

FROM JUNK TO TOY

- a sustainable way of playing

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ABSTRACT

Play is a fundamental activity for children and is playing a vital role in their development. During this process, toys are important props for them. With their children's best interests at heart, parents are buying their children new toys restlessly. However on the other hand, with every new toy being produced the environment would have to suffer more from energy-exploitation. Looking from both children and environment's perspective, is there a more sustainable way of playing that could satisfy both parties? From junk to toy is a project and study built to raise awareness of sustainability in children's world and at the same time fulfills children's playing needs. It aims to get children playing more with household recycling and get their imagination and creativity triggered during the process. Both research and hands-on experiments have been employed as methods to achieve the goal. The results became thoughts concerning food packaging design which has an intended after use as part of the primary objectives, encouraging children to play with food packaging as well as introducing sustainability subtly to people.

key words: children sustainability play creativity play signal affordance

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1. INTRODUCTION

1.1 Background

Prior to the beginning of my exam project the spring semester 2011/2012, I came across a product that inspired me to focus on the theme of sustainability in children's toys. The product is called Sugru, which is an air-curing rubber that could be shaped by hand and stick to almost any materials, making it convenient to adjust their belongings personally to their own use or fix broken things. Saving people the trouble and money of having to buy new things when what they have is (they are) fixable. I liked the idea, and this also made me think, could this kind of "play with what you have, not buying new things" thinking be used in children's products?

During my studies at Child Culture Design I learned that play was a fundamental activity for children and is thus playing a vital role in their development. From children's perspective, toys are important props for them to learn about themselves and the society and are, during this process, supporting the play. However, if looking at it from environment's perspective, it costs energy to make all the toys for children, and is it necessary to always buy new toys? Because even though many children's products are in general physically durable, lots of them are thrown away before they finish their life cycle. This is not good news (remove) for the environment because of all the energy and resources used to produce them. It is reported that 90% resources taken out of the ground today become waste within only three months. Why is that? I sometimes wonder if it is because of children having too many toys already in today's society so that they don't seem to cherish them as much as the older generations. Or that children are not enjoying the toys because of the fact that the toys are usually made by adults and thus lack the perspectives of children. While nowadays people are talking about sustainability more than any time before, could I find a new way of playing without consuming extra?

We live in a material world, but not all problems have to be solved only by buying another new item. Is there an alternative way to "throwaway society"? In reaction to consumerism, I was searching for a way of more sustainable play for children. I believe play should be free, both in the form of playing and that it should not cost extra money. Looking into the history of toys, children of all times have always played with toys/playthings, yet they didn't have the toy market we have today. They have been crafting, and making their own toys. Why not let the children to make their own playthings? When it comes to intuitiveness in play, (that -remove) young children usually find boxes just as

interesting, if not more, than the objects inside. Can children re-experience the fun and joy of playing with boxes? As household recycling is easily obtained material in each family, how about equipping children appropriate tools or instructions so they could manipulate recycled material that allow spontaneous creativity and joy? Toys made by children themselves are fun as well as a platform for self-expression and communication of their thoughts. What's more, that it only costs kidspower and not energy. So with the two end users in mind, both children and the environment, I wanted to encourage children to play with household recycling, creating their own playthings out of it and getting their imagination and creativity stimulated. Thus gaining several benefits for both children and the environment.

1.2 Purpose

My purpose of this project was to learn more about designing from children's perspective as well as an environmental point of view. As I believe a designer's job is not merely to make more products available at the market for people to buy, but defining and solving problems. Sustainability was a popular topic at the moment and is closely related to our survival and well-being in the big picture. It would be my responsibility as a designer to address this issue within the field of designing for children and I wanted to find a solution that fulfills both children's play value and the environment's needs. By doing my exam project I hoped that it would introduce sustainability into children's world, thereby using design to change behaviours to the better.

Another purpose was that I wanted to learn more about projects with a logical research process since I think a more systemic answer about how and why things are linked to each other is lying behind the research. I hoped to make a better sense of cause and effect and also to inspire myself in my future working life.

1.3 Aim

I wanted children to enjoy playing without spending too much money on buying ready-made toys. Instead, I was aiming to promote temporary play by teaching them to enjoy self-making playthings out of recycled material, in their home environment. This way, the burdens added to the environment would also be somewhat relieved.

This was to be achieved by providing them the opportunity and to encourage them to create toys themselves. At the same time children would benefit from this activity, for example having their imagination and creativity triggered as well as hands-on ability developed. I also wanted to bring sustainability to children's

world and let them realize that playing with junk could be a lot of fun. The target group is children aged 3 and above, from the toddlers who are exercising their skills through every activity they encounter in daily life to school-aged children who are able to form their own thinking and decide for themselves.

1.4 Expected results

The expected results would be a form of controls or recipe, to give children possibilities and inspiration to create their own playful objects by using easy-accessible materials such as household recycling. The control form I thought of from beginning would be a toolkit or toy accessory, a method or blueprint provided for children so that they would learn to make their own toys and experiment.

1.5 Problem formulations

- What hinders children from making their own playthings without giving them any kind of controls?
- Is the ability of children to make/hack their own toys or the sustainability meaning the more important factor in this project?
- Does the product teach sustainability or is it sustainable in itself?
- The main purpose was to get children more hands-on by making toys themselves, but can I include handicapped users? How will parents/teachers be involved in the playing experience?
- To encourage children to play with nature things, should they be given man-made tools or natural tools you find in the environment?
- To what extent should I intervene as a designer? What is being designed? How to position the project between crafts and self-creating toys?
- What is the key element to differ the self-making process from arts and crafts practices?
- How much control am I going to put on the product? More open-ended play or more controlled instructive play?

1.6 Delimitations

I was not planning to make a ready-made toy or furniture for children, or invent a new material, because I wanted to enable users to create things based on my guidelines and their own imagination. A hand book was not my intention either, for I wanted to emphasise self-creating ability of children, and to differ it from the usual "how to make a ..." guide.

2. IMPLEMENTATION

2.1 Toy research

2.1.1 Challenges and opportunities in designing toys

Quick replacement of toys has caused many old toys to get discarded despite their decent condition, thus have been a big threat to a prospect sustainable toy market. To understand this and to avoid myself making toys falling into the same circle, I started out exploring the reasons why children would get tired a certain toy very soon. Literature along with survey and interviews with children and their parents was the source of the information, analysis about toy section on second-hand stores also contributed to the data collection.

Facts I have collected were:

failed relationships lacking empathy
"earth provide enough to satisfy every man's need, but not every man's greed"
rough to toys
design is out of fashion
planned obsolescence
need of fresh experience
spontaneous act of consuming
Inappropriate due to changed circumstances

The above statements and facts could be sorted into three different categories, which were three big challenges for making toys sustainable. They were:

- weak emotional link between children and toys
- wrong attitude
- short term desire

Apart from that, there was also a big opportunity which was children's passion to create. As they usually liked to challenge constraints, preferred to make their play different at every time when they explored, and the fact that 69% children from my sample enjoyed creative toys that they needed to think and use their hands.

