations, without any absolutistic answer or solution to it. What I should do is to show that the sustainable way is not to choose the easiest of ways and that it needs to be looked upon from a broad perspective. The question now was how to create meaning of this to the user through an artifact in use?
4.8 The Sustainable Game - Hint Prints

The following work was to translate my reflections and research into a provocative activity. With the context in mind and the aim of using the exhibition as a space for learning where the audience should be able to interact with the artifact, a more focused (framed) work could begin. How could I use the space for the audience to interact with the artifact, reflect, learn and enjoy themselves all at the same time? By looking to the discourse of games I found some useful things.

“Playing a game means making choices and taking actions... Every action taken results in the creation of new meaning within the overall system of the game... Meaningful play in a game emerges from the relationship between player action and system outcome; it is the process by which a player takes action within the designed system of a game and the system responds to the action. The meaning of an action in a game resides in the relationship between action and outcome.” (Salen & Zimmerman 2004:33-34)

4.8.1 Rules of Play

In the world of games we are taught to follow the rules of play and we are willing to accept certain rules just because we play a part of the game. Games usually involve a struggle that evoke a strive to win. This is one factor that made me create a game and also because it could spire a positive connotation to the work toward sustainability. Since the nature of games usually involve an act for fun and can hopefully function as a neutral learning platform.

4.8.2 SWOT-Analysis

I started to develop a few games and due to the pressed timetable I needed to make a quick decision. A SWOT-analysis pointed on the fruitful parts of using a known game platform compared to introducing a new kind of game. Mainly because it can save time and instead put a spotlight on the message of the game. It also enabled me to develop a working game system into my own game. The rules of play are inspired by the classic dice game of Yatzee, with its simple rules and that consists of materials that are easily found, reusable and recyclable.

The game implicates the players to take a product through its lifecycle and load it with critical activities (settling factors for a products impacts on a sustainable development or not) that it is exposed to during its lifetime. The game protocol is divided into two parts that represent the time before and after market, the design phase and the user phase. You can play with products that most of us find self-evident and that pose as a natural part in our daily lives, like a t-shirt, a mobile phone or for those who want to try other gadgets there is the general version of categories. At every game set the player have 3 dice throws and the result should be noted in the protocol and translated to the matching act in the list of categories found in the game folder.
4.8.3 Ecological Footprints

One of the messages of the game is to display that my role as a designer combined with the acts of its stakeholders will affect the ecological footprint of my product. The World Wildlife Fund calculates that mankind’s ecological footprints are already 1.2 earths. (World Wildlife Fund 2008)
In the world of semiotics the footprint belongs to the index group of signs, indicating that most probably a human being has been there. Using the visual metaphor of a footprint probably will enhance my message that human beings play an important part in the work toward sustainability. The total score that you managed to get is translated in how you influenced on the products ecological footprint during its lifetime. If you have succeeded to bring your product through its lifecycle and get a high score, will result in a light footprint. The not so lucky ones that did not manage to get a high score, will end up with a heavy print as a result. This result stand behind the name of the game, Hint Prints, that you should get a hint by your print. By actually creating all the players’ prints on a world map in the exhibition the intention is to create a stronger link between the individual actions and being a part in the bigger picture.

4.8.4 Play it - Don’t just say it!
The slogan or the motto for the game is; Play it - Don’t just say it! Based upon reflections on our approach to sustainability. “It is hard to remain unaware. Unaware of what we do to our planet and how we can come to damage it. But there is a gap between the knowledge and the constructive motions.” (SVT production 2006 - Part 4) We need sustainable actions rather than sustainable utterings. Though the game involves actions like throwing, saving dice and selecting categories I wanted to give the players a chance to prevent the worst case scenarios, by trading plants for an extra throw. Metaphorically this can be looked upon the act that plants actually represents while taking care of the carbon dioxide that we keep on pumping out. With the aim to inspire to sustainable actions I wanted to make the game easy accessible for everyone, even for those not attending the exhibition, by offering free download of the game on the website: www.werdler.se/game.

Fig 8. Picture - Hint Prints
5 Discussion

Today sustainable design has a given role in the design discourse. To create something original in this field of design proved to be quite a challenge. Entering the project colored by the dilemma of producing new things in an already gadget loaded world shaped the project in the tracks of critical design, with the aim to catalyze a critical discourse to sustainable design. Scanning through the discourse of sustainability soon trapped me into discussing inessentials and by raising my gaze made me realize this areas complexity. The project has been an attempt to visualize the complexity around sustainable development and how many crucial factors that needs to be navigated among, from the designer, the producer, the consumer and the user when defining a sustainable product.

