



# Accomodating Individuality

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# Introduction

## Different Strokes for Different Folks

“[We] do violence to others when we assume their differences to be flaws and afflictions. In this misunderstanding of others we also diminish our ability to predict what they will do. Likewise, we cannot even reward others should we want to, since what is reward to us is a matter of indifference to the other.”

– David Keirse, PhD in Psychology  
(Keirse, 1998)

People are different. People like different things. These truisms are so ancient and fundamental that one would expect that they should constitute the basis of our entire society. Instead, we live in a society of mechanisms based on the sameness of

human beings, a society where generalizations and simplification govern how systems and products are designed and distributed. Granted, generalizations can be helpful and may very well have played a key role in the development of society. Who would have bothered to invent the railroad system without having come to the conclusion that large numbers of people share the same travel routes? Why would we take the risk of producing and transmitting news report programs on television if we didn't think that most people would be interested in receiving reports about current events in this manner? What reason would we have for mass producing everyday items like light bulbs,

coffee filters and extension cords if we couldn't rely on the generalized claim that practically everybody needs them?

The answers to these questions are obvious, and it is safe to say that generalization has helped us greatly in the development of our infrastructure and the society as a whole. We would simply not be where we are today if not for gross generalizations. One can only imagine how slowly our skills and learnings would progress if we were forced to cater to each individual's needs along the way.

In today's world, largely characterized by an accelerated consumerism and a frightful disregard for the impending depletion of natural resources, it might be the case that the bundling of human wills might have played out its part. Humans are social creatures and adapt to one another forming groups, tribes and societies. This is the foundation upon which the production and marketing of consumer products build. Concepts like 'tribes' and 'target groups' become tools for defining an area of human beings upon which generalizations will be applied. 'Swedish "tweens" like bite-sized pizza', 'Elderly women have no interest in video games', 'white men can't jump', etc. I recognize the efficiency of this practice myself and use it while I am carrying out design projects.

However, I believe that there are negative side effects.

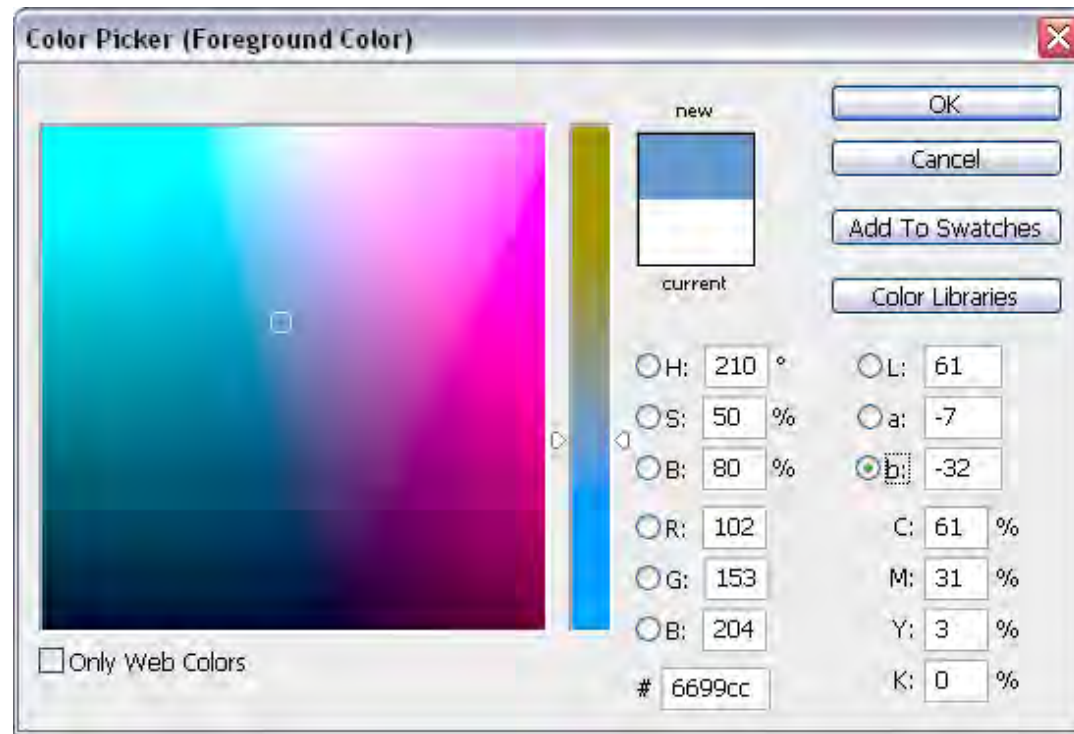
If we are constantly targeting the middle of the bell shaped curve of normal distribution in whatever demographic research material we are basing our product on, we are bound to disappoint the consumers on the fringes of that curve. This is no revelation and in addition, it might seem like a collateral damage of little significance (although I have images in my mind of people living on the fringes of every conceivable curve of normal distribution, thus remaining uncatered to completely and throughout).

There is an additional drawback of the practice. Since human beings are group and society oriented, many of us probably strive to be included in that group whose normality has been reinforced by the fact that there are products that suit them available on the market. The will to belong acts as a gravitational pull, causing people to give up their individuality and cluster together. People will join in and ignore various degrees of discomforts, doubts, and discontent in order to be included in the sanctioned crowd. This, to me, has three negative effects.

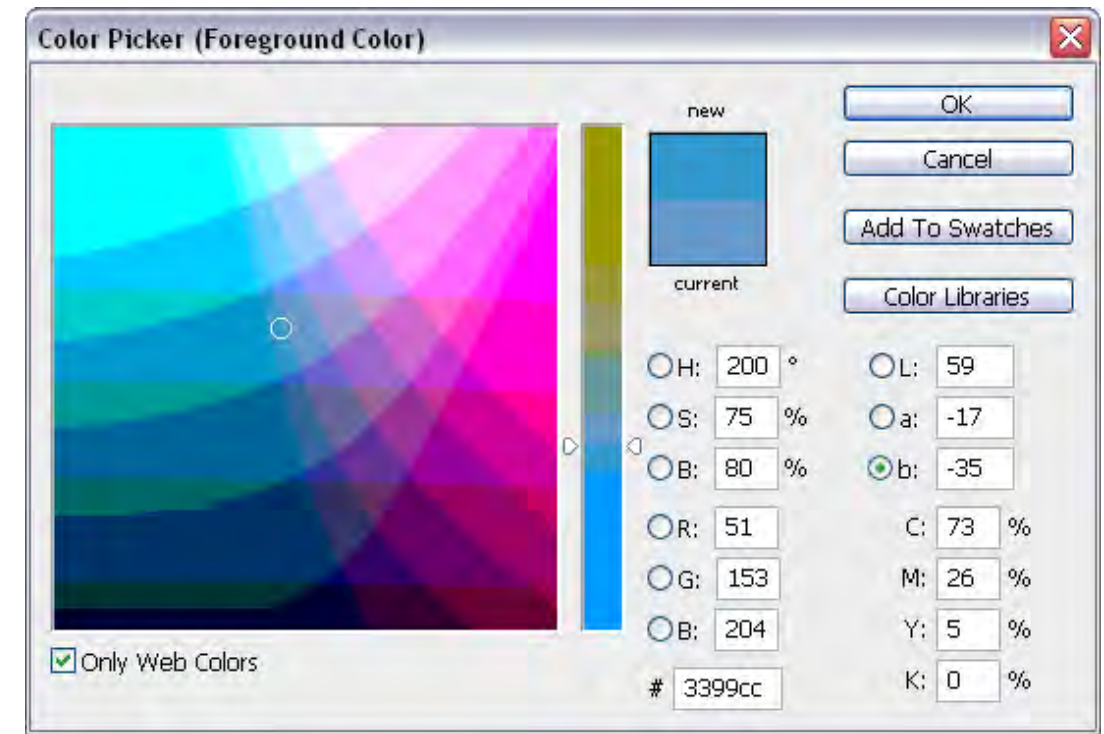
First, because consumption becomes an instrument of belonging, the occurrences



While the four groups pictured above may seem extremely homogenous, we must keep in mind that each group is made up by twelve individuals, each with his or her own background, values, taste, relationships, priorities, ambitions, etc. If we believe ourselves to be able to make exhaustive predictions about the choices and actions about any person that we do not know well personally, we are likely to make mistakes. I argue that we should recognize the complexity of human beings as a humbling fact to be kept in mind - not the least while designing products.



A continuous color space represented within the Color Picker of Adobe Photoshop.



The same color space restricted to the use of web safe colors.

of buying for the sake of buying increase. Any type of product can be a status symbol and thereby a means for avoiding exclusion.

Second, these people become hidden and, in a sense, lose their voice in the market place and are destined to a life of discontent. If consumers accept what is on offer because most people seem to do, who is going to call out the emperor if he turns up naked one day?

The third and last negative effect I see is that the stereotypical groups of consumers upon which the marketplace is based become reinforced and while actual consumer preferences might change, migrate and shift, established preconceptions about user needs might prove very difficult to dissolve. To use an analogy that might be familiar to those in the design field, consumers might represent the continuum of colors in the color picker in a piece of imaging software, such as Photoshop.

Different factors determine our individual personalities and while one slider for each of the four print colors C, M, Y and K might be enough to describe the appearance of millions of different colors, human beings would need a lot more variables than four to be described properly. I for instance feel that the description of me as a (1) young, (2) married, (3) Swedish, (4) male, would be a quite insufficient amount of information in order to understand who I am. Anyway, if the color continuum

represents consumers, that is to say, human beings, I would argue that if those human beings were to be described according to a market view, we would end up with a color picker of web-safe colors. Each color would represent a market segment where a generalization would apply and prove efficient enough to maintain sales. In a specific product category, like cars or furniture, each color would represent the product intended for that particular group of bundled consumers.



Generalisations about humans turbo-charge the market. Wavering consumers are sucked into the combustion chambers of business and add to the roaring acceleration of consumerism. The excessiveness of this consumption is an issue that the general public just now is starting to realize is impossible to sustain. I argue that we not only can afford to cater to the more personal, individualistic needs of consumers, we really cannot afford continuing basing the design, production and distribution on mere generalizations.

I perceive the whole thing as a 'boiling frog' situation, where the reinforcing and strengthening of generalizations I have outlined, have begun working against us so gradually that we have failed to take notice. Many ponder why people 'buy so

much unnecessary stuff' these days and while the issue is complicated and there is not one single answer, I am convinced that the lack of individual values and personal connections between people and objects are contributing factors.

My purpose with this project has been to find out how we can increase the personal connection between each individual consumer/user and a product. I have been looking for an approach that would not conflict with current design or marketing practices (which, as I wrote, are very efficient in many ways) but rather complement them and provide us with the tools to avoid or minimize the negative effects of generalization.



# Incentives

## Environment

Unnecessarily exaggerated generalizations about consumers are not the only form of over dimensioning that is common practice in the world of products. A lot of the objects in our possession today will outlive us as artifacts but will cease to function in less than five years. An electronic device, such as an mp3-player or mobile phone will most likely not be fully degraded and absorbed by the natural circulation of compounds for another 500 years (Chapman, 2005). Seeing as it will be obsolete in about 1% of that time the material durability of an object like this is hideously excessive.

The short time in which we care to remain

engaged in our surrounding objects is a large contributing reason to the deterioration of our environment. We become fed up with our belongings and trust marketers and the testimonies of peers that the grass is indeed greener on the other side. That, by buying a new, slightly better product, our lives will become easier, richer, more interesting. We walk into this trap time and time again, leaving a trail of discarded, though fully functional appliances behind us. In recent years, 25% of vacuum cleaners are still functional when we get rid of them. For stereos the figure is 60% and for computers 90% (Chapman, 2005). It is plain to see that there is a problem in how products are designed,





when disposal is such an accessible action.

Some products, however, do not possess this disposability since they form long lasting relationships with their users. Denim jeans is one of the most commonly used examples for this type of relationship. In 'Emotionally Durable Design', Jonathan Chapman writes:

"Purchased like blank canvases, jeans are worked on, sculpted and personified over time. Jeans are like familiar old friends providing animated narrative to life — a repository of memories — mapping events as and when they occur. Like comfort blankets they feel and smell familiar. The character they acquire provides reflection of one's own experiences, taking the relationship beyond user and used to creator and creature. Similar in philosophy to the way in which voice recognition software sculpts itself around the phonic idiosyncrasies peculiar to a particular user, jeans become tailored to the physical individualities of the wearer to become a part of them." (Chapman, 2005)

If jeans can instill us with such patience and appreciation of deterioration, why shouldn't any product be able to? Imagine the ease one would be at after having acquired all objects necessary for living in a chosen style and then, as each day comes

and goes, watch your belonging grow better and more adapted to you. Chapman has another example of an object with a prolonged narrative that involves and engages the user in a long process. The house plant, when acquired, is a certain size, shape and color and may or may not be in bloom. However, over time its properties change and the growth of the plant becomes like an unfolding tale. The change may not be discernible from day to day, but after returning from a short vacation one might be pleasantly surprised by the progress. If other products acted in this way as well, we would no longer need to buy for the sake of refreshing our surroundings or get the gratifying feeling of revision. Instead we would be able to sit back, like a financier following his successful investments or a gardener keeping an eye on his young plants, and experience our immediate surrounding become increasingly valuable to us.



Typical 'Head' product.

## Business

While environmental considerations really should constitute enough of an incentive towards making more personal, treasured and long lasting products, it never hurts to show how business can benefit from the application as well. In 2006, Chris Anderson, editor-in-chief of Wired Magazine, published his book "The Long Tail: Why the future of Business is Selling Less of More". The book describes how the collective value of a large amount of minimal niche markets can provide profits comparable to or exceeding those of the market for best-sellers. The title refers to a curve describing a specific statistical distribution where 'the head' of the curve, in this case, show the bestsellers and blockbusters that

appeal to a large amount of consumers and 'the long tail' of the curve depicts the many products that do not reach high sales figures.

The theory ties in with the recent evolution of the Internet into Web 2.0 referring to the dramatic increase in interconnectivity and democratization between users. Web 2.0 has allowed groups of users with very specific interests, tastes, aspirations or convictions to come in contact with one another in a way that geographic dispersion and/or social barriers would have conclusively obstructed before. Through the implementation of recommendation and commentary functions (amazon.com,

iStore, allmusicguide.com, etc.), customizable community accounts (MySpace, Blogspot, etc.), democratic content (Wikipedia, YouTube, etc.) and dramatically increased cross-site interconnectivity (del.icio.us, Reddit, Digg, etc.) users of the Internet have unprecedented possibilities for finding like-minded peers and pursue their wishes in cooperation with one another. When all of these miniscule formations of people converge, they form tiny markets that in the pre-web 2.0 era would stand no chance of being catered to by major corporations. However, that has now changed and many large companies are realizing the value of the many small as opposed to the few large. As an example of this, an

employee of amazon.com has claimed that on any given day, they sell more copies of books that did not sell at all the day before than they do of books that did sell the day before (Wikipedia, 2007). This means that the comparatively few enormously popular books that sell in vast amounts for the period of their popularity cannot rival the scattered collection of obscure, unpopular and perhaps almost forgotten books. This phenomenon is most likely true for CDs, DVDs and comparable products as well. People are different and people like different things. The Long Tail phenomenon shows us that this holds true in the real world of business as well, and that there is great value in (and profits to be made



Typical 'Tail' product.

by) not disregarding the diversity within groups of consumers.

There is a problem with the Long Tail as a business model. It works very well when the products are of a type that allows for low storage and distribution costs. Digital media sold via downloads is unrivalled in these aspects, but physical media types, such as books, DVDs and CDs also work quite well, provided the right solutions for storage and distribution are applied. When it comes to other physical products, the Long Tail seems to fail for a variety of reasons. If we take appliances, home electronics and vehicles, for example it seems very impractical to keep a supply

of every single model that can be found on the market. In addition to this, there aren't that many models. The amount of refrigerators, electrical razors or DVD player models available on the world market today is most likely dwarfed by the number of book titles or DVD movie titles.

Still, I believe that the Long Tail and web 2.0 has had an effect on how consumers relate to the purchasing of physical goods. For instance, the vast amounts of items available for purchase on eBay and similar websites has made it possible to find very obscure products quite easily. You can count on another "user" selling the specific item you're looking to buy, often

at a low price. You can find practically any product imaginable. When I was 5 or 6 years old back in the mid eighties, our family had a video game console. It was very crude an unadvanced system called from Saba called 'Videoplay'. I don't know if it stopped working or if we sold it, I only know that I found myself one day wondering "What ever happened to that videogame console?" For years and years I had nostalgic memories of this toy and always kept an eye out for it in flea markets and second hand stores. Naturally – I never found it. They were simply too few and far between. A couple of years into the establishment of eBay, I realised that I might be able to find a 'Videoplay' there. A

quick search revealed over twenty units for sale! I was no longer separated from the videogame of my childhood by its scarcity. In addition to the console themselves, accessories and games were also available from a range of individual sellers. Even all the games we never had when I was little could be bought – at \$1.50 each! I haven't bought a new 'Videoplay' (yet) as I feel that I've outgrown it, but the story illustrates the change in availability that the web 2.0 has had for many products; a shift from scarceness to abundance for practically everyone, everywhere. Apart from physical products, knowledge about how to interact with, modify and tune products has also become more widely available.