2.1.2 Toy market research

Then I investigated in the toys that were related to my project on the market, in both how they were engaging in environmental matters and how they encouraged children to self-create toys. In which usually the creating process is considered playing process too. Those products didn't have to have environmental and self-making as their own selling point, but just products that I found equivalent to my studies in a way or another. I found that there were quite a few varieties which I have categorized them as follows:

- Construction sets

Of many kinds of toys, construction toys were enjoyed by children of all ages. Even though they were not often made of sustainable materials, but the fact that people liked their play experience enough to play it over and over, as well as cherishing the playing memory to keep the toys to pass them on to the next generation, making it sustainable over time.

Advantage: enjoyed by lots of people and for a long time

Drawback: usually made of plastics

- Educational science kit

The educational science kits usually features a selection of toy parts that children will put up together according to the instructions in the handbook attached. This type of toy makers have the environmental thinking therefore some household recycling should be prepared by user him/herself to be able to complete the set. An example of the needed item is plastic bottles or cardboard.

There were also kits that taught about sustainability and new energy such as solar power, but to play with it, they had to produce lots of plastic parts which in itself were not a sustainable act.

Advantage: teaching children one or more skills and encouraging hands-on experiments, sustainability mind

Drawback: can only be used in one way, lacking flexibility, not sustainability acting

- Craft-making

While craft-making activity was supported usually either by teacher or parents, guiding and supervising children of the activity with a clear theme. Children would follow the instructions from their seniors. For example, crafts on toilet paper rolls was a favourite among crafting childrens family. Parents would show their children how to draw faces on them, and children would then follow the

example.

Advantage: parent-child spending time together,

Drawback: too instructive, and lacking flexibility, parents needed to find attractive themes constantly

- Free play toolkit

The fourth of the toy contains toolkit for children to play with, this usually means considerably large open-ended play for children without too many instructions. An example of this kind of toy was Makedo, a set of connectors for children to bind recycling materials together.

Advantage: flexible and sustainable, open-ended

Drawback: user need to be more skilled to enjoy this

As all four kinds of toys allowed offered different level of open-ended play, a new question generated. How much control should I give to my product?

The more defined, the less flexibility in it.

The more open, the higher level of skill required.

Besides the above mentioned types, there were also some other products. Such as equipment that eases recycling process to make it even fun to recycle, as well as classical toy kitchen that was made in cardboard, less material use than the traditional ones and making it easy to store away when not playing with it. But apart from that they did not appear to have much to do with this project focusing on self-making play, so I did not go deeper with that.

2.2 Material research

To learn about what kinds of materials are easily-accessible for children to play with, household recycling information was collected to see what the potential materials were to be used in the project. This was conducted through deeper interviews with families with children as well as my own collection of household recycling throughout the period of the exam project.

The common household recycling materials that could be employed in children's creative play were:

- Corrugated cardboard

- Cardboard

- Paperboard

- PET bottle

- Other plastics

- Glass bottle
- Plastic bottle
- Metal can
- Cork

There were two other findings that caught my attention.

Even though corrugated cardboard had excellent quantities for making do things, I found it not as convenient to obtain, as usually it only comes with large pieces of electronics or furniture which is not very often happening comparing to the food packages that was ubiquitous in households.

Research were also done about recycling materials in terms of what would happen to them after being recycled. The conclusion was that they would never keep the form they were in before the industrial recycling process. As most of the plastic and glass recycling would be melted down, while paper recycling would be crushed. The fact that recycling materials shape was not important made perfect sense that children could always make fun with it, cut open, tear down, and the recycling material would still be recycled later.

2.3 User search

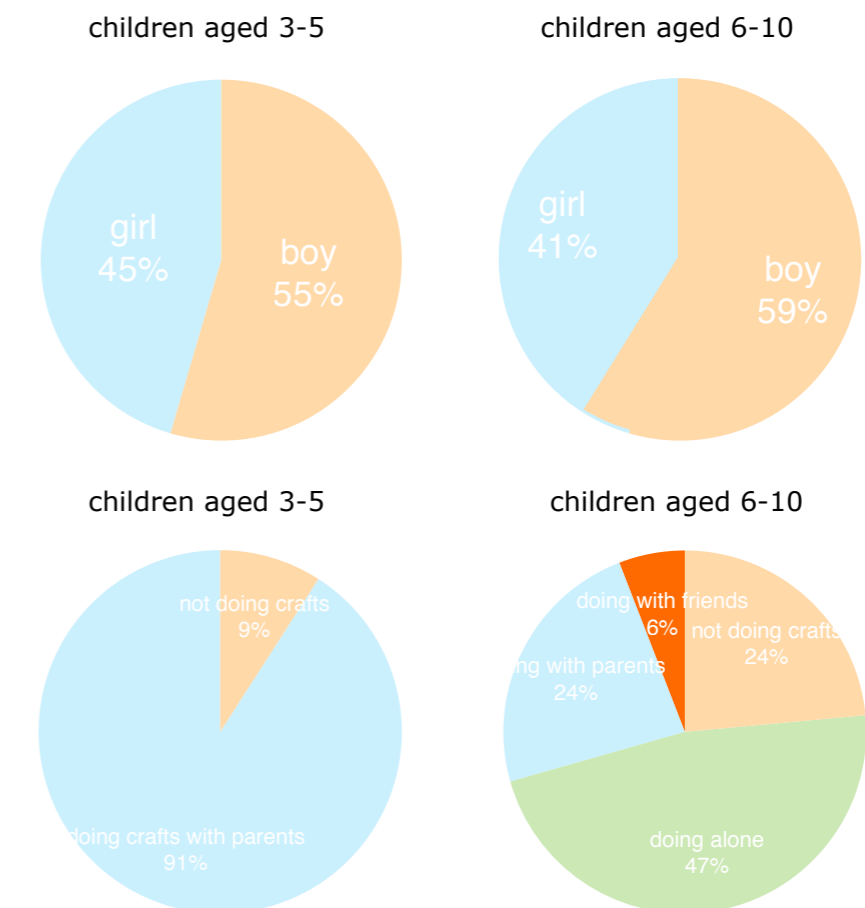
As I wanted to find a solution to fulfill both childrens play and environments condition, I have lined environmental destruction as my end user from the beginning along with children. Both had their own needs, demands and limitation.

My primary target group was children who were 3 years old to 10 years old and their parents. While my secondary target group was children older than 10 years who are quite skilled. Since I wanted children to be inspired and make toys of their own, I did a survey about their craft making and their attitudes towards sustainability. The analyzed information has given me certain conclusions.