My choice of having a positive and ‘Can-do’ approach for the project appeared to be a fruitful point of departure. Since: when you are exposed by too much negative information, it can spire your anguish and make your defense mechanisms strike. They also pose as our body’s survival mechanisms and protect the human species from drowning in anguish. (SVT production 2006 - Part 4) Working with scare tactics in my case would not be the best way to tangle questions concerning sustainability; the news flow already covers that part. To treat people as individuals, who all can contribute with something in the work toward sustainability, rather than a group my aim was to reach out on a more personal than a general level. The human intrinsic ability to both good and bad, like the character Dr. Jekyll and Mr. Hyde, do also play a critical role to our sustainable actions. With the aim to construct discussions and make people question their own habits the most logical way was to use the notion that people usually run for the information that is perceived to be more positive. Secondly, we tend to suppress frightening information that is hard to cope with. By using the rules of play to mediate the complexity of sustainability will hopefully pose as a neutral and inviting platform.

Due to the fact that sustainability is affected by multidisciplinary question formulations, without one absolutistic answer, the result of the work pointed out the positive part of having a critical design approach. It challenged me to take in a wide variety of inputs and have a critical way to tangle it, with the focus on questioning issues rather than producing a solution to the problem. This inspired me to look further and welcoming the complexities and forced me to continue my process when creating a design proposal.
My intentions was to create a material for debate not a possible solution to sustainability. So, instead of opposing the complexities I combined the bits and pieces into something whole, that together with the audiences’ actions becomes complete. If I can’t change, only inspire, other people to act sustainably I need to create an artifact that inspires to sustainable growth. The context for dissemination has therefore shaped the process, with the aim of creating reflections rather than ready-made packages. I provide the material and the user (player) act as the designer that make use of the material to create something out of it, hopefully a portion of meaning.

Krippendorff’s approach to communication which means that the user acts upon the artifact to be able to produce meaning, shows that the interface of my artifact, the game, is one critical design problem. Dealing with the users as individuals rather than a group of people, by letting them interact with the artifact as individual players creating their own ecological footprints, I hope to to put a spotlight on the importance to realize that our individual actions are the critical link to sustainable growth.

One of the reasons why I decided to make use of a classic dice game like Yatzee where the game platform is easy and might be familiar for some of the visitors and could therefore put a spotlight on the message of the game instead. Inspired by already known rules of play also meant that I already knew the system of play and its outcome and instead I could advance in my game development. focusing on how to twist and turn the system so that the outcome reflected and navigated within the term sustainability.

The intention with ‘Hint Prints’ is to pose as an artifact that inspires to sustainable growth, pointing out that we need actions rather than utterings. How it will turn out is left for the ultimate test that the context for the dissemination and that the future stands for. The production process between the artifact and me has moved on to the one between the artifact and its user. Since I have realized that even though I produce a 100% sustainable product when reaching the market it can turn out to be a ecological nightmare together with its stakeholder when in use, or the other way around. The sustainable way need to be the easy way to act with my products. The game can and should be played and thereby function as a producer of actions that the players are exposed to, resulting in specific consequences, and hopefully they will bring the sustainable ones with them.

I will finish this project with the significant insight I will pack my backpack with the notion that my role as a product designer determines a great part of a product’s impact on the environment and that designing for sustainability will become a given part of my design process. But alongside this I will always remember that even though I provide sustainable products there is a need for sustainable stakeholders. We need to look through the lens of humanity trying to define a sustainable product. And thereby always have a strive to make the sustainable actions as the only possible action. It is time for the sustainability to become inclusive rather than exclusive.
6 Conclusions

Stirring around in the area of sustainable design trying to create a critical discourse, using the artifact and the context for dissemination as mediators, constitute the core of my project. The dilemma of being a product designer in an already gadget loaded world evoked an inner urge to gain knowledge about sustainability. A complex area to study with no absolutistic answer says a lot about my process, which kept on hinting the need of having a holistic approach to this. I came to realize that even if I would lay down all my effort creating a sustainable product, my products ecological footprint can in relation with its stakeholders take another shape and become an environmental enemy when lying on its deathbed. This inspired me to create the material for reflections and not to use material to fulfill a new commercial need. I created ‘Hint Prints’, a game with the mission to function as a catalyst of sustainable growth, hinting the importance of having a holistic approach to products. By letting the visitors take an active part in the exhibition by playing the game, my dearest hope is that it can spire reflections and inspire to develop our utterings into actions. One thing that I will take with me in my future work is the aim of working for sustainability to become an integrated part of any design.

I will end this thesis with something worth reflecting about, picked up from the FLOW market:

“Imagine that your thoughts create your words, your words create your beliefs, your beliefs create your choices, your choices create your actions and your actions create your world.” (Hagstroem 2007)
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