This will be discussed more thoroughly in a later stage of this report. To my mind, it has a connection to the Long Tail phenomena in that when people become able to get hold of precisely what they want when it comes to music, books and movies they might feel that this entitlement to products that cater to their individuality should transcend into the world of physical products. People might feel that they should be able to get hold of very rare or unusual physical products with the same ease with

which they can get hold of obscure music in mp3-format. However, since the specific sea-shell chandelier or medieval style mandolin they want cannot be downloaded, but instructions on how to build them can, they might be more inclined towards taking on a Do It Yourself project than they would have been otherwise. The role of DIY culture will be expanded upon later in this report.

To sum up, there are strong incentives

from the realms of business and environmentalism alike that the personalization and individualization of products is at the very least a field well worth exploring. The following sections constitute investigations into different ways of resolving the tension between the producers' desire to perceive consumer in a generalized fashion and these consumers' need for products that serve their respective personalities and behaviours in an optimal way.



# Three Approaches

It has been my conviction since the early stages of this project that there would be different approaches towards resolving the tension between the producers' desire to perceive consumer in a generalized fashion and these consumers' need for products that serve their respective personalities and behaviors in an optimal way. During the course of my work I have performed my investigations in a slightly haphazard way, examining many 'leads' simultaneously and letting new insights and inspiration guide me towards new areas of discovery.

As time has progressed, patterns have started to emerge in my notes and it has become possible to distinguish different

categories. This has naturally allowed me to carry out my research in a much more focused manner, concentrating on three main fields of interest.

These three areas – 'user involvement', 'ambiguity and provocation' and 'appropriation' – constitute different methods of accommodating user individuality and are investigated in the following sections.



# User involvement

## Just the Right Amount of Different

To accommodate the diversity of consumers, producers of goods have tried different approaches. The main problem lies in great part in the tension between cost efficient production and the multiplicity of consumer preferences. Effective, cost efficient production processes are achieved by minimizing the variety in products and keeping assortments as streamlined and homogenous as possible. On the other hand any group of consumers will display heterogeneity, at least to some degree and this causes a conflict of interest. Since the company do not want to simply dismiss all atypical consumers, and since it is unfeasible to accommodate the preferences of each consumer, there must be compromise.

This has, in part, been materialised as different degrees of user involvement in the design of products.

There is no point in letting users take over the design of their own products altogether. People wouldn't have the skills, time or devotion necessary for doing that. After all, a vast amount of designers around the world are making a living based on the fact that people are willing to pay for goods, especially if they are well designed (Norman, 2003). So, if transferring the responsibility to the user altogether is out of the question, what might be the next level?



Participatory and user-centred design methods have come into focus in the last decades as a very effective way of understanding and satisfying user needs. Many companies, perhaps most notably IDEO, have employed the practise and results have generally been good. The method might not be equally applicable to all fields of designs and was originally used primarily in the planning of complex systems, like workplaces. In such a project, the end users or occupiers of the work place would be invited to take part in the different stages of design and continuously leaving feedback and trying out proposals. When first introduced, the notion of inviting “non-experts” to become involved in a development process was seen as harmful by some, but the fact has remained that when it comes to the understanding of, for example, a work station, the foremost expert is the person occupying it.

It would seem the success of user-centred design is indisputable and that it leads to a minimization of flaws and idiosyncrasies as well as significant improvements in efficiency, ergonomics, usability, etc. However, it is not clear to me whether or not this approach leads to an increased attachment between the user and the product, environment or system the user has helped design. One could imagine that in a successful project, the users who have participated

feel very connected to what they’ve made and are prone to stay connected to it in some way. On the other hand, one could also imagine a project that, while successful as a whole, retains some flaws that causes the user to feel responsible and want to distance himself from the product. These are just speculations and moreover, they are immaterial since it seems that the practise of participatory design misses the target altogether.

The dilemma I’m trying to resolve in this project is the tension between product sameness and consumer diversity. To me, the problem with most cases of participatory design is that it does not address each user individually. Instead it quite oppositely focuses on the commonalities of the intended user group, thereby confirming the generalisation of consumers. There is a value in this of course. If you are to design an x-ray ward at a hospital you needn’t take into account the desires of bus drivers or hair dressers, or even nurses in general. You only need to focus on those of nurses working in that specific hospital in that specific ward. By excluding irrelevant users, you end up with a homogenized user group. Only to a degree, though, because even a group as defined as this one is bound to contain diversity. Perhaps in a small group like this the diversities won’t have any impact on the reception of the

product, but what if your user group isn’t “the nurses at the x-ray ward in so-and-so hospital” but “Swedish teens”? That group contains so much heterogeneity that inviting representatives of the group to take part in participatory design projects for products aimed at the whole group would

be a flawed practise. I’m not arguing that the value of such a practise would be zero, but merely that it does not help us bridge the “sameness-diversity”-gap completely and we would end up with yet another compromise aimed at the centre of the curve of normal distribution.

SIDE NOTE: The term ‘participatory design’ can have many different definitions and to some it denotes a very precise and formal practise. I am aware of the fact that some might disagree with the way I use it in this report. To me, however, ‘participatory design’ simply refers to a method of design where end users are involved in the process at some point and is given the opportunity to participate to a certain degree in the decision making concerning the design. A number of practises that fit this description are familiar to me, and I merely intend to discuss these in the context of this work. Outside of my own definition of ‘participatory design’ stated above, I do not make any claims.



So, if inviting user representatives into the design process does not help us, we can instead try to involve them at another level. This is where customization or ‘menuing’ comes into play. Customization refers to the possibility for users to affect the product’s properties during or shortly after a purchase. Common examples of this are car and computer manufacturers who assemble products only after the consumer has made a set of choices, most likely on a website about colour, materials, processor speed, rim style, etc. This provides users with the means to differentiate themselves from others buying the same product and to express themselves outwards. There are producers that claim to have taken the concept further and let consumers design their own shoes (Nike, 2007), but on closer inspection, this offer turns out to be heavily restricted to choice of material and colour.

With the exiting development of manufacturing techniques like laser cutting of various material and rapid prototyping, we might head towards users being able to order things that are more freely customizable. If clothes were made by internet connected robots equipped with needle, thread and lasers, users would perhaps be able to design their own clothes on a website through some sort of task specific interface and have the clothes delivered

through the standard delivery channels (Norman, 2003). Again, the issue arises that people might not be interested in doing things themselves in this way. Why not leave it to the professionals?

The term ‘menuing’ describes a slightly different form of personalisation. In this practise, it is not whatever choices that can be made beforehand that are significant, but rather how the user is able to tune the product while using it. The appreciation of these options among users has become evident with the explosive growth of the market for ringtones, themes and screen-savers for cell phones that took place around the time that phone got colour screens and polyphonic ringtone ability. Physical items like alternate casings and cell phone jewellery also belong to the field of ‘menuing’ for phones, since they provide a relatively fixed set of options for the user to choose from.

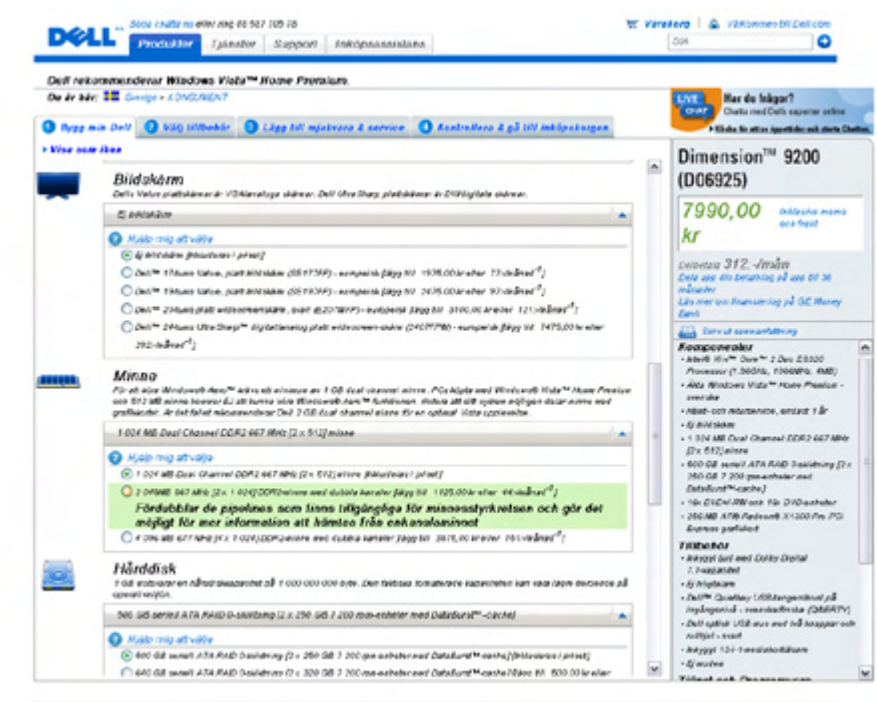
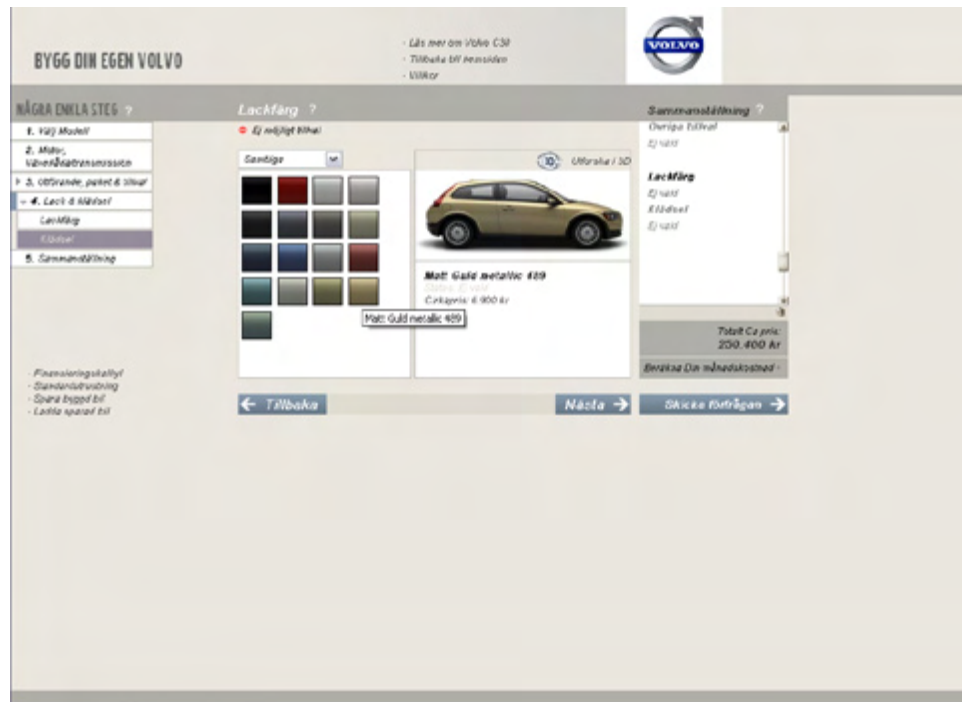
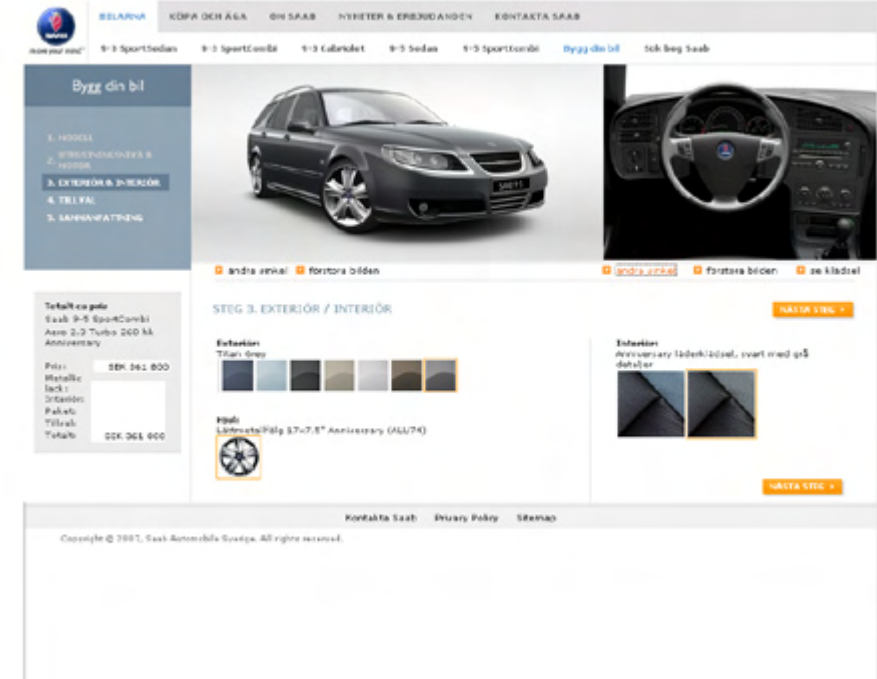
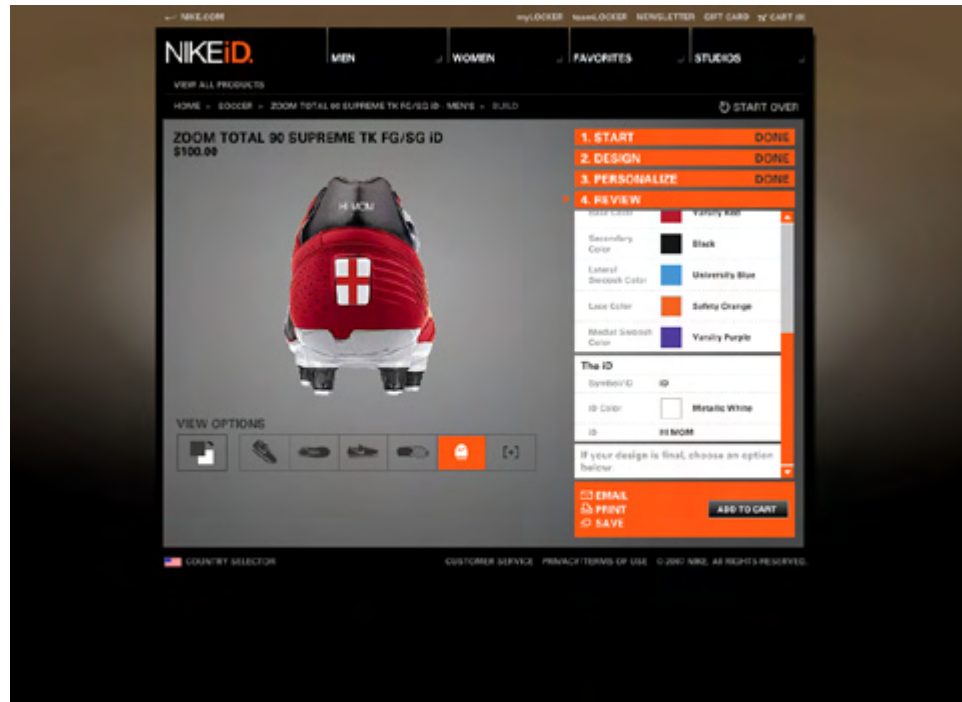
‘Menuing’ can be defined as the possibility of the user to shape a product’s appearance or function in accordance with a built-in set of rules or options. One of the issues that arise with this form of flexibility in products is the complexity it brings about. Every adaptable feature of the product complicates it more and if you are trying to anticipate all possible user needs and design the product in such a way that

it contains the possibility for changing into all of the states needed to accommodate those needs, the product will become awfully complicated (Norman, 2003). Complexity plays a significant factor of user-unfriendliness so an effort towards usability through flexibility can have an inverse effect. Computer software is a good example. Many programs contain a myriad of features accessible through intricate menu systems and sometimes hidden behind some need for activation or installation of that particular feature. However, assuming that the average user of Adobe Photoshop uses less than 10% of its features, it is probably safe to say that all users do not use the same 10% of the software. So it would seem that Adobe has succeeded in broadening their customer base, by making a product that is adaptable and more universal. Unfortunately, this has taken place at the cost of an elevated learning threshold for users who wish to use the program.

In simpler examples, like cell phones, reversible coats, hinged electrical screwdrivers and adjustable office chairs, the increased complexity is seldom an issue. But of course, with a decreased complexity, comes a limitation of available options. The phrase “Available options” describes precisely the reason that makes the ‘menuing’ approach amiss. What if the “option”

I need in the product I have bought is not “available”? In that case, I do not belong to the group of users who are 100% happy with the product. For every choice I discover cannot be made in the “menu” of “available options” in the product, I move further away from the “happy user” group and further towards the “reasonably satisfied” party, perhaps even ending up in the “discontent” crowd.





So if all these “users” I’m talking about constitute such a hard-to-please group of people, why bother trying to accommodate them? It is true that they don’t have any interest in doing the work of us designers, but what if we compromise in a new way. What if the designers do most of the work and then the users can finish it in whatever way they like? This “Do It Yourself”-inspired approach has been very trendy lately, especially among design students (Choe, 2007). The recent popularity of this approach is probably in part due to the current popularity of arts and crafts but it might also have to do with an increased willingness among young designers to tap into the creativeness of the users.