2.3.1 Children's craft making situation

Conducted in survey and deeper interviews with children and their parents in both their everyday occasion and when they were doing crafts work. A little bit surprised, I found it hard to track childrens crafting habits as it was a highly individual activity. Some children play with free stuff, some with bought stuff, some enjoyed playing alone, some enjoyed their parents' company, some preferred to follow their own ideas without being interfered, and some preferred when their parents were helping. And it differed a lot with age. But I managed to find some tendencies that I found interesting.

Among the smaller children (between 3 to 5 years old), all the children who did crafts work at home regularly did it with their parents, and many of them were working with recycling objects. While in the case of the older children (aged 6-10), out of all children who did crafts at home regularly, only a bit more than half were doing it with their parents. At the same time, the rate of children not doing crafts at home was declining. It was easy to understand when children were small, parents would spare more time with them, but as they grew older, crafts time with parents become less. And it seemed to affect children's interests in doing crafts at home. Some parents during the interview expressed that as the children grew older, it was harder for them to come up with interesting topics regularly to work with children. Because of the time limit and the length of the project, I didn't do a research in a bigger scale to see how much this affected the children's play exactly. But I then had another question, when the parents were not able to help their children with crafts work, how could I get the children interested? Or how could I get the adults more involved in the children's play?



2.3.2 Attitude towards sustainability

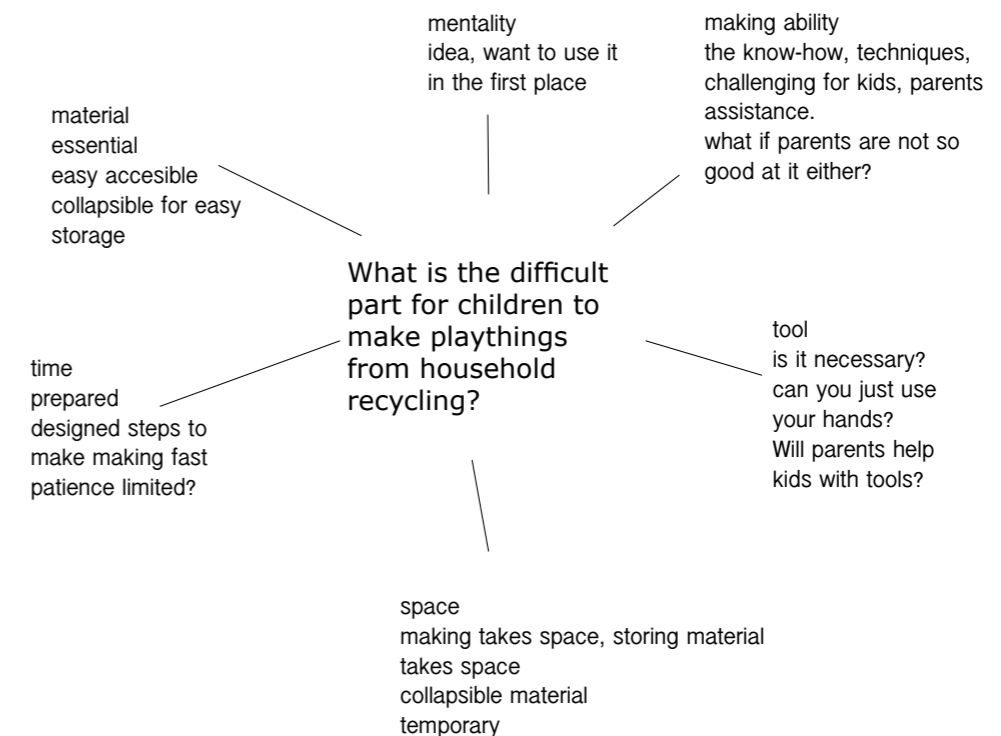
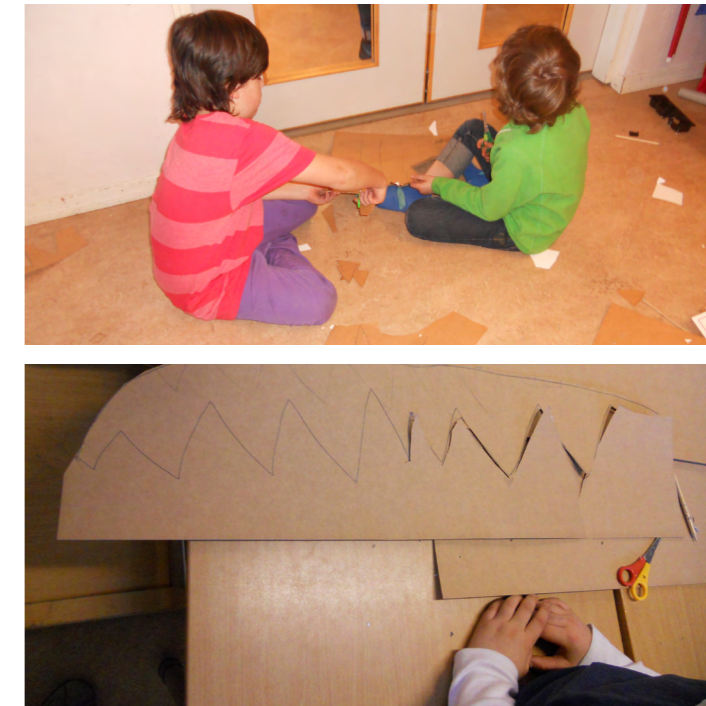
In my research about people's attitude towards sustainability, I found that people generally welcome sustainable products, but being green was not the only property they want to find in a product. In another word, they are willing to buy environmental concerned goods, but they will not sacrifice the primary quality for the sake of sustainability, when they deliver less and charge for more. Applying this to childrens products, the parents want to give their children sustainable toys, provided that the children will get equally much fun out of those toys.

On the other hand, children who don't understand too much about sustainability, will sometimes initial their interests in some less defined objects, showing their intuitiveness in for example bubblewrap or present ribbons and wrapping boxes as well as they tend to tear down electronics when they get older.

2.3.3 Workshop

In order to get first-hand information on how children play with recycling materials, I organized a workshop with a group of children aged 8 to 9. I got to participate in their playing/working process by playing together with them.

The project was to build a giant dragon using cardboard and other household recycling together. Upon learning about it one of the boys considered it a task rather than playing experience, and asked what he could play with after we've finished with it, it was obvious later that he enjoyed the making process very much. Even though the children were a bit puzzled what to do at first as they were expected to collaborate with each other, the creative flow became fluent soon and some of them showed good problem-solving ability as we found a good way of erecting the dragons back flakes.



I have also had a recycling workshop with children, to make a wallet out of milk packaging. This time it was more of an instructive session where children followed my example.