One example of the “user completion”-practise is the clock “Put It” by young Japanese designer Teruhiro Yanagihara (Yanagihara, 2007). The clock consists of discs spinning at the rates of the hands of a clock, but there are no hands or markings of any sort to be able to tell time. It is not until the user sticks a piece of tape or creates an indicator in some other way that the clock becomes useful. A similar approach directed towards the aesthetics of the object rather than the function is present in the “Slate Vase” by Vinçon (Vinçon, 2007) and the “Adicolor” series by Adidas (Yardwear, 2006). The former is a vase made out of slate and invites

the user to decorate its surface using the included coloured chinks. The latter is a series of sneakers with no or minimal graphics that comes with a set of markers for the user to complete the shoe’s appearance with.

I talked to a friend about my project and what it was about and mentioned a few examples of products that you had to complete before they could function, including a lamp I had seen, whose shade the user was expected to cut into a nice shape with a pair of scissors. She reacted quite strongly against what I was telling her and told me that when she needs something, she wants to just buy it and then use it. She was not interested one bit in having to do creative work in between. These types of products are essentially directed towards people who enjoy making arts and crafts, build models, paint, etc. and might be appreciated by them. Even so, I doubt anyone would enjoy a world of half-ready items. Crafts and DIY-projects are supposed to be leisure activities, not a mandatory element of consumption.

Though it would seem that the path towards user-product connection lays in the possibility to adapt the product to better suit the user, this does not guarantee a satisfactory personalization of the product. Other approaches that do not rely on the



“Put It” - Teruhiro Yanagihara, 2006



objects' flexibility could be taken and have been. For instance, an effort towards helping the user make the best choice for him/her when acquiring a product could be a way to ensure consumer satisfaction. Try-out shops have been popping up at an increased rate lately. Nike has dispatched Try-out vans touring Europe, each carrying 1000 pairs of shoes, free for anyone to borrow and see how they feel before buying a pair. Personal shoppers can also be of aid in assuring that consumers get the items that best suit their needs. This is probably not altogether practical solutions in all product sectors but if it were, what would that mean to designers? Would anything really change? Someone would still have to take responsibility for *creating* products aimed at or flexible towards the fringes of the mass of consumers! If the products aren't there, even the best personal shoppers in the world won't be able to find it and supply it to their customers. This suggests that in order to satisfy broader ranges of individual users, the products must contain qualities for doing so within themselves. While marketing schemes and expert involvement can persuade users into believing that they are making sound choices based on their needs, this cannot remedy a flawed product. Try-out shops and personal shoppers simply can not guarantee customer satisfaction.

As far as user involvement, flexibility and intended possibilities for modification goes, the different variations listed here largely cover the range of a product's lifecycle. While they have proven to be beneficial in many ways, when it comes to creating user-oriented design and overcoming some of the differences between users, it has become apparent that none of these practises offer enough fidelity to reach each user individually. As stated before, the reason for this is that no one can predict the needs of each separate user within the target group and is thus forced to rely on generalizations.

Next Page - Illustration of the different modes of user involvement and with what stages of the product lifecycle each of them is connected.



## Product Lifecycle

## User Involvement Mode

Conception

Participatory Design

Design

Customization

Manufacturing

Assembly

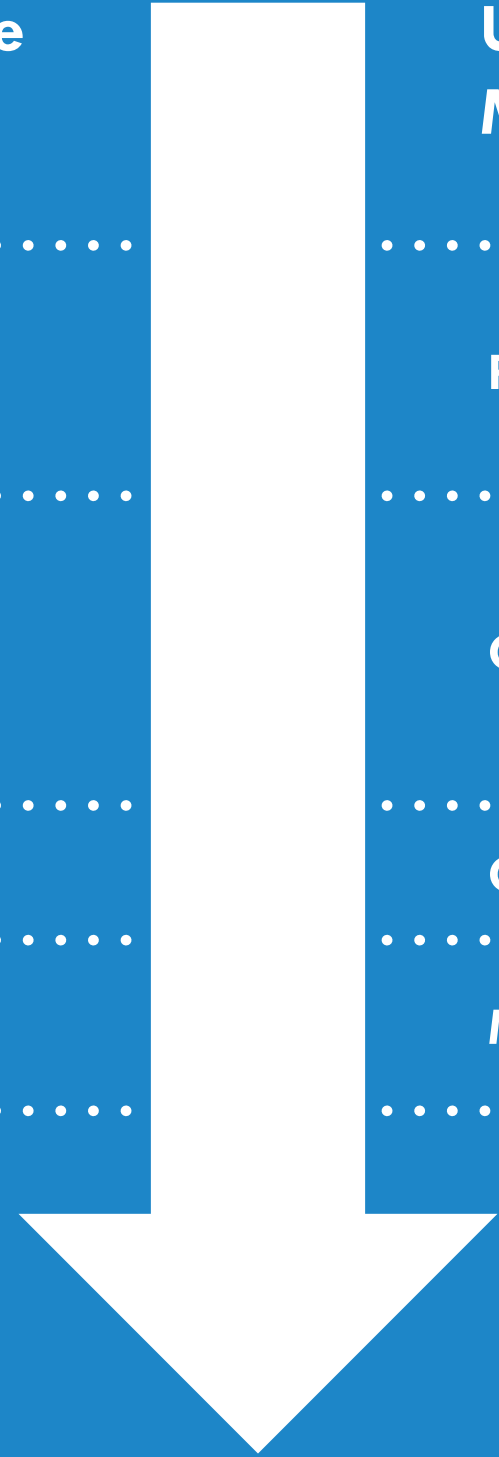
Distribution

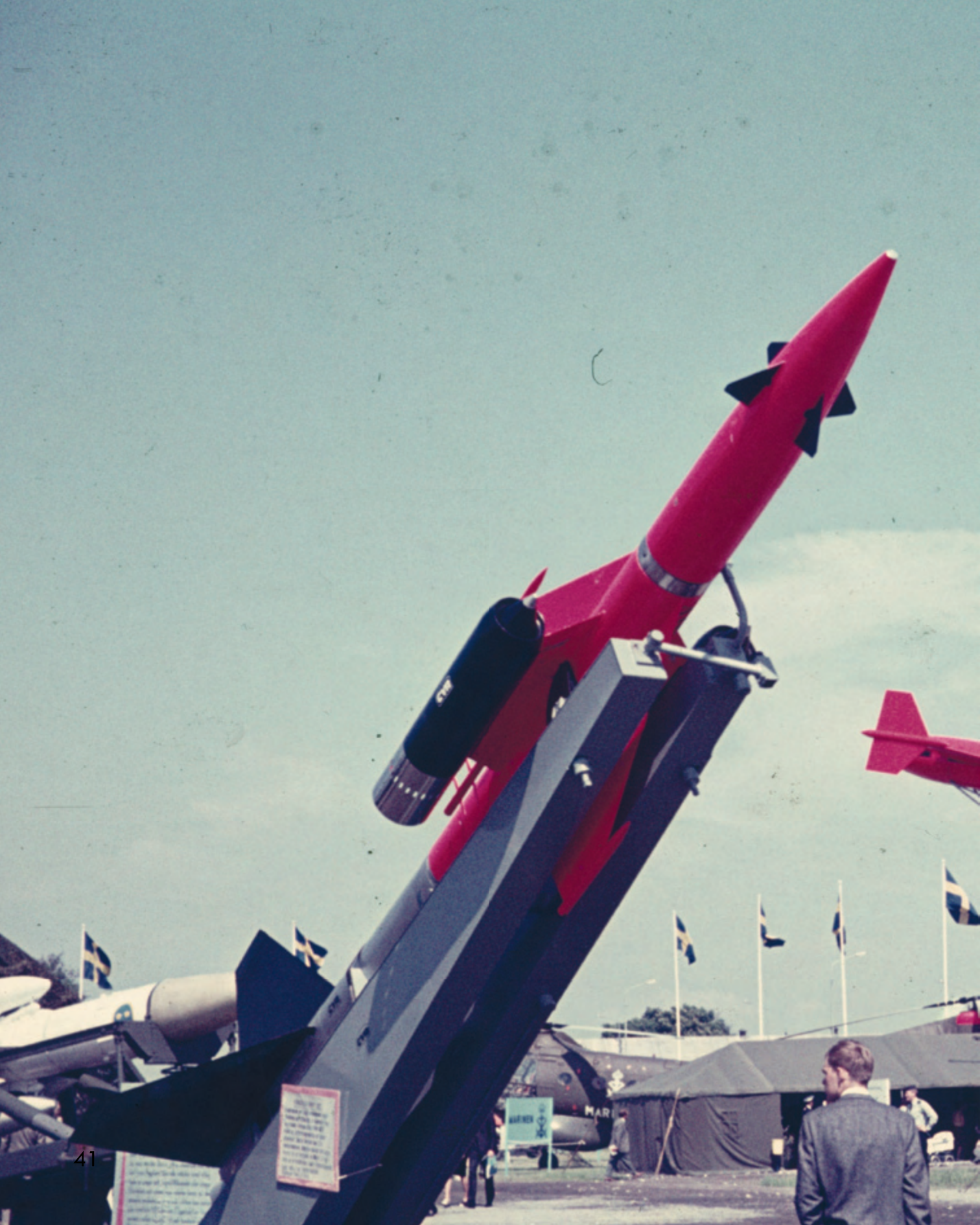
Completion

Use

Disposal

Menuing





# Ambiguity and Provocation

## What Does One Make of This?

“It is a sport, where you compete in being at random, you see... So, who is capable of being the most of nothing at the same time, or nothing at all but then in a very undefined way. So it’s about doing very random and diffuse things. And then you compete in that.”

–“Mammas Nya Kille”, Swedish Radio P3

Although notions such as clarity and obviousness are often mentioned in discussion about what constitutes “good design” it seems that the opposite, the practise of ambiguity, can also be of great value. When we, as designers, are reminded of the importance of considering the user, we

are to think about “who we are designing for” and urged to employ techniques for “understanding the end-user”. As I argued in the previous section of this report, these practises are not guaranteed to be successful in helping us make products that suit each individual user. The approach of “understanding the user” also implies “accommodating the user”. It is assumed that we should find out what the users wants and/or needs and then simply give it to them. The best result is said to be achieved by getting a complete understanding of what design would best suit the user and then implement it entirely.

We are also urged to not complicate things but rather make it impossible for users to misinterpret how objects work, in what context to use them and by whom. If the mobile phone you're designing is not water- and shock proof, perhaps it shouldn't have a casing made to be reminiscent of scuba diving gear. No, the message should be clear and there shall be no room for error by the user. If it is possible, design away every contingency and then the user will truly become one with the product.

This might seem irrefutable at first glance but it might well be the case that retaining a lack of clarity, which might be experienced as provocative to the user, actually serve the user and create a better experience. In the book "Emotionally Durable Design" Jonathan Chapman writes:

"The ideology of fuzzy interactions with objects runs contrary to the prevailing model of popular design, with its focus on idiot-proof user interfaces. [...] In many cases, 'imperfections can be endearing and help to create a bond with the user'. It may be, after all, that the brutal discarding of fully functional products is actually catalysed by excessive usability, which leads to the exclusion of error and accidental discoveries; it is quite possible that products designed in this way are simply too predictable, and thus are incapable of holding our interest over any great length of time." (Chapman, 2005)

While ambiguous product or fuzzy interactions might work well sometimes, it is most likely not the best practice in every case. If, for example, I were to help the

world's best and most experienced heart surgeon develop a set of surgical knives to be used by him, I would not stand in the way of him getting exactly what he feels would aid him most in his operations. I would make sure that I learned as much as possible about his way of working, how he handles his tools and how he generally acts in the operating room. I would also make sure to measure his hands and find out what he felt was positive and negative with a range of other tools he had used in the past. After accumulating all the data and using it as reference in designing a first proposal, I would get the surgeon to give feedback, try out mock-ups and probably complement the data further in different ways. This would go on until I had arrived at producing the tools that would perform better in the hands of this particular

surgeon than any other tools available. I would simply do my best to please the user. Why wouldn't I, you might think. While in this example, it is difficult to see why the user shouldn't be indulged, other situations are different.

In a meeting during a project at NASA where my ID classmates and I were doing a school project, one of the architects working on the interiors of the different habitation modules NASA is operating and developing told us a very interesting thing. He said that he sometimes designs details into the interior and furnishings that he knows are flawed and will irritate the astronauts. This seems hard to understand. While regular people might be okay to mess with, you don't tamper with the equipment of heart surgeons or astronauts.

Garrett Finney (center of picture, wearing a striped shirt) talking to my classmates during a meeting at NASA Space Center.





Astronauts in the International Space Center during a communication session with Mission Control, Houston.

This point of view is derived from the idea that usability is of an overriding importance and that there are no secondary roles of the object being designed significant enough to have any bearing on the achievement of maximized function and usability.

However, Finney realized that there were other values that needed attention. The reason for him consciously making “bad designs” was so that the objects would become targets for the astronauts’ anger and irritability. The crew would be triggered to vent their build-up of tension and frustration at the “engineers and designers back on earth” that made the inadequate equipment and thus a potential development towards a potentially very dangerous conflict among the crew members would be defused (Finney, 2006, interview). Designs like these could even strengthen the team spirit among the astronauts when they would complain about “them” (ground personnel) not understanding “us” (astronauts). This was probably a far better method for promoting crew team spirit than, say, scheduling 30 minutes a day for team building activities like playing games and doing trust exercises. A desired result was achieved effectively by using understated and indistinct methods in a realm different from that of the clearly defined primary functions of objects.

It should be pointed out that this practise of provocative design was never applied to mission critical equipment such as vehicle controls, computers, extra vehicular activity suits, etc. but only minor unimportant items such as dinner place foot straps and the likes.

In this example, the design was intended to provoke its user. This is the effect that is most often desired when different kinds of ambiguity are employed. In fine arts, provocation through ambiguity can be considered common practise as viewers are invited to interpret and react to the work according to their own individual background and sets of values and beliefs. In these cases, the provocation is naturally not of the sort in the NASA example above, where the venting of emotion was sought, but merely a triggering of internal mechanism in the user of thought and emotion. The intention of arriving at this outcome is the cornerstone of the engaging nature of art and the stuff that sets it apart from illustration, model-making and other descriptive practises.





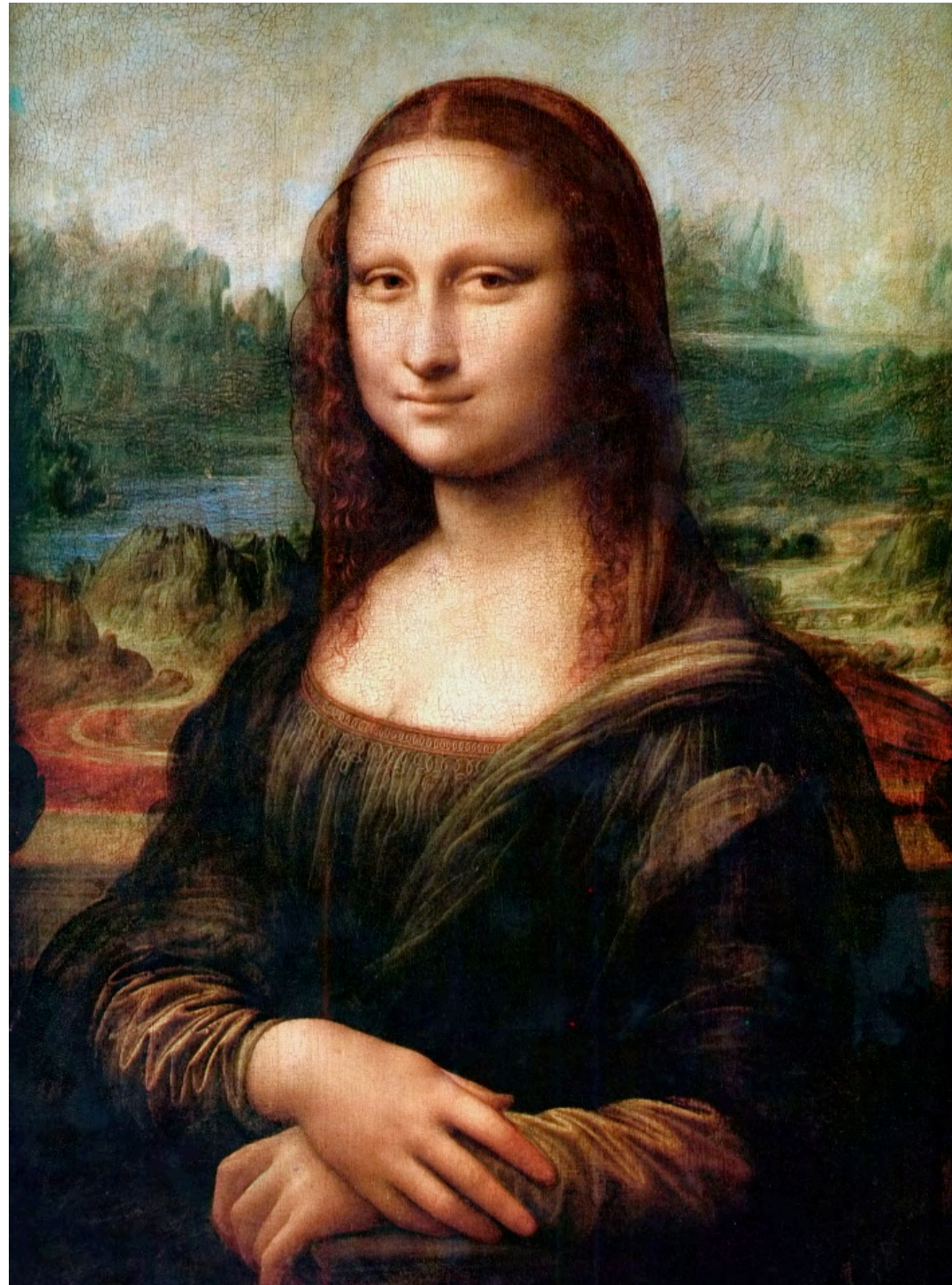
## Aesthetic Experience

The difference between the effect of art and the utility of description is like that between recognition and perception elaborated upon by Csikszentmihalyi and Roschberg-Halton. They put forward the idea that recognition presupposes previously experienced and accepted rules and structures in the user and utilises these to convey an unambiguous message. Perception, on the other hand, is the active engagement of the user with the object. This engagement gives the user an aesthetic experience that is not restricted to the interaction with that particular object but extend through the layers of human emotions and our beliefs about the world. The experience might also modify the previously mentioned rules and structures so that the experience or recognition of other objects is affected (Csikszentmihalyi, & Rochberg-Halton, 2002). Needless to say, these types of experiences are beneficial to the user in terms of psychological growth and learning whereas a lifetime of recognition based experiences is delimiting and only reinforces convention.