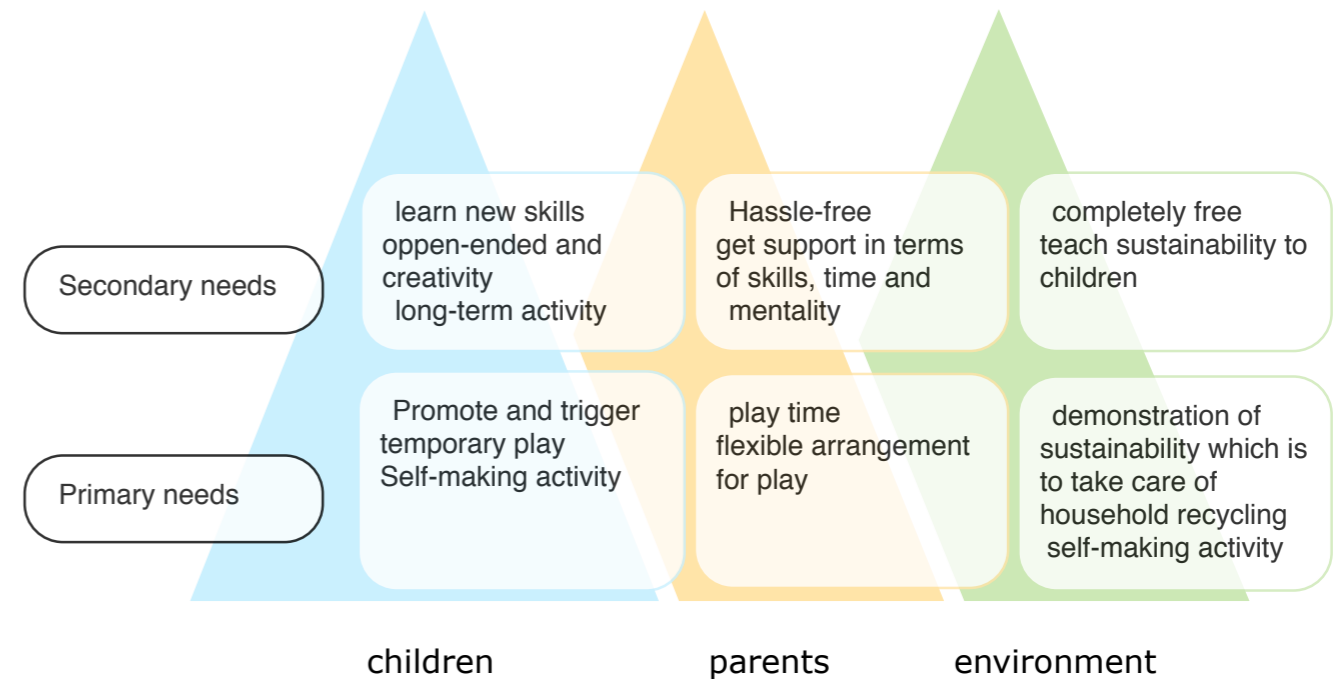
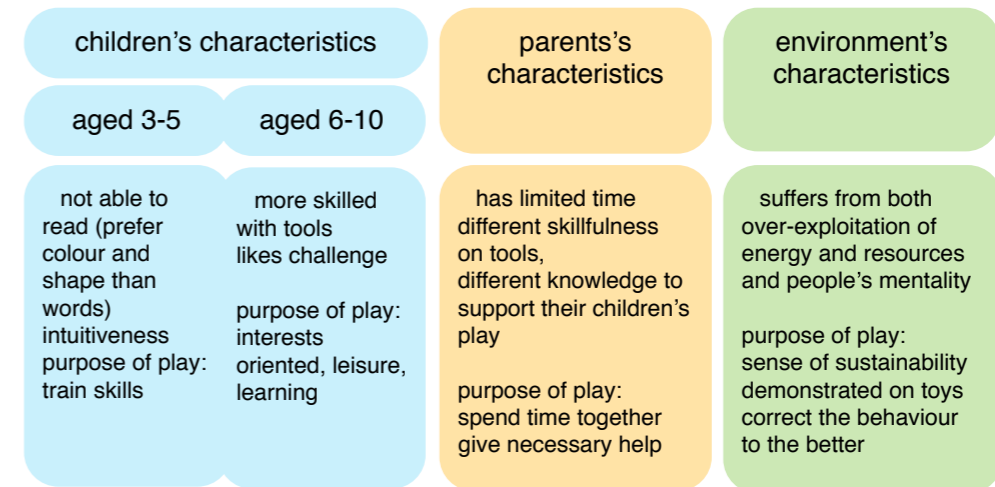
This way of joining children in their creative process, I could clearly observe their performance, assess their strong and weak points to help tackle the obstacles and examine their needs.

During the second workshop I have also and talked to children and their family. It seemed that children enjoyed this kind of workshop, but often parents found it hard to find an interesting theme to do together with children regularly.

2.3.4 Needs

There are all kinds of concerns from parents. For example, they did not enjoy cleaning up time, or they found it hard to get started (that was generating the idea), while others might worry they would interfere too much with their children's work.

Based on the knowledge and information I have collected before, I listed the characteristics of my end users before identifying their needs on two levels.



2.4 Brainstorming

Based on the information I have collected and problems I have defined I started solution brainstorming. During this process, I tried to answer the questions I posed before.

Is there an alternative way to "throwaway" society?

Solutions to the three challenges I have found before could answer the question.

- Weak emotional link between children and toys

The obvious solution was to make emotional durable toys. As it would be more meaningful for children with the added-on emotions, it would be more unlikely that children get tired of it soon, thus playing with it over and over again, making it long-standing. As many occasions people get attached to an object because of the sound emotions associated with it, whether it was an unforgettable memory using (playing) it or a gift from family and friends.

- Wrong attitude

This would be corrected by guidance and more precisely, a service design about the swapping of toys with other children/families, passing on outgrown toys to younger relatives or friends, giving them away to charity organisations or secondhand stores. This would give several benefits to children, teaching them about sympathy, learn about sharing, care for their belongings and not to own everything.

- Short term desire

It was a tricky challenge with sustainability in mind, that children would get bored of their toys soon. However, combined with the brief of my project, this is a perfect reason for children to learn to self-make their own playthings. Either crafts making, or reusing waste material would take any energy other than children's power.

2.5 Concept generating

I started conceptual process. I used a few keywords that I found interesting and especially paid attention to them during the idea generating period.

- temporary
- skale
- connecting
- constructive
- modular
- trigger

I had three concepts at this stage.

1. Amplifier

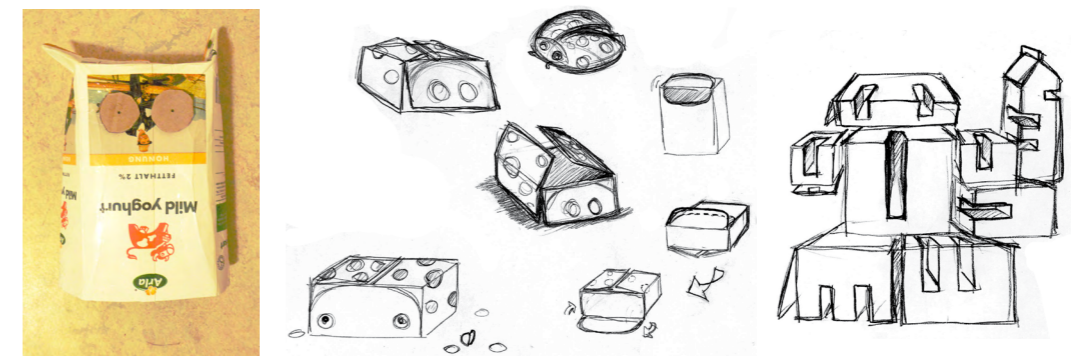
A construction toy set that could be used to connect household material as modular. Made of either wood or corrugated cardboard that was fitted to itself as well as certain recycled material.

2. Use of package

Using food packaging, which was the most common household recycling material, as material to cut out and serve as an inspiration source.

3. Robot blueprint

While keeping food packaging as their original shape, using a connecting system to bind them together, compositing and constructing into robots of big scales.



sketches of some other ideas

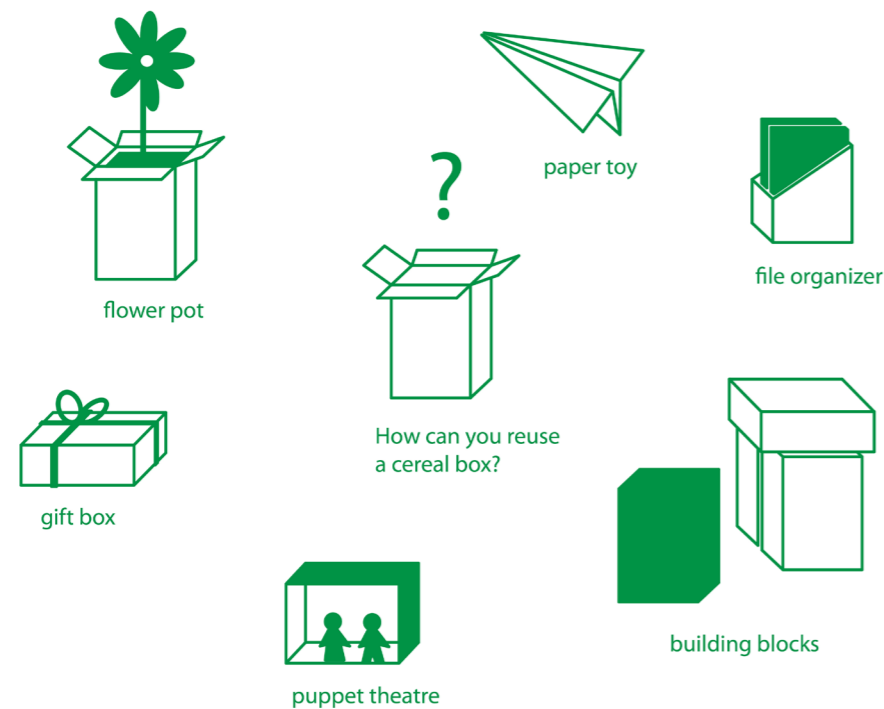


2.6 Redefining

As I was examining and criticizing the concepts, I realized that I have deviated from my original intention. That I had been designing a product to solve the system only on the surface level, without identifying the whole situation and find solution from a deeper meaning. Like what Leif Huff said: "Why did we start our design process with the object and not with looking at the system first?"

Looking at the system, it was through mainly food packaging that household recycling comes from. Even though packaging might offer lots of play potential for children, the way food packaging as it is today doesn't show children and their parents clearly what they could do with it, therefore had the "planned obsolescence".

After tutoring session and discussion with my tutor, I was able to look back on the system itself and redefined the problem. I decided to concentrate on packaging, studying how to enhance the play signal on the existing packaging system, from a children's perspective.



From before I have found that it was the mentality that was the most challenging part in fostering children's making habits. What were the signals that triggered children's play? For example, a cereal box might have afforded itself to become a flower pot, a puppet theatre, a file organizer, or part of a robot. However, few children and their parents were able to see that from their packaging. That was because the current packaging design has failed to convey its extra functions or affordances to the users. I wanted to include the thinking for intended after use as part of primary objectives in designing packaging

So at this stage I have tried to collect and extract play signals from packaging, as well as how to place a self-making inspiring signal integrated into the original packaging. By this I wanted that the concept would be understood by the end user, therefore encouraging children to more actively take part in crafts making to give recycling a second life.

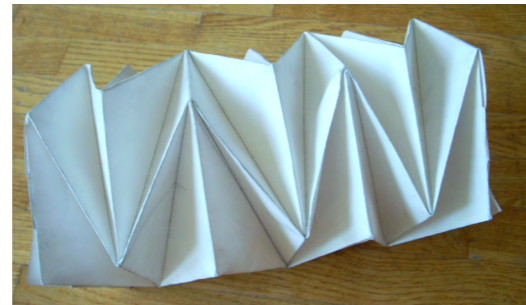
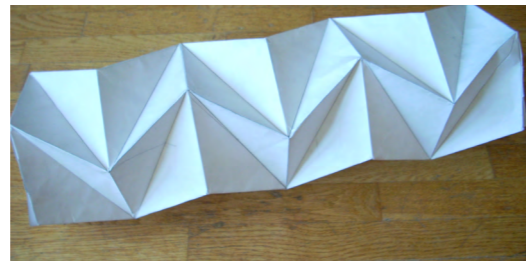
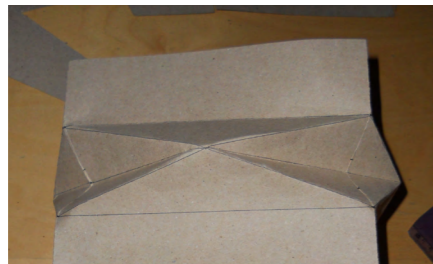
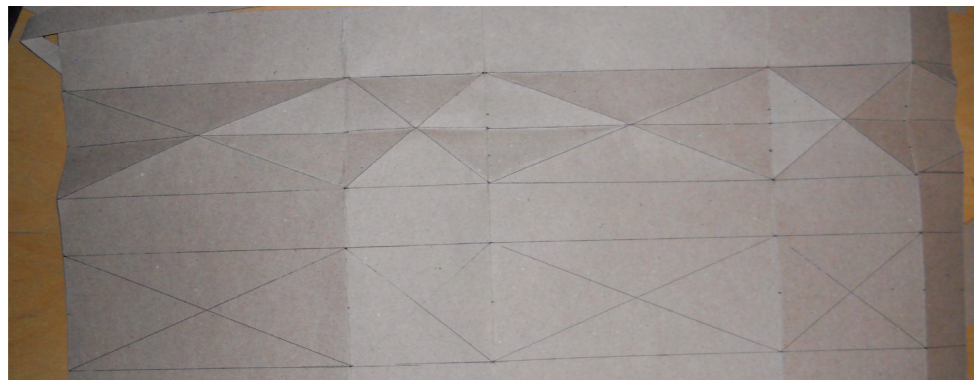
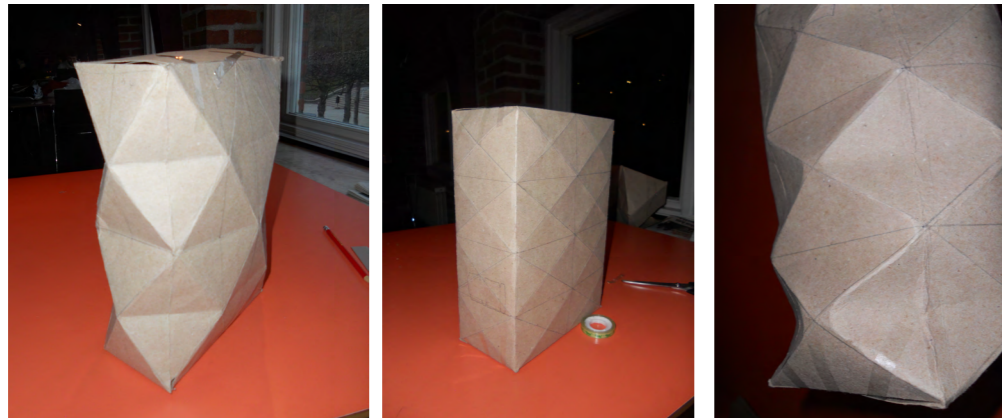