I interpret the meaning of “aesthetic experience” in the sense it has been used here as rather wide. I would even consider the below par foot straps mentioned earlier to be a conveyor of aesthetic

experience. They do force their user to struggle with understanding what set of circumstances could cause one of the highest performing organisations in the world to fail at the simple task of securing someone’s feet while he’s having dinner. To me, the Csikszentmihalyi and Roschberg-Halton concept of aesthetic experience is closely related to ambiguity in the way that both notions offer an unintelligible or unclear encounter that is completely left to the user to interpret and relate to in an individual manner (Wilson & Keil, 1999). In art, one of the best examples of this is that of the Mona Lisa, whose smile has been a source of inspiration and bewilderment for centuries. The whole expression of the Mona Lisa is quite ambiguous and a lot of people have had a hard time understanding why they can’t really get a grip of her. In his paper “Ambiguity as a Resource for Design” Bill Gaver at the RCA writes the following:

“All this ambiguity is centred on her smile. In Leonardo’s notes on painting, he says that light and shade should blend ‘without lines or borders, in the manner of smoke’. This technique is called sfumato, and it accounts for the mystery of Mona Lisa’s smile. By reducing the definition (or focus) around her lips, Leonardo makes



Left, 'Mona Lisa' by Leonardo da Vinci (cropped). Above, Close-up of the Mona Lisa's smile.

her whole expression indeterminate, and thus a 'terrain for infinite variations'. With insufficient information to go on, the viewer has to bring that smile into focus in their mind." (Gaver et al., 2003)

Gaver places this type of ambiguity in a category he calls "ambiguity of information". In another example of items in this category, he points out that while Mona Lisa's smile is ambiguous by being under defined, Picasso's Guernica contains characters that are so simplified and clear-cut that they become icons representing something, although it is left for the viewer to decide exactly what (Gaver et al., 2003).



'Guernica' by Pablo Picasso



Still frame from 'The Brood' by David Cronenberg

## Ambiguity in Modern Culture

Ambiguity of information might be the most widely used type of ambiguity and there are several examples of how it has been used for more practical reasons. In interaction design, for example, many systems does not benefit from having a high fidelity in the data that is communicated to the user. Numeric values and specific data of other types, though very informative and exact, can be hard for the user to grasp. Vagueness has been used in interaction design as a means to create user experiences that are experience

inducing and emotive rather than informative as a means to engage the user (Dunne, 1999). Ambiguous messages can convey a rich amount of information by means of allusion, letting the user supplement the message which his/her own implicit expectations and thoughts.

This is a very powerful mechanism that is probably most familiar to people through the medium of thrillers and horror movies. After the monster, ghost or killer has been fully revealed; its power to frighten diminishes. However, during the first parts of the movies, while the presence of the antagonist is only hinted at, the audience



Still frame from 'Alien' by Ridley Scott

fill in the gaps with their own expectations of fear.

At this point, we are approaching the commercial value of ambiguous traits. The most lucrative use of ambiguity might well be materialized in the Japanese cartoon character 'Hello Kitty', who's bare, innocent cuteness, has appealed to the hearts of many young consumers around the world and has thus had an enormous economical and cultural impact. Her creator, Yuko Shimizu, doesn't understand the mass appeal her character has and did not put much thought into the design other than to make her cute (McVeigh, 2000). In a

paper analyzing the Hello Kitty phenomena, Brian McVeigh states the reason for her popularity is the very blankness of her expression. He writes:

“Such a lack of embellishment provides carte blanche for whatever an individual feels, and it is this very impreciseness, indeterminateness, and vagueness that works to the advantage of the business concerns behind Hello Kitty: her plainness characterizes her as a cryptic symbol waiting to be interpreted and filled in with meanings. Thus, she functions as a mirror that reflects whatever image, desire or fantasy an individual brings to it. Her



Hello Kitty

mood is ambiguous; neither happy, sad nor agitated, thus ready to absorb and reflect back to her admirers whatever they are feeling on a certain day. Sanrio spokesperson Yoneyama Kazuhide explains that Hello Kitty's mouthless countenance is part of her appeal: 'Without the mouth, it is easier for the person looking at Hello Kitty to project their feelings onto the character. . . The person can be happy or sad together with Hello Kitty'" (McVeigh, 2000)

In another example of pop culture characters, we learn that the practise of ambiguity is the practise of a 'less is more'-attitude. One of the most popular computer games of the nineties was 'Lemmings'. It is considered a classic for many reasons; it was a completely new type of game, it had a universal appeal and it was really, really fun. The seed for the conception of the game was an argument between coders at the DMA software company, Scott Johnston and Mike Dailly. The matter of the argument was sprites (2-dimensional computer graphics images or animations integrated into a larger scene) and how small it was possible to make them while still retaining their character and expression. Johnston claimed that the limit was at a height of 16 pixels, while Dailly claimed 8. To substantiate his claims, he set about creating

an animation of a bunch of 8 pixels high little guys climbing stairs. Everyone loved it and he was proven right (Diniz-Sanches, 2002 and Dailly, 2006). The character was tuned by animator Gary Timmon to become even more lifelike and likeable and the rest is history. It is fascinating to see how you can be 'fooled' by such a small number of coloured squares to experience watching a living, thinking, feeling individual. The title screen of the game as well as the box it came in, had more detailed pictures of what the lemmings looked like but if they hadn't, I am sure that everyone would have formed a strong image in their own mind of the look of the lemmings. (To see the Lemmings animation in action right now - use the top right corner of this report as a flip book!).

In Sweden, a common aphorism states that 'one shouldn't write on a person's nose', meaning that, in most cases, there is nothing to gain from being overly explicit or instructive. The Mona Lisa, Hello Kitty and the Lemmings all have in common that they refrain from doing this. They keep their distance and leaves room for the beliefs and imagination of the beholder. They sustain an enigma, prompting interaction and allow impressions and experiences that are larger than the object itself emerge within the mind of the subject.

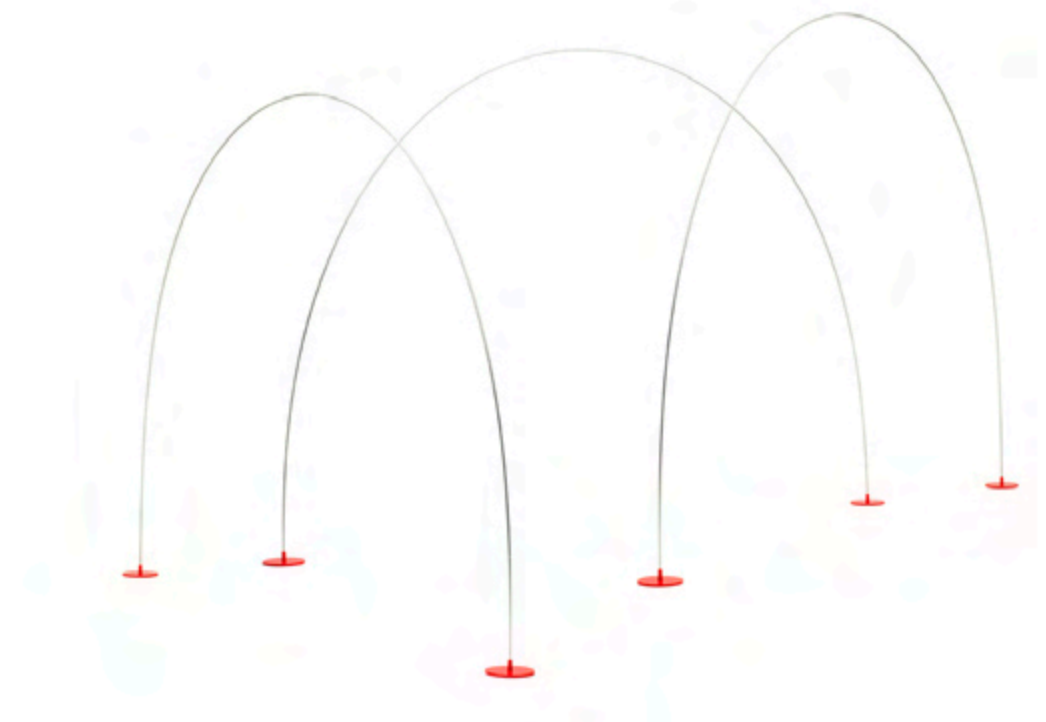
## Ambiguous Objects

Luckily for me (being a future product designer), it's not only depictions of characters that can be ambiguous through lack of information. One of my purposes with this work is to find out how these principles can be applied to artefacts and I have found that there are many good examples of pieces of furniture that employ the principle.

First, Katrin Greiling (graduate of Konstfack Interior Design Programme) did a series of furniture for her diploma work in 2005. While her aim was not to explore or utilise ambiguity specifically, she hit the mark perfectly with one of the pieces. The 'Forest' room divider is very minimal object for creating spatial limits in a room. It consists of two metal plates placed on the floor and a thin aluminium arc passing between them (OFFECCT, 2007). Though it is quite large, its physicality is diminutive so the object as a whole is very unobtrusive. Whereas most room dividers have employed the technique of physically preventing users from passing through them, Greiling's arc only slightly suggest ways of acting around it. This hint of use is two-fold. First of all, the person who places the object is left free to explore ways to create the spatial division they want. Although I'm sure some suggestions

of use are included upon the purchase (at least the retailer must choose some way to present it in the showroom) the object innately carries such great levels of freedom of use that it isn't hard for the user to break free from imposed solutions. Secondly, once the object is in place, people encountering it receives its hints about where to go, where not to go and how to act in certain places depending on the arrangement of the arcs. Of course, this doesn't apply if the arcs have been placed in a tight array and become an impenetrable fence. That is not saying that it is wrong to place the arcs in this way, it might be a very good solution, but it may put an end to the ambiguous mode of function of the arc.

I seem to remember that Verner Panton once said that "the best sitting position is always the next one". While I have been unable to verify the quote, when you look at Panton's furniture, it seems likely that he would at least have agreed with the statement. A lot of the chairs, armchairs and sofas that he designed are quite open to use in variety of ways. There is little about them dictating ways of use and it is left to the user to decide how to interact with the object. Along with some Italian designers like Gaetano Pesce, Archizoom and the trio of Gatti, Paolini and Teodoro (creators of the 'Sacco' beanbag chair



Suggestions of combinations



'Forest' Room Divider by Karin Greiling

– perhaps the most ambiguous piece of seating furniture ever made), Panton took part in a strong movement away from preconceptions about how furniture should look and work. A central idea in this development was that the needs of the users cannot be accommodated by finding the “perfect” way of seating them. Instead one has to rely on the will and understanding of the users to take what is presented to them and put it to use in ways that suit each one of them best. A more recent example of this practise is the ‘C Innovation’ chair by Fredrik Mattson. Since it does not look like an archetypical chair it doesn’t communicate clearly which way to face while you’re seated on it. The user’s perception of the piece becomes more important than in most “user - chair” encounters since the user will have

to take in the piece to be able to make decision about how to use it. Conveniently enough, the chair accommodates many different orientations and anyone who uses it is quite free to discover how it can satisfy their preferred sitting position in the best way. If aesthetic experiences are arrived at by leaving the user to figure out and decide how to use an object, the pieces of furniture mentioned here really seem to offer that.

Returning to Gaver, other types of ambiguity in design include “ambiguity of context” where the unexpected presence of an item in a certain environment can have an enormous effect. Gaver’s example of this is Duchamp’s work “Fountain” which essentially was a urinal lying on the floor. It might seem like a rather straightforward



‘C Innovation’ by Fredrik Mattson

object but when placed within the walls of a gallery it caused one of the greatest stirs in the history of western art (Gaver et al., 2003).

The effectiveness of the Fountain comes from the way people are forced to take in this very familiar object in a completely new way because of how it is presented. Most people had seen urinals exactly like it a thousand times, but they had never been prompted to view it, or assess it as a sculpture, taking in its lines and its volume. This situation alone brings about an aesthetic experience due to the fact that the familiar object was made unfamiliar by means of context. In addition to that, a tension arises when you are forced to deal with the fact that you are taking in an artwork on the one hand and simply looking at a toilet on the other. These two modes seem incompatible and you are driven towards grappling with this mismatch and eventually find yourself deeply engaged with the piece.

Gaver points out the fact that while the practise of contextual ambiguity is very common in art, it has not been exploited to any larger degree commercially. There are, however, examples of the kind of transgression Duchamp employed in the realm of mass produced objects, but they are most often initiated by the end users.

Gaver presents the example of mobile phones being used to soothe babies who become distracted by the cheery, blipping noises. The mothers and fathers who practise this method not only add a function to the phones that was unintended and probably unimaginable by the designer, they transform the phone into another object. From the baby's point of view, the object they are presented with is for them and holds only the function to which they are responding to. In the baby's world there exists no phone, only a cheerfully blipping "baby-happifier" (Gaver et al., 2003).

The last of Gaver's types of ambiguities, "ambiguity of relationship" is somewhat less accessible than the others since the ambiguity doesn't lie in the object itself. While the object may be very clearly defined and not be in conflict with its context in any way, it causes us to think about ourselves and how we could be affected by the object. The example presented is an artwork consisting of a very professionally crafted caravan with an interior hinting at a decadent, even sleazy lifestyle, with furniture suited for only the most hedonistic activities. Visitors feel uncomfortable in the setting and make judgements and reflections about lifestyles and choices. Introspection follows and our subjective experience becomes reinforced and communicated to ourselves.

In his conclusion Gaver points out that while ambiguity can be a very negative thing and should not be used as an excuse for poor design, it clearly has benefits and can be a very powerful tool. Since the designers (or teams thereof) are constricted to their own knowledge and values, catering to the diversity of users and being able to tap into all of their individual sets of explicit or implicit needs is a very difficult thing. For this reason, ambiguity might be one of the most effective methods available for closing that gap. While Gaver stresses the ability of ambiguity to raise questions without dictating the answers (Gaver et al., 2003), I on the other hand, when it comes to commercial products, see more of an opportunity to make explicit and tacit options within the product available for the user to discover. There is a prospect of letting the users fill in the blanks and make the products suit them better in a way that I could have never achieved by dictating solutions from my side of the notepad. I as a designer am of diminutive importance when it comes to assigning traits and potential practices to an object compared to the importance of the users of the object.





## Putting theory to the test

I wanted to find out more about how people read their own values and beliefs into objects so I decided to construct a small survey. The idea was to present the test subjects with a series of images of objects that they would rate in some way. After this they would rate themselves in the same way and I would be able to see if people's opinions of an object would relate to their opinion of themselves. The products that received different ratings among the test subjects but where this correlated to how the subjects rated themselves would seem to be more ambiguous or interpretable than the objects that did not receive this result.

Deciding what kind of objects to put up for evaluation took some time. At first, I picked images of random household objects like chairs, lamps, cutlery and televisions. I soon realized, however, that these objects differed from one another in so many ways, that it would be impossible to interpret the result. The objects I had collected differed in size, appearance, function, degree of complexity, etc. I needed to narrow the field of variables for the products dramatically. Since I had decided that the test would be web based I needed

to objects that could be understood by just looking at an image of them and it also became clear that the only variable that would be available for evaluation would be the products' appearances. I finally settled on cups (tea- and coffee-) since they share the same basic function (vessel for hot consumable liquid) and people are generally very familiar with their function and the role they play in our lives – functionally, socially, etc..

At one point I considered complementing my choice of cups with another, quite different group of objects to acquire two sets of data and be able to compare the results. I started gathering images of car stereos but soon realized that the variable that would be available for evaluation (their appearance) was most likely too homogenous in this group for people to be able to differentiate. While I cannot say for certain that a test of car stereos would have been unsuccessful, I decided against including it in my survey.