bubblewrap to press bag in a box to blow up creased lines to screeze

Example: cereal box

I took a closer look into what play signals I could give to a cereal box, without altering its original purposes. As a cereal box, the capacity and protection it provides to cereals are among its most important qualities. Yet it also has the potential of several other qualities such as economics, aesthetics, vision communication, usability, transportability, disposability, etc.. In this project it was reusability and recyclability that I wanted to emphasise on.

It was along this direction that I have generated the final result, to make the affordance of reusability and recyclability in play, or in another word the play signal more obvious in childrens eyes.



studies of exploring play signal on packaging

3. RESULTS

In the end my results turned out to be thoughts concerning packaging design. By thoughts, I meant the method of solving the problem in the bigger picture, seeing the problem also as the potential solution. In this case, it is designing food packaging with intended after use as part of the primary objectives. Then the packaging itself suggests children and their family to make use of them in crafts work after delivering and storing the original contents in them. It inspires childrens creative process in a sustainable way.

Going through the research process I have demonstrated the specific thinking on cereal packaging design, which focuses on enhancing the hidden play signal on the boxes, making it easy and natural for children to play with the packaging and also use it in crafts making and other creative hands-on activities.

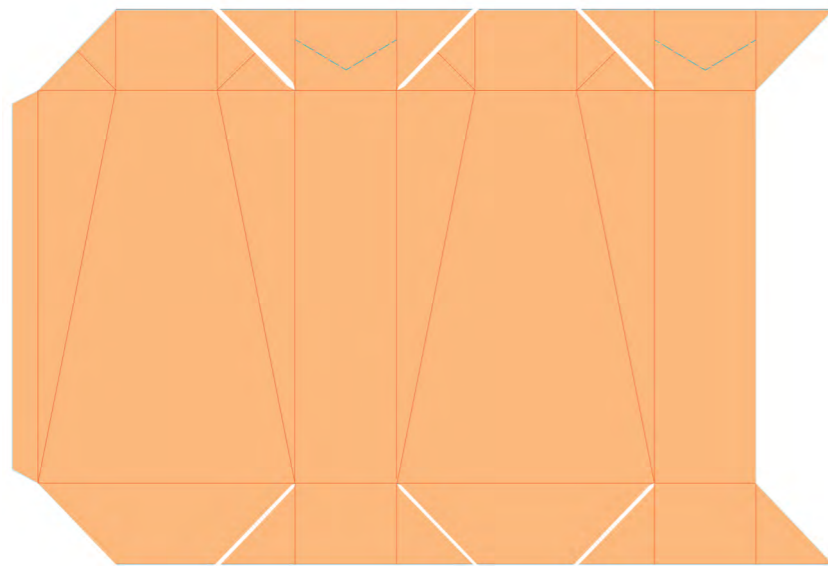


3.1 The user

The example of cereal box packaging is designed to be used primarily by children in their daily play time at home, to inspire the temporary play with a focus on sustainability. Kitchen would be a frequent place where they play with it. This way, children will be closer to their parents when they are cooking in the kitchen.

3.2 The pattern

The pattern of the packaging design remains unchanged in large as most of the cereal boxes already in use for different cereal companies, except for the closure parts. It bears the triangular enclosure shape for the ease of reclosure after the transformation. The parts that will be used to transform the box are creased to suggest folding by the users. Locking cuts are applied also for the ease of reopening and reclosing. Glue is used for tamper-proof which is necessary in food packaging. The whole design pattern is die-cut from one piece of paper. The novelty part is that my pattern allows for the shape-changing of boxes, which is innovative in this field.

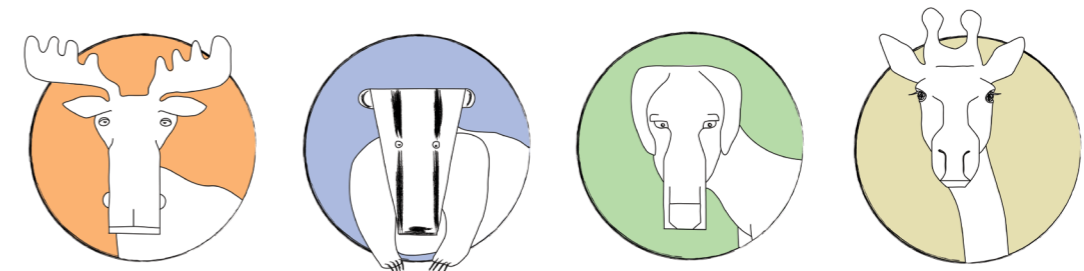


3.3 Default shape

The default shape is the rectangular cereal container, varied in different sizes as their contents vary. When in this shape, the packaging's main function is protective and capable of containing the cereals as well as transportable. At the same time it is visually communicating to the consumers what it contains and other information about the product. Products that are displayed on the store shelves will be found in this shape.

3.4 Play signal

With the creased lines on the packaging, I have embedded the play signal on the box to transform it into a different shape, a tetrahedron. The graphics on the package enhances play signal and at the same time inspires storytelling, with different motifs it also adds to the value of collecting. By transforming the box into an animal it also provides the opportunities for children's role play. I also want the animal motif to tell children about the importance of sustainability and biodiversity, passing on this message to them subtly: "If you play with this box and buy less mass-produced toys, you can have all the lovely animals a little longer on our planet".