The selection of cup images was quite arbitrary, since the Internet provided me with a vast pool of material. Initially, the main sources of material was Swedish ceramics manufacturers like, Duka, IKEA and Rörstrand, but after that I found amazon.com to be a tremendous source of useful images with their huge and

diverse assortment of cups. I picked cups at random, trying to get a good range of styles. After this I grouped the cups into 7 categories based on different types of appearance that I could identify within the collection of cup images I had amassed; Colour, Detail, Metal + Glass, Motifs, Pattern, Sculpture and White. Finally I selected 25 cups representing a selection of the 7 categories.

Another aspect of the test that required some attention was in what manner the objects should be rated. I wanted the subjects to assign specific properties to the cups, but what would they be. In my mind, the properties available to assign would need to be vague enough to allow for the subjects interpretation of them. There would be little point to having people give their opinion on whether a cup is blue or not or whether it is made out of glass or not (or to what degree). I needed something a bit imprecise and fuzzy. These properties also needed to be applicable to cups and humans alike in order for the subjects to assess themselves in the same way as they would the cups. I turned to psychologists for help in finding a suitable set of properties to use in the survey. The tip I needed came from Ingegerd Carlsson, professor at the Department of Psychology at Lund University, who suggested that I looked into the 16 Personality Factors

(PF) of Raymond Cattell (Richard, 1996 and Fehriinger, 1996). These are based on the Lexical Hypothesis, a theory stating that any differences between people that are socially relevant will eventually become encoded into language. For this reason, studying occurrences of personality describing terms in dictionaries can lead to an understanding of what traits constitute human characters. Of the 16 original factors, I excluded 5, which I did not believe could describe inanimate objects. These were Reasoning, Emotional Stability, Vigilance, Apprehension and Perfectionism. The 16 PF are most often used as a form of output describing the result of question-based personality test, but I believed that it could be used as input as well and let people assign these traits by selecting a point on a scale.

Each of the 16PF is accompanied by two opposing sets of Descriptors. I reduced these sets to the words I felt described each trait in the clearest way. The prime flaw in my survey was that the words used were quite difficult, especially for the subjects not having English as their first language. In spite of the difficulties people were having with the test, I decided against making a translation for the Swedish users, since this would introduce a factor of uncertainty while analysing the result, i.e. avoid the risk that the possible interpretations





Descriptors of Low Range	Primary Factor	Descriptors of High Range
Reserve, impersonal, distant, cool, reserved, impersonal, detached, formal, aloof	Warmth	Warm, outgoing, attentive to others, kindly, easy going, participating, likes people
Concrete thinking, lower general mental capacity, less intelligent, unable to handle abstract problems	Reasoning	Abstract-thinking, more intelligent, bright, higher general mental capacity, fast learner
Reactive emotionally, changeable, affected by feelings, emotionally less stable, easily upset	Emotional Stability	Emotionally stable, adaptive, mature, faces reality calm
Deferential, cooperative, avoids conflict, submissive, humble, obedient, easily led, docile, accommodating	Dominance	Dominant, forceful, assertive, aggressive, competitive, stubborn, bossy
Serious, restrained, prudent, taciturn, introspective, silent	Liveliness	Lively, animated, spontaneous, enthusiastic, happy go lucky, cheerful, expressive, impulsive
Expedient, nonconforming, disregards rules, self indulgent	Rule-Consciousness	Rule-conscious, dutiful, conscientious, conforming, moralistic, staid, rule bound
Shy, threat-sensitive, timid, hesitant, intimidated	Social Boldness	Socially bold, venturesome, thick skinned, uninhibited
Utilitarian, objective, unsentimental, tough minded, self-reliant, no-nonsense, rough	Sensitivity	Sensitive, aesthetic, sentimental, tender minded, intuitive, refined
Trusting, unsuspecting, accepting, unconditional, easy	Vigilance	Vigilant, suspicious, skeptical, distrustful, oppositional
Grounded, practical, prosaic, solution orientated, steady, conventional	Abstractedness	Abstract, imaginative, absent minded, impractical, absorbed in ideas
Forthright, genuine, artless, open, guileless, naive, unpretentious, involed	Privateness	Private, discreet, nondisclosing, shrewd, polished, worldly, astute, diplomatic
Self-Assured, unworried, complacent, secure, free of guilt, confident, self satisfied	Apprehension	Apprehensive, self doubting, worried, guilt prone, insecure, worrying, self blaming
Traditional, attached to familiar, conservative, respecting traditional ideas	Openness to Change	Open to change, experimental, liberal, analytical, critical, free thinking, flexibility
Group-oriented, affiliative, a joiner and follower dependent	Self-Reliance	Self-reliant, solitary, resourceful, individualistic, self sufficient
Tolerated disorder, unexacting, flexible, undisciplined, lax, self-conflict, impulsive, careless of social rues, uncontrolled	Perfectionism	Perfectionistic, organized, compulsive, self-disciplined, socially precise, exacting will power, control, self-sentimental
Relaxed, placid, tranquil, torpid, patient, composed low drive	Tension	Tense, high energy, impatient, driven, frustrated, over wrought, time driven

**Right: Raymond Cattell's original 16 PF's including accompanying descriptors.**

**Below: The 11 PF's used in the survey and the reduced set of descriptors for each PF.**

Descriptors of Low Range	Primary Factor	Descriptors of High Range
Impersonal, formal	Warmth	Warm, outgoing
Humble, accommodating	Dominance	Dominant, bossy, assertive
Serious, prudent	Liveliness	Lively, expressive
Non conforming, disregards rules	Rule-Consciousness	Dutiful, conforming
Timid	Social Boldness	Uninhibited
Utilitarian, no-nonsense, rough	Sensitivity	Sensitive, sentimental
Practical, conventional	Abstractedness	Imaginative, abstracted
Forthright, open, unpretentious	Privateness	Discreet, polished, private
Traditional, conservative	Openness to Change	Experimental, critical
Affiliative, dependent	Self-Reliance	Solitary, individualistic
Relaxed, tranquil, composed	Tension	Tense, driven, impatient

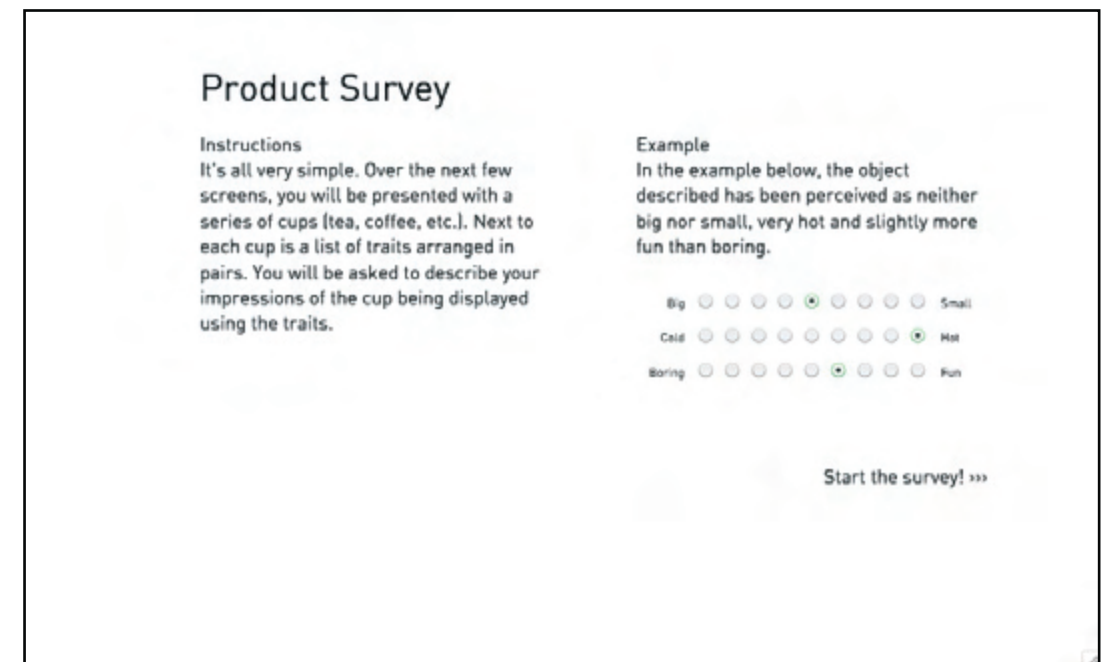
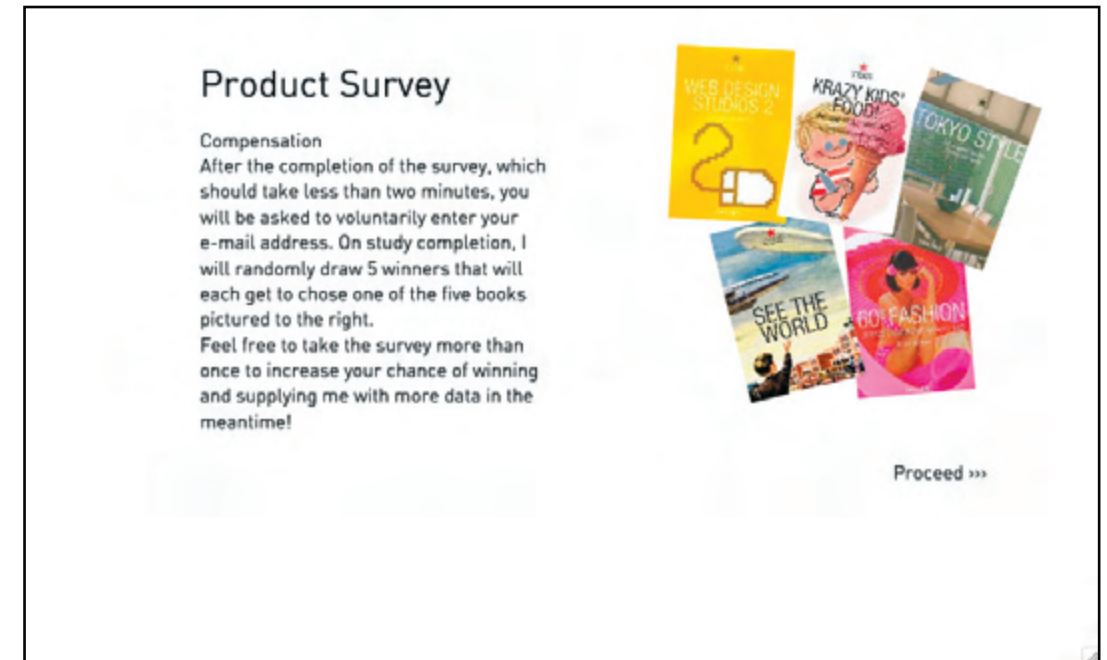
of the Swedish phrases could differ from those of the English ones.


The test was constructed with Macromedia Flash and PHP-technology. On each test occasion, five cups out of the twenty-five available would be selected at random and presented to the user one by one. Each cup would be accompanied with a table representing the 11 Traits. For each trait, there would be a scale of 9 degrees with two opposing sets of descriptors on either side. The test subject would be asked to mark on the scale the point that most accurately described the cup in question. After having done this with five cups, the test subjects would then assess themselves in the same manner.

I e-mailed an invitation to take the survey to as many people as I could think of as well as posted invitations on internet forums of different kinds. In order to boost the participation count, I bought five books that I raffled out amongst the participants. This also gave me the e-mail address of each test subject, which I could use as a key in order to remove duplicate submissions. As it turned out there were no duplicates (apparently the books weren't desirable enough to sit through the tedious survey more than once in order to improve winning chances). Upon survey completion, each set of results

were e-mailed automatically to a special account and collected in a folder in my e-mail program. The submissions where people had just clicked through the test were sorted out automatically. In the end I received 130 complete submissions; each with test scores for five different cups giving me a total of 650 observations fairly evenly distributed over the 25 test objects. 19 submissions were incomplete and were removed.

The results were transferred to a Microsoft Excel spreadsheet, where they were analyzed by me through means of the statistical formulae included in the software. The two factors that interested me was the standard deviation of the perceived traits of the objects and the degree of correlation between a subject's description of an object and the description of him-/herself. Regarding the latter factor, I was, at this point, not concerned with what descriptions correlated with one another. For instance, to find that the Warmth factor of one cup correlated with the Dominance factor of the subjects was of no interest to me, since it would produce too much data for me to grasp and the diversity of traits was never intended for examining the actual "personalities" of the objects but rather provide a broad base of available description for the subjects to use so that they had a better chance of defining their






Impersonal, Formal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Warm, Outgoing
Humble, Accomodating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dominant, Bossy, Assertive
Serious, Prudent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Lively, Expressive
Non Conforming, Disregards Rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dutiful, Conforming
Timid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uninhibited
Utilitarian, No-nonsense, Rough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sensitive, Sentimental
Practical, Conventional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Imaginative, Abstracted
Fearful, Open, Unpretentious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Discreet, Polished, Private
Traditional, Conservative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Experimenting, Critical
Affiliative, Dependent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Solitary, Individualistic
Relaxed, Tranquil, Composed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Tense, Driven, Impatient

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Now, describe **your own personality** in the same way.  
Try to not overthink your answers.

Impersonal, Formal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Warm, Outgoing
Humble, Accomodating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dominant, Bossy, Assertive
Serious, Prudent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Lively, Expressive
Non Conforming, Disregards Rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dutiful, Conforming
Timid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uninhibited
Utilitarian, No-nonsense, Rough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sensitive, Sentimental
Practical, Conventional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Imaginative, Abstracted
Fearful, Open, Unpretentious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Discreet, Polished, Private
Traditional, Conservative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Experimenting, Critical
Affiliative, Dependent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Solitary, Individualistic
Relaxed, Tranquil, Composed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Tense, Driven, Impatient

Page 6 / 7



Impersonal, Formal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Warm, Outgoing
Humble, Accomodating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dominant, Bossy, Assertive
Serious, Prudent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Lively, Expressive
Non Conforming, Disregards Rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dutiful, Conforming
Timid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Uninhibited
Utilitarian, No-nonsense, Rough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sensitive, Sentimental
Practical, Conventional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Imaginative, Abstracted
Fearful, Open, Unpretentious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Discreet, Polished, Private
Traditional, Conservative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Experimenting, Critical
Affiliative, Dependent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Solitary, Individualistic
Relaxed, Tranquil, Composed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Tense, Driven, Impatient

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**Raffle Entry**  
At this point I would like you to enter your e-mail address. After the study, I will randomly draw 5 winners that receive one each of the books displayed in the beginning. There will be no subsequent costs for the winners (i.e. shipping and handling is included). If you are among the winners, I will contact you via the e-mail address you supply here.

**Assurance**  
Your address will not be used for anything else than the purpose stated here. It will not be used to identify survey answers or be shared with a third party. **You do not need to supply your e-mail address if you do not want to.** In such a case, simply leave the e-mail field below blank and click the 'Finish!'-button.

Enter e-mail address and click 'Finish!'.

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perception of the object within the boundaries of the survey. Though my workflow meant that I at one point had a table showing how all of the factors for each cup correlated with the factors of the test subjects, I only retrieved the median value from that table as an indicator of overall degree of correlation. Before I did this, I also inverted any negative correlation to a positive one so that those two types of correlation did not cancel each other out. The method of extracting the median value was also applied to the standard deviation of perceived traits in the objects.

Due to a flaw in the function I programmed for selecting cups at random for the subject to consider, the first cup (A) and the last cup (Y) rendered considerably less observation data. This became evident when I compiled the results and found that these two showed suspiciously high



Cups A and Y

correlation values. I chose to exclude these two objects from the further analysis in order to avoid making faulty conclusions.

Using the two variables 'Variation' (standard deviation of score or degree of diversity in how an object was perceived) and 'Correlation' (how strongly the description of an object was linked with the description of the subject) I created a coordinate system using the median values as a point of origin. The coordinate system was relative in the sense that its center was placed roughly in center of the distribution of the cups. This allowed me to draw conclusions about one cup in relation to another one, but not to draw any objective conclusions. On this chart I plotted each of the twenty-five cups. I had decided earlier how to interpret the position of cups on the chart:



#### Low Variation – Low Correlation *Clear*

The low variation in object description suggest a very clear and unarguable identity while the low degree of correlation with subject data suggest that people agree on this identity across the field. These cups have an unmistakable identity that people tend to agree on.

#### Low Variation – High Correlation *Insufficient data*

When the objects exhibit a low amount of variation in their data and at the same time correlate well with the subject data, it implies that there is not much variety in the subject group either. Then, since the objects in this group have not been described by a diverse group of subjects, the data is of little value for use in this survey.

#### High Variation – Low Correlation *Unclear*

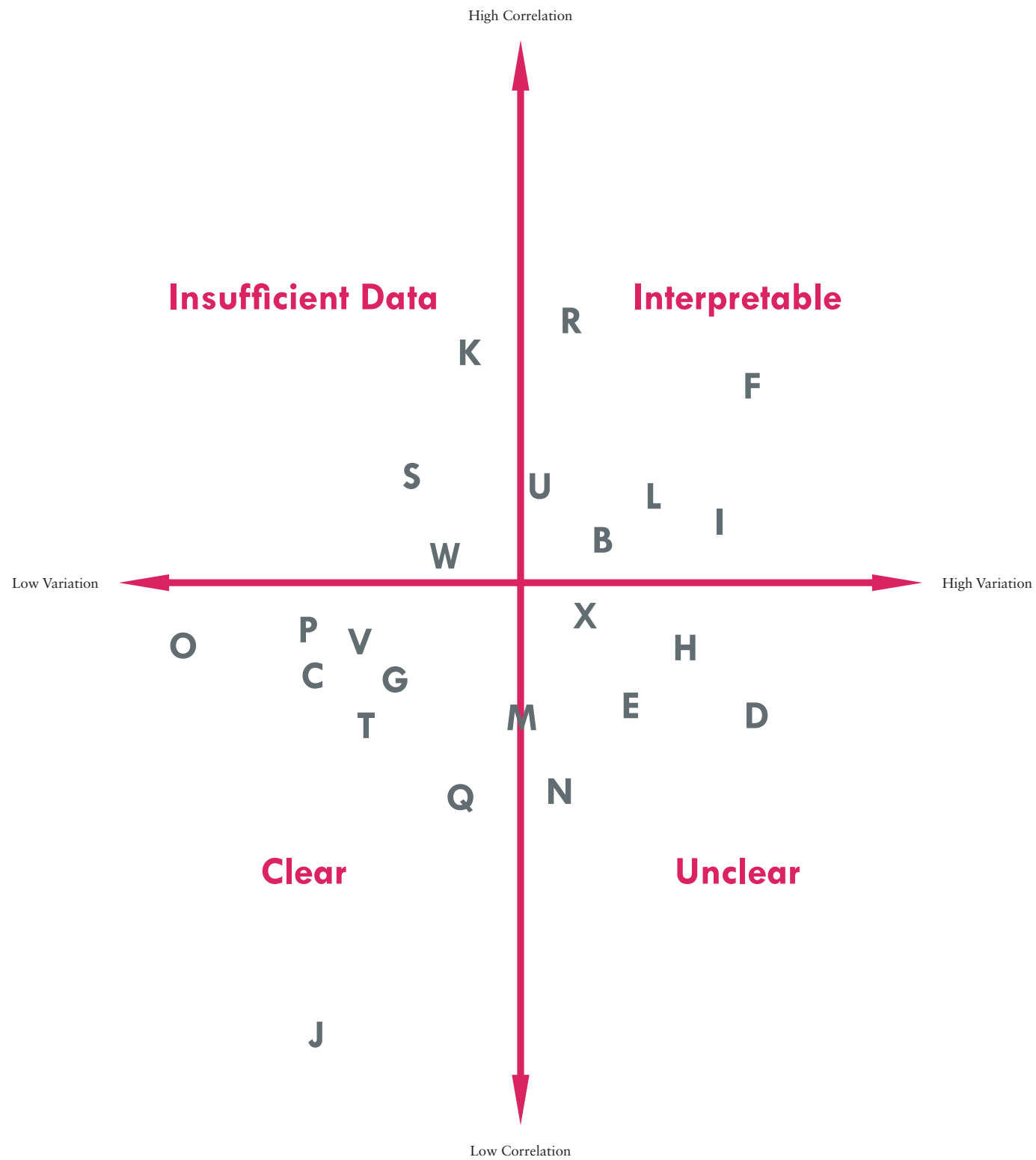
This group contains cups that different subjects perceive in different ways. However, the way the subjects perceive the cups have nothing to do with who the subjects are. The descriptions of the cups are highly unpredictable and random and I therefore believe them to have an unclear identity.

#### High Variation – High Correlation *Interpretable*

This is the group that is most interesting and the main reason for the survey. These objects are described in very different ways but the way they are described is closely related to the subjects' description of themselves. A group of subjects that describe themselves in a similar way tend to agree on how to describe the objects in this group. The objects are interpreted based on the subjects' selves.

Although the results were not indisputably clear in any way. There are some interesting observations to be made. The result is especially interesting concerning the theory of ambiguity dealt with in the previous section of this report.

The resulting plot contains one observation that is very positive. Cups G, O, P, Q and T are similar in style. They are stripped of sculptural elements as well as graphical decor and are simple and familiar in their shape. It is interesting to see how they wound up clustered together in the 'Clear' sector meaning that they apparently have an identity that a diverse group of people can agree on. This result was far from expected. In fact, I had an idea beforehand about the cups lacking in visual expression would be like blank



slates, available for the subjects to fill with the traits of respective selves. I believe that the reason for these cups to have wound up in the 'Clear' sector has nothing to do with the lack of adornment they share. Instead, it is a question of familiarity. What made me believe this is that when it comes to having a precise identity in this test, they are surpassed only by cup J, an archetypical coffee-cup with classic features in style, shape and decor. The relationship between classical, familiar appearances and agreement in subject assessment generally seems to hold for the entire set of objects, save for a couple of exceptions, viz. cups C and H.

While the horizontal axis arranges the cups in a way that can be understood, the vertical axis proves harder to decipher. On cup sticks out, though, and that is cup F. According to the data, with its high degrees of variation and correlation alike, this cup is the one that is most likely to be perceived in accordance with what the subject brings to the table. It is quite fascinating to note that it is also, in my opinion, the cup that least resembles a cup. No other cup is lacking both saucer and ear. Cup F also possesses a very strong sculptural quality and might very well have prompted people to halt before filling out the form. What causes cup R to receive such a high correlation score is

harder for me to account for, but it might have something to do with its somewhat unexpected combination of elements. As for the other cups in the graph, few seem to be able to offer any insight to the relationships examined, although the proximity of two quite similar cups, M and N, seem to corroborate the validity of the result to some extent.

I brought up earlier how aesthetic experience is related to the notion of ambiguity and build on the idea that perception is only activated in strange encounters and that recognition merely serve to substantiate old patterns thereby hindering any real experience. In the light of the results of the survey analysis these statements seem to remain true. The cups that were plain and familiar have not seemed to evoke any process in the subjects were they have been forced to come to grips with what they are looking at and rate it without prior reference. No, they have simply been recognised for what they are, and rated accordingly. On the other hand, cup F have resisted easy definition and mandated the subjects to come up with their own interpretation of its identity and personality.

As intriguing as this all is, I want to stress that I am no expert of statistical analysis and that the results of the analysis does

not seem entirely conclusive to me. I do not claim to have found proof that people relate better to objects that are weird or unfamiliar. Nor do I claim to have shown that a plain enough object will be perceived in exactly the same way by everyone. Having said this, to me there is a pattern in the analysis result which happens to match up well with the theory of aesthetic experience and the effect of ambiguity on user perception.







So, how does one act upon this? Is it safe to say that object-user relationships will be strengthened across the board if all designers just go ahead and concoct weird, incomprehensible things? Does provoking users to actively interpret objects guarantee attachment any more than supplying them with a choice of four background images in their cell-phones? Looking back at what I want to achieve with this work, I have been trying to find a way to retain open-endedness in products. To make products that do not point fingers at the user and act as though they know everything but rather surrender themselves to the user. 'Here I am. Use me as you see fit. Apply whatever meaning to me you want. I will never judge you.'

The survey conducted was reduced to a survey of the appearance cups and reveal nothing about how to handle questions of use, context, product lifecycles or quality. This means that while an object that is ambiguous and open for interpretation

in one aspect might be relentlessly unambiguous and conventional in another. Would we have to retain ambiguity in every single aspect of an object in order to succeed at making it available for personalisation of that object by the user? If we weren't, how would we possibly be able to predict which aspects benefit from being enigmatic? Is it even possible to apply an element of indeterminacy to any feature of a product, i.e. its appearance, its functionality, its implication of context, its perceived value, etc.

All in all, employing ambiguity and provocation as methods of approaching the user seems to be risky to say the least. Not only would one run the risk of applying a type of ambiguity that the user is indifferent towards, more importantly one would risk alienating the user completely by providing him with an object that takes too much effort from the user to relate to at all.



# Appropriation

## The Secret of True Ownership

“[Designers...] can create beautiful products that we fall in love with at first sight. They can create products that fulfill our needs, that are easy to understand, easy to use, and that work just the way we want them to. Pleasurable to behold, pleasurable to use. But they cannot make something personal, make something we bond to. Nobody can do that for us: we must do it for ourselves.” - *Donald Norman* (Norman, 2003)

‘DIY’ and ‘Mod Culture’ are concepts that have bloomed in the wake of Web 2.0 and the other phenomena described earlier. Through the reassurance one gets from seeing someone do something before you

try it yourself, the degree to which people have become empowered to taking matters into their own hands have increased dramatically. Whether you are considering tattooing yourself, building a Theremin, make plastic out of milk and vinegar or just attempt to fix your broken TV-set, someone is bound to have done it and posted the instruction online at Instructables.com or some other DIY-site. Studies show that up to 40% of consumers engage in product development or modification (Von Hippel, 2005). Only a few years ago, the topic of modding and DIY on the Internet was restricted to computer software, computer hardware and cars. These days you can find whole arrays of instructions

on something as seemingly unimportant as how to dye Easter eggs in different ways. Whole communities gathering around the modding around a specific group of products have emerged. 'IKEAhacker' is a site who's exclusive intention is spreading knowledge about possible ways of improving, repurposing, recycling and making the most of products manufactured and sold by IKEA. Here, one can learn how to build an A/V-rack from closet interior parts, how to convert a bed frame into a book case or where to buy sofa covers that fit the different IKEA sofa models (IKEAhacker, 2007). At the point where IKEA's effort to satisfy a large amount of customers falls short, 'IKEAhacker' picks up and helps the products become what the users really wants them to be.

The fact that 'IKEAhacker' is called 'IKEAhacker' and not, for instance, "Customize your IKEA Stuff" brings me to a very important point that needs to be made. According to Richard Stallman, one of the most prolific figures of hacker culture, "hacking means exploring the limits of what is possible, in a spirit of playful cleverness" (Stallman, 2002). Thus, a crucial factor of a hack is its unexpectedness, since if it something was expected to be done; there would be no exploration and ultimately no hack. This unexpectedness is the defining difference between mods

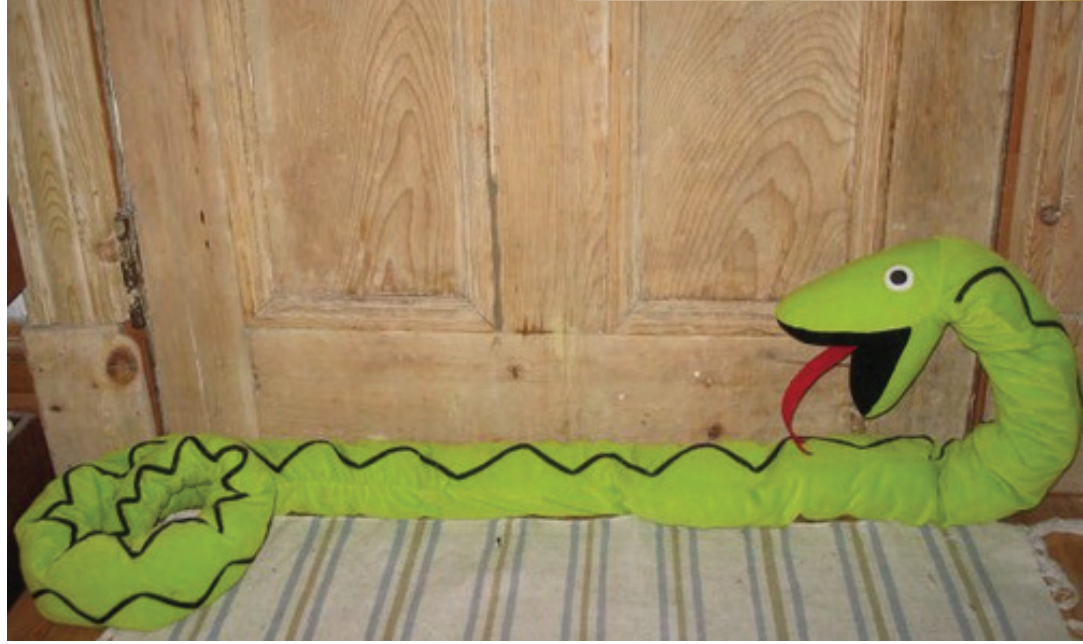
and hacks on one hand and customization and menuing on the other. The element of unexpectedness is also the key factor in the power of modding as a means of reaching the user, since only the user knows what he/she wants to do with the product. No one can expect how everyone is going to want to relate to a product, but anyone knows how they themselves want to relate to that product.

I perceive the development of "mod culture" as indicative of people's need for personalising their material surroundings. This personalisation does not have to be very dramatic or happen on a large scale. You don't have to saw the roof of your car for it to be considered personalised. The personalising actions of users can be the very slight things we do all the time without taking notice of it. We arrange our work place in a certain way; we take our

Opposite page: IKEA 'Lack' Coffee tables turned into a hi-fi equipment storage and display unit

Next spread: More examples from the IKEAhacker website and a mod-tip of an IKEA stool from an interior design magazine





Handknuten ullmatta Pers Hamad



Plywoodpall  
*Benjamin*  
175 kr, Ikea.  
Dekorerad med tyg  
*Sanna* från Ikea,  
35 kr/m.  
Klipp och klistra,  
lacka sedan  
med klarlack.

Barstol *Franklin* 239 kr, Ikea. Dekorera

favourite route while biking through the town; we record an answering machine message that reflects how we want to be perceived, we keep our socks where we can reach them and we take a certain amount of sugar in our coffee. These things may seem trivial, obvious and unimportant but they are neither. Imagine having to take your coffee in a different way from what you prefer. If you like black coffee without sugar, imagine a life of milk and no sugar. If you like sweetener, imagine a life of three pieces of sugar in every cup you drink. You would probably be very discontent with how you weren't allowed to have any say about the constitution of your coffee and feel that your ability to appreciate the drink was ruined. Your lack of influence would perhaps cause you to abandon coffee altogether, simply because you cannot have it the way you like it.

These things matter and illustrate how freedom of choice is a contributing factor to human well-being. If we move up the scale of complexity from products like coffee and socks to things like televisions, customer phone services, word processors and digital cameras, we find that products become more and more dominant. Like in the example with the 'incorrect coffee configuration', we can't easily get things the way we want them to be. We exhibit involuntary behaviour that the products

impose on us like channel surfing, waiting in phone queues for several minutes as if in a state of paralysis or bringing an obtrusive bag on the day-trip to have somewhere to put your new expensive camera just to avoid having it snatched from you by a pick-pocket. In simpler cases, like with coffee and socks, the user is more likely to be able to dominate the object into a submissive state where the needs and wishes of the user become the commanding factor. The object complies with whatever agenda the user imposes and turns into what the user needs. If a sock has a hole in it, I can still wear it. I'm not going to get an error message or experience a significantly downgraded sock performance. These types of objects – simple objects – seem to contain the very qualities I have been pursuing in this project, the qualities that leads to objects conforming to user behaviour and not the other way around. Then, what are these qualities? Can they be extracted and transferred to more complex objects?

## A Look at What the Neighbor is Doing

Architecture, a field subjected to considerably more academic discourse than that of design, has seen several studies of user's impact on spaces. It is clear for anyone



to see that while a television or car is expected to largely maintain its appearance and function throughout its lifespan, it is taken for granted that houses change with the people who occupy them. At first, furniture is placed, mailboxes are erected, gardens are altered and curtains hung. After a while, the changes become greater as walls get knocked down, attics fixed up for accommodation, garages torn down and every vertical surface of the house gets painted over and over again in new colours. It's not just the private pieces of architecture we take into possession in this way. We also modify public spaces by collectively and spontaneously either rectify or point out the mistakes made by the planners of the space. Bicycles hoard where there ought to be a bicycle parking space, paths are made through grassy areas where people need or want to walk and littering occurs in the absence of bins.

These actions, collective and private, are all acts of appropriation. The word 'appropriation' has many meanings, depending on context. I will use it more or less in the sense it had when it was thoroughly discussed at an international conference of architectural psychology in Strasbourg in 1976, where Perla Korosec-Serfaty introduced the notion into the field (Modh, 1998). The notion still retains a great deal of vagueness and the definition

can be stretched to encompass fewer or more phenomena. My understanding of what appropriation means, however, is well described in Birgit Modh's 1998 paper "Appropriating everyday space - an important aspect for the development of the City Culture". She writes:

"In the appropriation of space, there is a two way communication between a person and her surroundings. The term appropriation implies to gain something, but also to give something from yourself to the environment. The act of appropriation means acceptance, modification, and identification between the appropriated and the person in question.

The fact that appropriation includes identification does not mean that an individual can have only one place of identification, and the appropriation can be narrower or broader; concerning on (sic) what affects us more or less strong as persons. Appropriation includes emotions as well as action. Emotional appropriation means that the object is made accessible by an inner adaptation. In addition to this inner process, and probably in interplay with it, there is often a material adaptation, for instance, when one moves into a dwelling." (Modh, 1998)

These ideas are not restricted to places and

spaces, but very applicable to objects and other types of instances as well. Human beings are one example of more or less appropriable object. When we encounter a human being there is sometimes a dissonance between that person and ourselves. This dissonance, gap or incompatibility can be attributed to differences in values, beliefs, behaviour, experiences, etc. and determines how well we can relate to one another. The larger the gap, the more effort is needed to bridge it. We modify ourselves and try to modify the other person, though most often not very dramatically. It can simply be a matter of trying to understand one another and each other's viewpoint better, or slightly adjust our behaviour in order to minimize irritation. These efforts can be said to be acts of appropriation. In the same way as a home can be said to be an appropriated living space, a friend might be described as an appropriated human being.