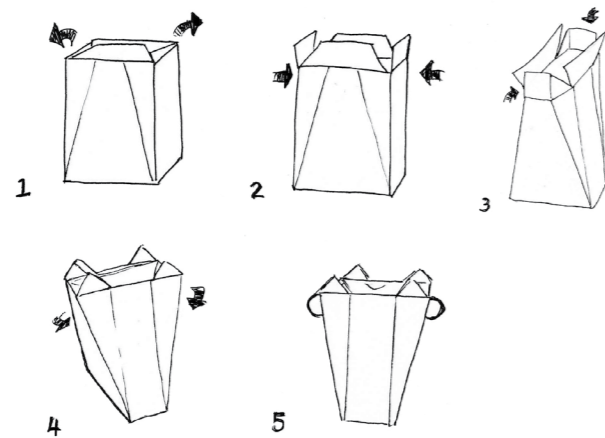
animal motifs enhancing play signal



example of animal motif on a existing cereal box

3.5 Tetrahedron shape

This shape is expected to be formed by children by folding the original box. After folding along the suggested creased lines, the box will reappear in a new exciting shape that is not as common in children's daily life, which will ignite children's interests to play with it. By this addition of children's adaptive touch, it is also the first step for them to enjoy playing with recycling material.



1. Open the package and empty the content.
 2. Press the sides to form the shape suggested by the creased lines.
 3. Carefully fold in the new edges and close the box.
 4. Cut out the ears if applicable.
 5. voila!
- tips: Play with it, use it, decorate it, and collect even more to build with.

3.6 The play

Folding the original cereal box into tetrahedron shape was the most obvious intention of my design in this project. Following on I have inspired a few more playing possibilities with it. That includes crafts making, constructive playing, as well as role play. Sociologically, craft making at play is the context of shared play, the shared knowledge from parents/older children, and shared dedicated time for fun making. As it is intended to be played mainly in kitchen, I hope parents would also join children. I also expect children to find other uses of the box besides the ones I have mentioned.

3.6.1 Make from it!

After the first step of folding it into the tetrahedron shape (also works without the folding), children could do what they want with the box. For example,

decorate the animals head as a little of drawing practice, cut out the animals head and make a mask out of it. These activities will keep young children entertained, foster their interests in crafts making, having them paying attention to details and also train and learn some old and new skills. Try decorating file folder with them, the animal motif also will make the usual look of a magazine organizer more lively.



masks made from packaging



children's role play

3.6.2 Build with it!

Another way of playing with it is to use them as building modules, construction toy in big scale. It requires a period of time when one collects the cereal boxes to a certain number (about eight pieces) to be able to enjoy the fun of building, the more the better! With the "ears" that formed by folding out, the modules could be easily connected to each other, making it quick building without glue, and therefore reusable.



build with it!



child at play

4. REFLECTIONS

4.1 The results

My results are thoughts concerning packaging system of food products, which was not what I had expected when I was writing the brief in the beginning of this project. But I am happy about it now and it helps me to look at things from a holistic point of view. When I look back at my original brief, I was focusing to find a way to harmonically sooth environmental problems through developing children's creative toys. It is not a specific product but a kind of mentality thinking planted within the system, which means the people around the packaging system, from people from food companies to the children's families who consume the food, will be influenced by the thinking step by step.

I was glad to see children's reactions to my design when I tried with them. Seeing ten already tetrahedron-shaped cereal boxes, the children aged 4, 8 and 9 years old knew instantly that they could play with them. Soon enough, they started to arrange the boxes around themselves like a fence, and was playing inside the little territory they just built. This way of constructive playing was not building the height with the boxes like what I predicted them to play beforehand, but I was pleased anyway. This adds diversity to the range of play I thought



children's play

The children also found that the shape was changed from the usual box, and they were twisting and folding one of the animal-motifed boxes, to get a frontal view of the animal that was on it. Then they discovered about the masks, after picking their favored animals, they wore it and began to act like the animals they were playing. Compared the observations with my objectives which was to encourage children playing with recycling, it confirmed to me that I did successfully enhance the play signals on food packaging, and children were having fun without spending extra money, since the box comes freely after you buy the cereal. And I believe that children will for sure discover more kinds of play it offers, after getting them started to play.

There is one part that is not so satisfying though. That when I have enhanced some play signals on the packaging, and at the time it promotes the specific play I defined, of course it also closed a door to other possibilities, or at least make other play options less obvious. Along with that the activities I provide with my design allow less creativity than I would have liked to have. But I could argue that I cannot design for all. In this project, in the end the design is more appealing for younger children, and ones who are lacking the motivation or spirit to work with their hands. As I wrote earlier, the most important part of my work is to give people the thinking first, to encourage more children getting started with recycling, and then sustainability would come. As for more skilled children, on one hand, they are more used to create things to fit their needs therefore might not need too much guidance and stimulation, on the other hand, I do hope that they will find some more uses of my thinking with cereal boxes.

4.2 The process

The process was a big part of my project. I've been going through research and analysis, idea generation, more research and idea regeneration periods during my process. I feel that knowing exactly who you are working for and what goals you are achieving is really important. At the beginning of the project, I had the ambition to conquer all the problems children have with creativity. But it didn't work. As there were too many things involved in it, children's age, background, interests, and abilities, everything small difference would make a much different situation. Then I looked into my end users characteristics, analyzed their different backgrounds which formed different problem. I had to make decisions who I was designing for and what problems I was going to solve, and then it became possible. I broke down household recycling items to analysis the play signals that was triggering children according to the needs. This also allowed me to get more understanding from children's perspective. I would have made

my decisions quicker and kept the possibilities more narrow if I would have done it differently another time.

I also learned more about how to work within lots of constraints as well as contradictions. Even though the project seemed simple and free, it actually had lots of limitations. I learned to do more thinking on the system as a whole. It is a discussion of how things are connected to each other, and from that perspective studying how to solve a problem without creating a new problem? For example, my project was about to provide children the opportunities to make playthings themselves. As long as children are interested in making and building things, the opportunity is always there. So my part was to give them extra motivation to do it or to give more reasons to the ones who were lacking the mentality to self-make playthings. I felt there were two methods the way I progressed my project. One was to design something from outside, like a product to stimulate their interests. The other method was how I went in the end; to educate them gradually about sustainability, and show the concept on the food packaging. I think I made a good decision doing the second alternative, because it didn't pose a new problem. If doing it the first way, then designing an outside product would be interfere with the "play should be free" idea, as one would always need to buy more to accomplish the play.