As well as not having to be very severe, the changes of attitude towards one another to promote harmony do not have to be permanent. Many of us exhibit one behaviour in a certain context with certain people and a completely different behaviour in another. We might be loud and boisterous among friends, but calm and apprehensive at the work place. People who in their teens have run in to their parents while

having a rowdy night out on the town with their friends have probably at that point felt compelled to adjust their manners. When it comes to adapting to one another, unfortunately it cannot always be done. It would seem that some gaps can simply not be bridged and the relationship remains a tense, uncomfortable one.

## What If it Fails?

If dominance is the taking over of someone (or something) else's will, appropriation is the taking over of one owns will. When it comes to products, successful appropriation is taking place when the will of the user is what defines and shapes the user-product relationship. That is to say, while the actual modifications that are applied happen either within the user and the object, the factor being appropriated is the relationship between the two. So, in fact, objects are not appropriated, only how we relate to them. If the nature of this relationship is dominated by the other part of the connection, that part is enforcing its agenda on us. It is when we are dominated in this way by an object that we want to distance ourselves from it. For instance, if the interface of a VCR-player proves to be completely incomprehensible for someone, that person might resort to always asking some other (usually younger) member of

the family to take care of programming the VCR timer each time it is needed. The ‘will’ of the VCR-player was in this case to be used in the exact way that was intended by the designers of the interface. A certain procedure of operation was required and if the user would happen to stray from this procedure, the VCR would seize to comply (with the users desire to program a timed recording). This would constitute an exertion of absolute will from the side of the VCR, leaving no room for appropriation from the user. So, the user separates himself from that he cannot appropriate by having someone else take care of things

One of the most common grounds for divorce in the United States is “Irreconcilable Differences” (Garg & Associates, 2007). The example above can be described in this way as well. When we can’t find common ground with the objects around us, we ‘divorce’ them. Software that remains incomprehensible or can’t perform the tasks we expect them to, are uninstalled, garments that no longer correspond to our clothing style get handed down and objects that break beyond reasonable repair are discarded.



“Ah! What a perfect container for me to keep my coffee in!”

## Another Theory Tested

As with spaces and people, products are equally suitable for applying a theory of appropriation to. While, as shall be shown later, the degree of appropriability can vary from one object to another, all objects possess this quality to some extent. An extreme example of this is a workshop carried out around the turn of the millennium at the design education at Hong Kong Polytechnic University (Slu King Chung, 2002). The students involved were encouraged to freely collect small items and products from the shops and streets of Hong Kong for use in the workshop. There, through a series of exercises, these objects (who in most cases had become unintelligible due to lack of context) would be attributed new meanings. That is to say that based on what the students could extract from the objects with their senses. It turns out that most objects could be conceived as of belonging to a number of different contexts and having a multitude of possible functions. This illustrates the lack of need for absolute categorization of objects. If a user sees a function in an object, that object has that function, at least for that user. If another user does not see the same function in the object, it does not have that function to him. The whole workshop was based on a story of a Chinese businessman who,

after having stayed at a hotel in a foreign country, would deliberately leave some objects behind to provide amusement for the person who found them.

“One time, the tourist left behind several bingtanghulu (a Beijing candy stick made out of syrup and fruit) in a hotel room in South Africa. The porter first thought they were some kind of flowering plant, until he found flies got stuck to them. He concluded that the objects were fly-traps. Another time, the tourist left behind jianshuizong (a kind of traditional Chinese glutinous rice dumpling with an alkaline flavour), which people believed was a sort of soap and used it for cleaning their hands and faces. On another occasion the tourist left behind a piece of shibing (a kind of dehydrated tangerine cake), which was later used to clean the bathtub!” (Slu King Chung, 2002)

The point of the story is that if a person discovers that the bingtanghulu is an effective fly-trap, then let it be used as a fly-trap. What does it matter that it actually is a Chinese type of candy. This does not only apply to the functional identity of things. While playing miniature golf, eating with chopsticks or writing with a pencil, it can be extremely frustrating to be told that you're holding the club/chopsticks/pencil the wrong way. You may be playing



“Damn it!”



the best miniature golf round of your life and then be encouraged to hold the club ‘the right way’ after which your game completely breaks down. After having had no problem scooping down rice with a pair of chopsticks, taking someone’s ‘friendly advice’ to do it correctly causes you to mess-up and drop soy sauce drenched rice in your lap. If something is working fine for someone, then one shouldn’t interfere without good cause. Don’t fix what isn’t broken! The ‘incorrect’ grip of a miniature golf club would, of course, constitute an appropriation of that club by the person holding it. Keeping with what I discussed earlier about dominance, the imposing of someone else’s will regarding club grip would naturally alienate the user from the club. The gripping of a club is the physical interfacing between the user and the object and for this reason the way a person holds a golf club constitutes an important aspect of the user-club relationship. If you are forced to hold the club differently from what you prefer, it is not your own will that defines your relationship, so the bond is weakened.

All of this ties in with the theory of ‘Thoughtless Acts’ created by Jane Fulton Suri of IDEO. She shows us that in everyday life all of us constantly make the kinds of interpretations the South African hotel porters made. We react to

the objects in our surrounding not based on their creators intentions alone, but also based on their accidental affordances and our interpretations thereof (Fulton Suri, 2005). If something have a flat top surface, you can place something else on top of it, regardless of whether it was intended or not. We might not think of this possibility until we have our hands full of things to carry and must carry one additional item. If one of the things in our hands has a flat top surface, we place the newcomer there without considering whether or not that is what that surface is for. These types of actions are performed constantly and intuitively, which is why they prove quite hard to take note of. They are simply so deeply embedded in our way of functioning that we hardly think of them as actions at all.

From this, I conclude that while it is impossible to predict every possible use of an object, it is possible to make objects that do not possess unnecessary barriers from alternate uses. In reference to this section’s introductory quote by Donald Norman, what designers *can* do, is refraining from intentionally blocking the ways in which a user can interpret and make use of an object in a personal way.

Opposite page: Some examples of ‘Thoughtless Acts’



## Mapping Out the Playing Field

In addition to us not being able to predict in what direction something might be appropriated by its user, we are also unable to predict through which means this will take place. Different people possess different abilities and are therefore inclined to deal with situations in different ways. While it might be easier for one person to adapt to and deal with a flawed product, a handy-man with a complete lack of coping capabilities will simply fix the product instead. The way in which we appropriate objects is determined by who we are and what skills we carry with us. In order to accommodate these variations in human capabilities, Perla Korosec-Serfaty introduced six modes of the appropriation of space (Modh, 1998):

*Delimitation of territory – a tacit understanding of the boundaries of the activities the user will undertake must be able to be established.*

*Possible destruction – the user must be allowed to remodel elements to some degree in order to not merely play the role of a guest.*

*Exploration of forbidden zones – a*

*transgression of the intended limitations must be possible (one must be able to hack)*

*Play activity – the user should not be bound by the common impression of what the place is for (its rhythm), but have the opportunity to playfully occupy the place in a rhythm other than the expected one*

*The display of objects – the user can modify the aesthetics, symbolism and utility of a space by choosing which objects to display outwardly*

*The presence of others – the possibility to invite guests, especially when it is not allowed*

I found these modes a bit inaccessible and not fully applicable to objects so I went ahead and modified them for the sake of adaptation and simplification. I found that some of Korosec-Serfaty's modes were over-lapping, especially Transgression and Play Activity, which accounts for the reduction from six original modes to my four adapted ones. They are:

*Position – The user must have as much control as is possible over when, where and in what context to use the object. The possibility to decide over physical placement of the object as well as the possibility*

*to revise that placement without unnecessary trouble is vital. It is also of great importance that there are no limitations on how often, at what times and for how long an object is used. While context can be expected to influence the manner in which an object is used and perceived, it should have no bearing on whether or not the object will function.*

*Destruction – The object should not physically and arbitrarily oppose destruction, remodelling, renovation or other acts of physical manipulation as long as such submissiveness does not pose an immediate danger to the user.*

*Transgression – As far as it is possible, an object should not oppose alternate uses. This might be the hardest component to sustain since it deals with the unexpected, but one should at least refrain from knowingly hinder alternate uses or block out unintended users.*

*Comprehension – Objects should not be shrouded and their functionality and constitution obscured. They should bare themselves in order to prevent anxiety and instead familiarize the user with their features and secrets.*

I like to think of these modes as 'channels' that should be kept open for the user to

communicate with the object over. As mentioned earlier, people have different abilities they can use when it comes to the act of appropriating an object and for that reason, it is important to keep these different channels open so that any user have the chance to make contact.

## Examples



Starting with Position, this is a fairly straight forward mode. The objects should not be allowed to limit the users' possibility of using them how, when and where they want. For instance, my dishwasher makes too much noise to be started at night (it might disturb the neighbours). I would like to be able to start it before going to bed and empty it first thing in the morning, but because the dishwasher is not sound proofed well enough, my choices for how to use the product is limited. My laptop also limits my possibilities by having a screen that is not bright enough to offer any discernible features outside on a sunny day. One could also attribute possibilities of gathering several users around an object, as opposed to it being able to be used by only a single person at the time, to the mode of position.

# Positioning



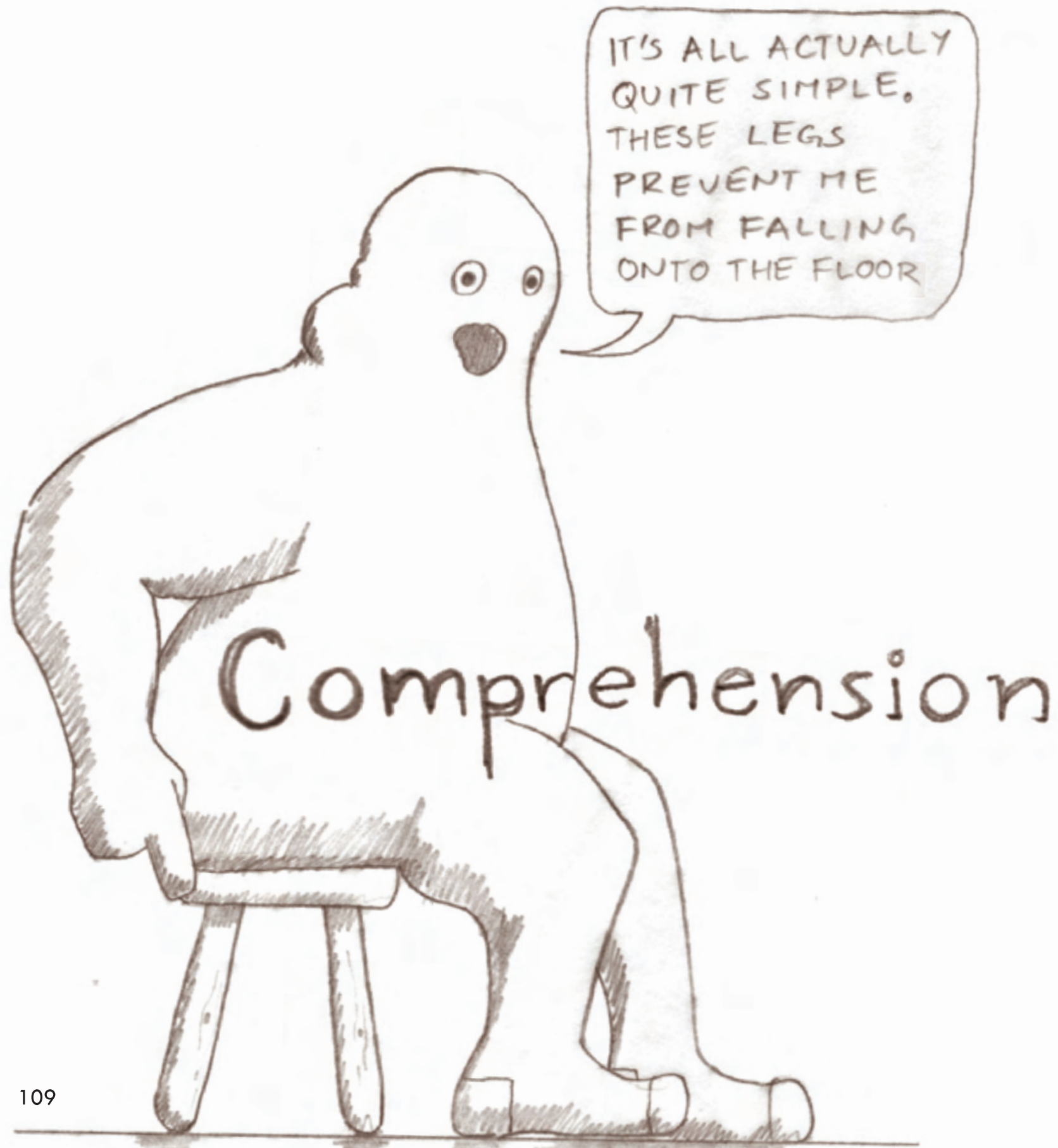
I'M PUTTING THIS AWAY FOR NOW. IT'S ONLY GETTING IN MY WAY.



The act of destruction describes the actions taken to impose ones will physically onto the object. When explaining my take on the concept of appropriation to the people around me, for whatever reason, many have become caught up in the idea of small amounts of destruction and how that would serve them. "Why," they might ask, "would it help me like my so-and-so better if I banged it up a bit"? The answer that if you feel it wouldn't, it wouldn't. The idea of destruction as a mode of appropriation is that the object should allow the users to impose his wishes on the object in a physical way if the user so desires. If the user on the other hand wants the object to remain pristine, the possibility of destruction can offer this as well. For example, a solid wood table top can sustain a lot of unwelcome damage like stains, nicks, scratches and dents. However, by sanding down the surface, an act of destruction, the user can restore the surface to its original state. This is not the case with many of the combinations of resin and coatings that are used in all sorts of electronic devices. These materials and their properties are so alien to most users that they are unable to modify or restore the appearance of the products.

Transgression is, in Korosec-Serfaty's as well as in my idea of appropriation, perhaps the most important one. The transgression of a product does not have to be a dramatic one; it can simply be a matter of using a coffee mug to hold your pens. As declared, this mode is one not easily enforced, but I believe that if one keeps these issues in mind while designing objects, in time one will develop an instinct for retaining "hackability" within the products. In the pre-study to this project I claimed that objects sometimes become more useless the more one defines them. My example of this were the comparison between a pair of scissors, an item containing great possibilities for transgression of use, and an electrical nose hair clipper. While the scissor can perform the task of the nose hair clipper plus a thousand more tasks, including opening tins, slicing bread, injuring people, curling ribbons on gift wraps and loosening screws, the clipper can do little more than its intended function.





Comprehension is the mode of mine that has no real counterpart in Korosec-Serfaty's setup. I have included it because I believe it to be of great value for any user to understand how things are put together and thereby, which rules apply. This is even a prerequisite for the other modes to be useful. You wouldn't go about modifying a piece of furniture (destruction) if you weren't confident that it would retain structural integrity (comprehension). In and of itself, comprehension, I believe, is a very powerful mode of appropriation. If we fully understand something, we can more easily be swayed into adapting to it. If idiosyncrasies have an obvious explanation, we can cope with them. Most importantly, though, is to not make things more complex than is necessary - or in the words of Alberto Meda (Nolan, 2006):

"Since we are complicated beings, let us at least be surrounded by simple objects, otherwise...what a difficult life!"



# Conclusion

Following my examination of three different approaches to the dilemma of sameness versus diversity within user groups and my hunt for solutions towards avoiding the application generalizing solutions, the adoption of my four modes of appropriation is what I think stand the best chance of success. In the strive towards the possibility of making personal products, no means of planned user involvement, nor the practice of ambiguous and provocative designs manages to completely close the gap between a mass produced object and each of its individual users. This is not to say that these methods lack value as tools in design processes. I consider them to be very valuable and perhaps even essential when it comes to creating products that are useful as well as emotionally engaging. However, they need

to be complemented with the appropriation approach if one is to be able to design products that communicate well with very individual user.

While I may come across as very confident in the conclusiveness of my findings and the value they would bring if adopted fully, this is not the case. On the contrary, this study has only provided me with a starting point for further understanding of users, their behavior, their true needs and the forces acting upon them. While this project is continued in the next chapter in the form of an attempt to put my findings into practice, I welcome the further analysis of the applicability of the theory of appropriation and hope that the discussion will continue in many places.





# Implementation

## Selecting my Subject

After having arrived at a conclusion about how we as designers could act in order to maximize the chances of our products finding their way into the hearts of their users, I was eager to put my ideas to the test. I decided to direct my efforts to where they were needed most. As I had already concluded, objects like clothing or furniture are often highly appropriable. Clothes can be mixed and matches to ones liking and easily altered by a lot people, they do not present any great difficulties when it comes to understanding how they work and they allow transgression to a high degree (making cleaning rags, for example). Much furniture presents the same possibilities. We are free to place furniture in

different settings and can easily allow their function to transgress. Acts as mundane as standing on a chair to reach something or even sleeping on the couch demonstrate the ease with which we allow the function of furniture to transgress.