During the time of doing my exam project, there was a children's TV program on SVT called "Junk". The program featured a designer who was an expert in a certain field at each episode, and who was going to collect a child's old toys and give them a new life based on the child's personalities and interests. I had been following the program and found it really interesting. Yet it was very different from my project because every story it told was tailored, exactly for the child. Still I got inspiration from it, how they learned to know more about the child, in order to redesign their old toys according to their needs.

4.3 Examination

During my examination I communicated my project through talking about my process and showing the thinking on cereal boxes. At this point, I had developed my own brand not knowing much about copyright of putting it on other cereal brands, and communicated my thinking through the packaging design of the cereal boxes. This, however, was not agreed by my opponent and examiner. As they were more interested in my process and all the different ideas I have generated. They thought this way it seemed as if my project was about branding instead of thinking through the situation and problem-solving process. I agreed with them and have decided to abandon the brand, and instead focusing in showing my thinking on existing brands as an example, after

learning that it won't interfere with intellectual properties.

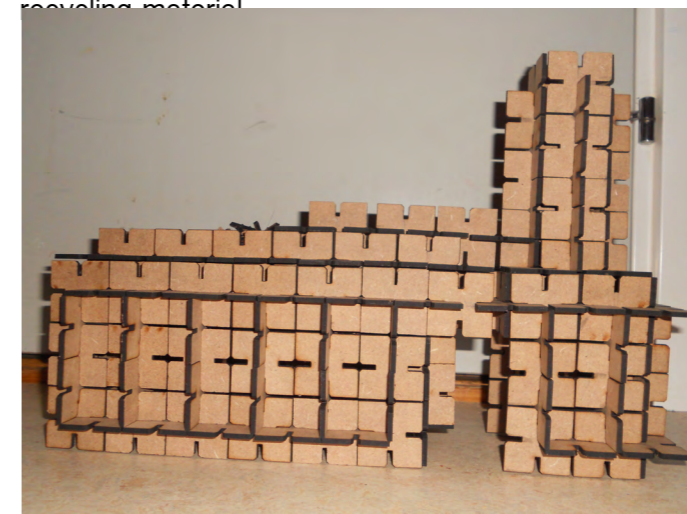
4.4 Other ideas

To give a better understanding of my project, I want to talk a little about my ideas generated from the process that were not employed as the final concept. What were the advantages and why I gave them up in the end?

Amplifier

With children's best interests at heart, I wanted to give them as much fun playing with recycling, as with other toys. So I had this idea of designing a modular toy set that apart from being a constructive toy by itself, it could also serve as connectors linking other constructive recycling material such as corrugated boards together. The name amplifier implies that when used as connectors, the constructive toy could be amplified to a much bigger scale and hopefully this would amplify the joy too.

I liked this idea, and went as far as defined the pattern of the modular toy, and laser cut more than 200 pieces to test it in reality. It made a fun toy, but when I evaluated the sustainability perspective of this toy, I doubt it was a clever way creating a new toy to encourage play habits involving recycling materials. And also that it was harder to get corrugated board as it was not usual household recycling material.



a factory built with amplifier modules



connecting corrugated board

Advantage: novelty, fun

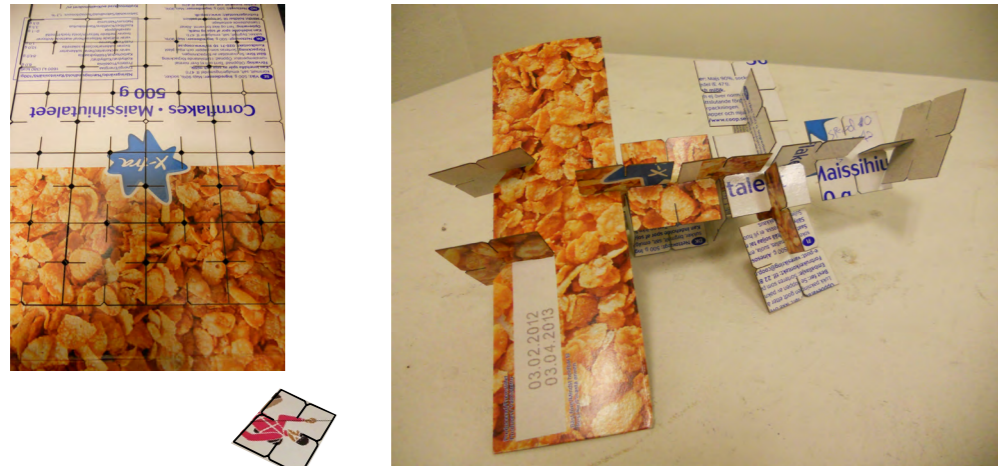
drawback: not sustainable enough, corrugated board is not as often seen in life as it sounds

Use of package

Using food packaging, which was the most common household recycling material, as material to cut out and serve as an inspiration source.

Then I had an idea to take full advantage of food packaging, which usually was full of interesting graphics to attract children and adult consumers. To use the actual packaging as a source of material, to make cards from it, cut out shapes, or even use it as construction toys.

After making some mock-up models, I have to give up. Because it was hard to control the graphics of so many kinds of food packaging, also as it could very well be initiated by children and their parents, my role in this concept was very small. The construction toy required making holes on the packaging in order to ease the making process, and the result was not stable and satisfying enough.



examples of making cards and construction toys from packaging

Advantage: take full use of the material itself

Drawback: Food brands would not like the idea of many holes on the packages.

Robot blueprint

Another thought was to keep the packaging boxes as they were, and bind them to each other, as combination and composition of different kinds of materials together was quite interesting. I have found a way to connect them without glue, and also makes the boxes parts more flexible, almost like robots, but in big scale.

As I compared this to my brief, I found a problem. How would children acquire

the way of binding them? Since it is fairly simple to make them, then is it really necessary to produce the binder/connectors? I could give children the blueprint and technique so that they could make the connectors themselves and thus making it more sustainable.



Advantage: easier constructed, interesting

Drawback: not necessary as a product

4.5 Future plans

Limited by the time frame for the exam project, I didn't get to make my examples of cereal boxes with a real company. After finishing with it, I would like to contact some cereal companies or packaging companies for a possible collaboration, to test the concept in real markets. It would be interesting to see how my design would be received and used.

5. REFERENCES

- Boylston, S. (2009) Designing sustainable packaging, London: Laurence King Publishers
- Chapman, J. (2005) Emotionally Durable Design: Objects, Experiences and Empathy, London: Routledge
- Fisher, T & Shipton, J (2009) Designing for Re-Use: the Time of Consumer Packaging
http://ic-pod.typepad.com/design_at_the_edge/2008/02/affordances-of.html, 2012
- Norman, D.A. (2003) Emotional Design: Why We Love (or Hate) Everyday Things.
- Otto, K *et al.*. Playthings for Play - Ideas of Criteria on Children's Playthings. TACTILE, High Touch Visuals. (2007) Berlin: Die Gestalten Verlag