Some product groups are not equally manageable, though. After thinking about the degree of appropriability in different categories of consumer product it soon became clear that technical products were lacking the most in these aspects. Televisions, DVD-players, work-out equipment, computers, kitchen appliances, etc. all suffer from inferior appropriability compared to less complex item. One of

the most stimulating areas to examine, I thought would be the home entertainment equipment, that is to say television, DVD-player, amplifier, speakers, etc. Because of the limited time I had to carry out the task I realized that I would not be able to take on this entire range of devices but would have to choose a single product type to work with. With the on-going introduction of the Blu-ray Disc format as a substitute for the soon to be obsolete DVD-format, I saw the possibility to work with a product that was current, modern and relevant. I've chosen to make a Blu-ray Disc Player. There were two main objectives of taking the step from theory to practice. The first was to understand further what it entailed to include guidelines of appropriation in the design process. Would it be possible to maintain ambitions of appropriability throughout a design project or would other issues gain higher priority? Would the design process have to be altered to accommodate these new factors or could they be integrated seamlessly? The second objective was to be able to analyze the result. Would the outcome exhibit significant increases in appropriability or would the difference from earlier works be trivial? Would the effort towards appropriability affect the quality of the design in a negative way, so that it would seem unreasonable to maintain a pursuit of appropriability?

## Design Brief - What do I want to do?

In short: I want to design an object that, through compliance, can become a treasured and self-evident part of the home where it will allow you to effortlessly watch movies stored on Blu-ray discs.

The longer version: In the light of my exploration of the notion of appropriation and appropriable artifacts I have turned my attention to a group of products that is severely lacking in this area. Home entertainment equipment like TVs, radios, DVD players, hi-fi equipment, etc. has been a great source of joy, education and many other types of cultural immersion for the past half century. While all of these items have become deeply embedded into our culture and maintain an apparent status as "everyday objects" in the western society they cannot be said to have been fully tailored to the desires and behavioral patterns of human beings.

I perceive a great deal of tension surrounding home entertainment equipment and its place in all our lives. A lot of people hate the way their television and DVD player looks, but still keep them firmly placed on the best spot in the room. People struggle with unmanageable arrays of remote controls with upwards of a hundred buttons

in total, even though they might only use 5-10 buttons ever. How many of us have never uttered the phrase "actually, I would like to watch less television"? Which, if not the TV (with friends DVD player and home cinema system) is the first piece of furniture we determine where to put when deciding how to arrange the furniture of a living room? How come one of the most frequent subjects for the rants of comedians, columnists and other figures in the media of the eighties and nineties was the incomprehensible nature of the timer programming procedure of VCRs? We as human beings are dominated by the technology in our homes. It dictates our furniture arrangements (put the TV somewhere in the room and sofas, chairs, tables, etc. will all fall in neatly), it steals our time (the image is grainy, read the manual, try correcting the settings, read the manual again, go buy converter/adaptor/cord, try it again, still grainy image), it refuses to abide by our style and image (decorate room in morocco style with dark, rich woods, tinted glass and spice coloured cushions, go to electronics store and buy a DVD player in silvery plastic, silvery plastic or silvery plastic) and so on.

Why do we put up with it? Why have we put up with it for decades? For some, the issue I'm addressing is non-existent.

They like technology. They don't mind the challenge of fixing the grainy image or finding the missing TV channel. For them the equipment has a purpose in itself. They like its appearance, they keep up to date with technological improvements, they take pride when showing their possessions to like-minded friends, etc.

For others, the technology is nothing but a barrier between themselves and the movie they want to watch, the song they want to hear or the pictures they want to view. What went wrong? Wasn't technology supposed to aid us? At least in an area as seemingly manageable as that of home entertainment, we should be able to have equipment that is fitting the needs of its users. *All* of its users.

I'm not fully aware of all the driving forces behind it, but it happens regularly. Formats for media storage and playback become obsolete and new standards are introduced. In recent history we experienced the retirement of VHS cassettes in favor of DVDs and vinyl records being replaced by compact discs. These transitions require huge amounts of coordinated efforts and agreements and they aren't always smooth. The most widely known example of this is probably the battle between VHS and Betamax over becoming the standard video cassette format in the late seventies



and onward (Total Rewind, 2007). Currently a similar feud is taking place. High definition television is emerging and current storage media (i.e. DVDs) are unequipped to carry the increased amount of data needed to display feature length movies in the home. Thus, the successor of DVDs is to be crowned and the fight takes place between Blu-ray Discs on one side and HD-DVDs on the other (Wikipedia, 2007). I am siding with Blu-ray for the sole reason that they are winning at the moment and I don't like format wars. I hope for a speedy end to the conflict so that we can concentrate on making the most of the one format that will survive (go Blu-ray!).

So, we are faced with the introduction of a new media format, which is a good thing in many ways and a completely unwarranted in many others. The BD (Blu-ray Disc) players are already being marketed and sold and it is a dire sight. Not only do all of the players from different manufacturers look very much alike. They also look the same way, operate the same way and relate to surrounding technological products (TVs, remote controls, hi-fi systems, etc.) as well as to humans in virtually the same way as not only DVD players, but CD players, Laserdisc players and VCRs as well. This means that we are approaching 50 years of close to

zero development concerning the human factors of home entertainment equipment. A staggering thought.

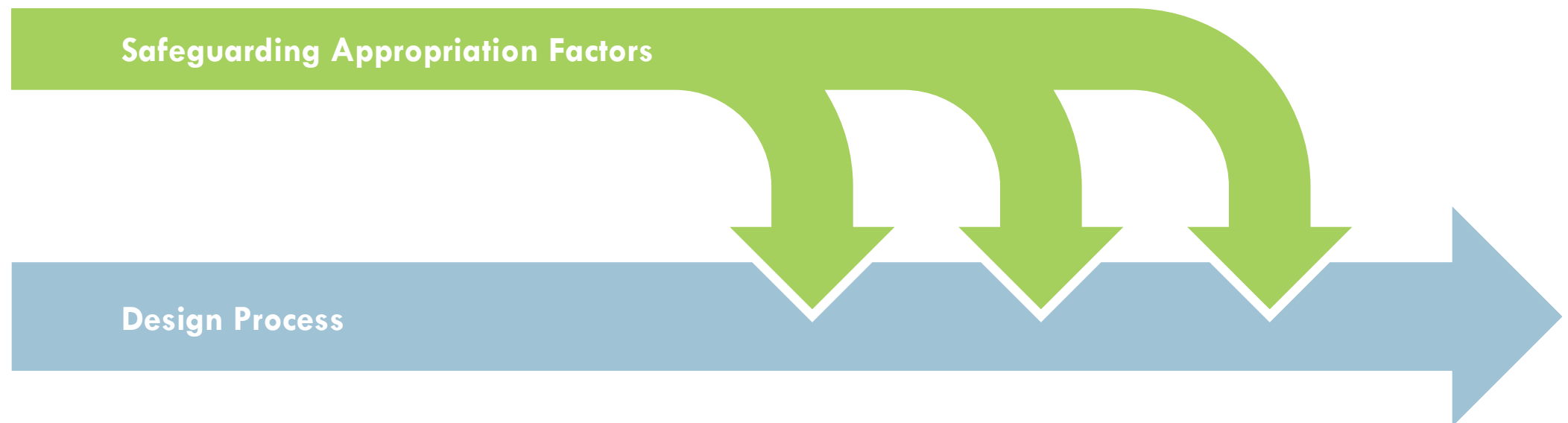
I believe that there have been attempts to dethrone various home electronics before by employing one of two tactics. Some have gone about hiding the technology by making its function ethereal somehow or simply by, say, hiding it inside the furniture (Ilstedt Hjelm, 2005). Others have simply taken a new approach to the styling of the technological products and made them "beautiful" instead of "ugly". Examples of this are countless projects where communication devices or medical aids have been forged into something that is supposed to look like jewelry. Both approaches have faults. By connecting the technology to other objects you are not freeing

humans from the technology, but rather increasing the difficulty for them to free themselves. This is due to the fact that one bundles functionality into objects, these objects become harder to appropriate. For instance, if you decide that you are going to by a coffee table with a built in media computer, do you pick the product that matches your taste in coffee tables best or do you pick the one whose media computer meets your needs perfectly. It is unlikely that the two aspects are going to coincide.

The latter approach is narrowing down the potential user-groups from everyone that benefited from the functional aspects of the technological item to those who do this and also would like to wear own this specific style of furniture. I would believe

that exclusion along these lines would almost certainly constitute a significant diminishment of the amount of potential users, no matter how "beautiful" the jewelry is.

I want to try a different approach. My examination of the concept of appropriation has provided me with valuable insights that I believe can be applied to the design of a product for home entertainment. I will show that the four modes of appropriability can be applied to a greater extent than what is common in today's appliances. I will employ the four modes of appropriation as guidelines to assist me in all decision making throughout the project, thus hopefully ensuring an outcome that possess the maximum amount of appropriability.





# Research

## Technology - Blu-Ray and HDTV

Blu-Ray discs are a optical discs used for data storage using the same principle as their predecessors, DVD and CD. Data is stored by making a large number of tiny dimples in the 120 mm diameter plastic disc, which is then coated by a reflective layer and a protective layer. A laser is used to detect the dimples and thereby retrieving the data stored on the disc. The main difference between a Blu-Ray disc and a DVD or CD, is that the data retrieval is carried out using a blue-violet laser beam, which has a shorter wavelength than the red beam used by the earlier formats. This makes it possible for the laser to distinguish smaller indentations, thereby allowing for putting more of them on a

single disc. The result: larger data capacity. A single-sided DVD is capable of holding 4.7 GB of data where as a single-sided Blu-ray disc can hold 25 GB. Blu-Ray discs were developed parallel to the increasing demand for larger televisions and the High Definition television standard. DVD's simply weren't capable of storing enough information to hold an entire movie in HD quality. Larger screens demand higher resolution images, meaning more details and consequently more data. Blu-Ray discs are capable of storing movies in very high resolution, which enables users to take full advantage of larger television or video projectors.



## DVD

The image of the movie is detailed enough to display well on a smaller screen. However, if the image is blown up on a larger TV or projected on a screen the image appears blurry.



## Blu-Ray

The image of the movie is highly detailed and can remain crisp and clear even when it is being projected on to very large screens.



## Technology - Wireless Video Transfer

In a tremendously well timed manner for me and this project, during the spring and summer of 2007 Israeli company Amimon has moved into the final stages of the development and marketing of their technology for high quality wireless video transfer (AMIMON, 2007). The technology is called WHDI (Wireless High Definition Interface) and has earned esteem among critics and journalist during trade shows and marketing events over the course of the last months.

WHDI is capable of transmitting uncompressed video in a resolution up to 1080i/p without any compromises in quality (AMIMON, 2007). The range of such a transmission can be at least 30 meters indoors and the signal can travel through walls. It is impossible to distinguish the resulting image on a HD television from that of an identical video feed transmitted through a cable. WHDI is safe with regards to interception due to its utilization of an encrypted signal but this does not prevent setups where multiple television units receive and process the same WHDI signal. This means that you can easily display

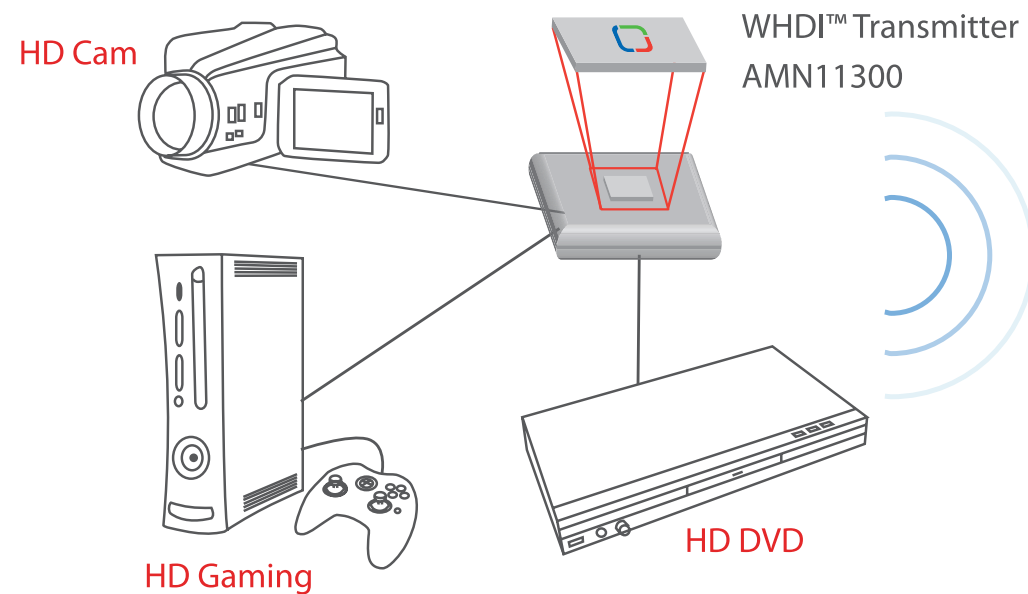
the same video in several TV's using only one transmitting video device without any cables, which could be useful in sports bars, museums or hotels.

While Amimon is aiming for their technology to be included into all future television units, the possibilities for backwards compatibility are excellent. A small unit containing a WHDI receiver chip and a power source could be equipped with any standard video interface plug (HDMI, DVI, VGA, Components, Composite, S-video, Toslink, etc.) and plugged into any old television set, making it capable

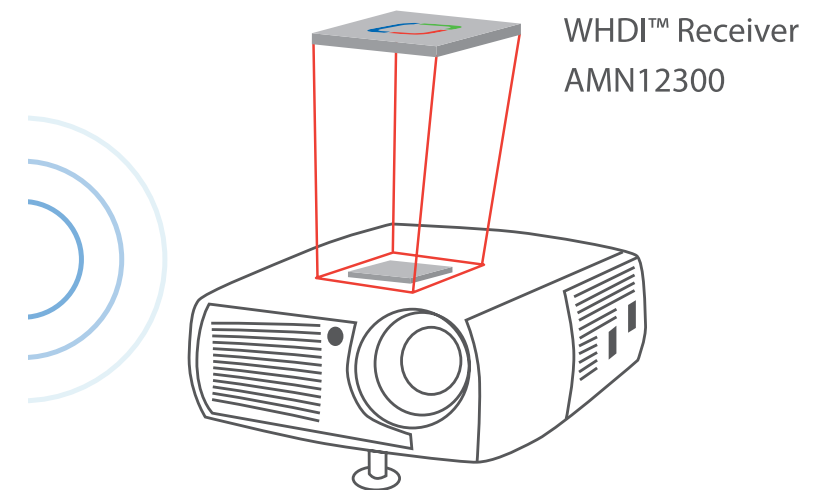
of receiving a feed of high quality video wirelessly. The same principle applies to the transmitting end of the setup, making it possible to utilize the technology with current players (VHS, DVD, Blu-Ray, HD-DVD, etc.).

The cost for the technology is expected to dwindle in coming years and mass produced WHDI chips for integration in televisions are expected to cost less than ten US dollars apiece.

### Wireless HD enabled Connection Box



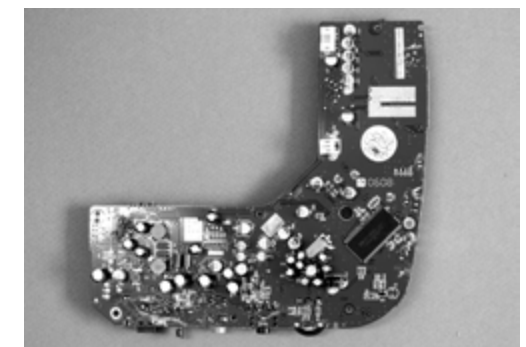
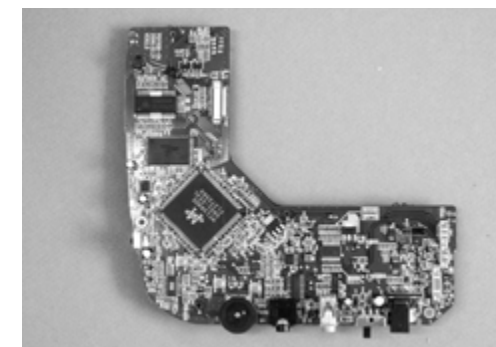
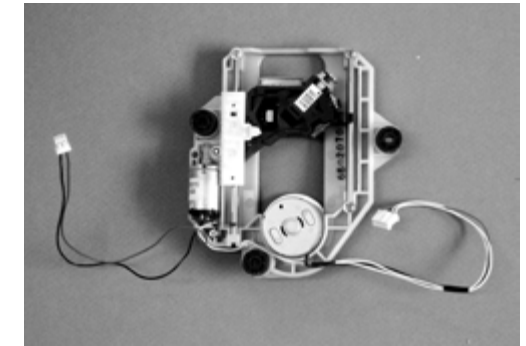
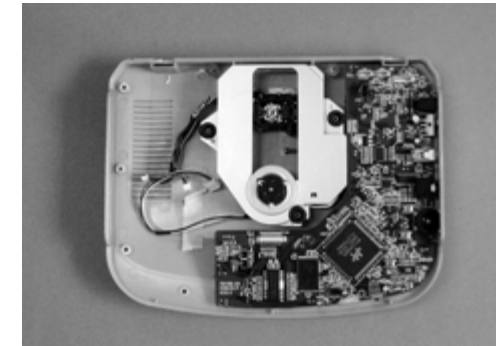
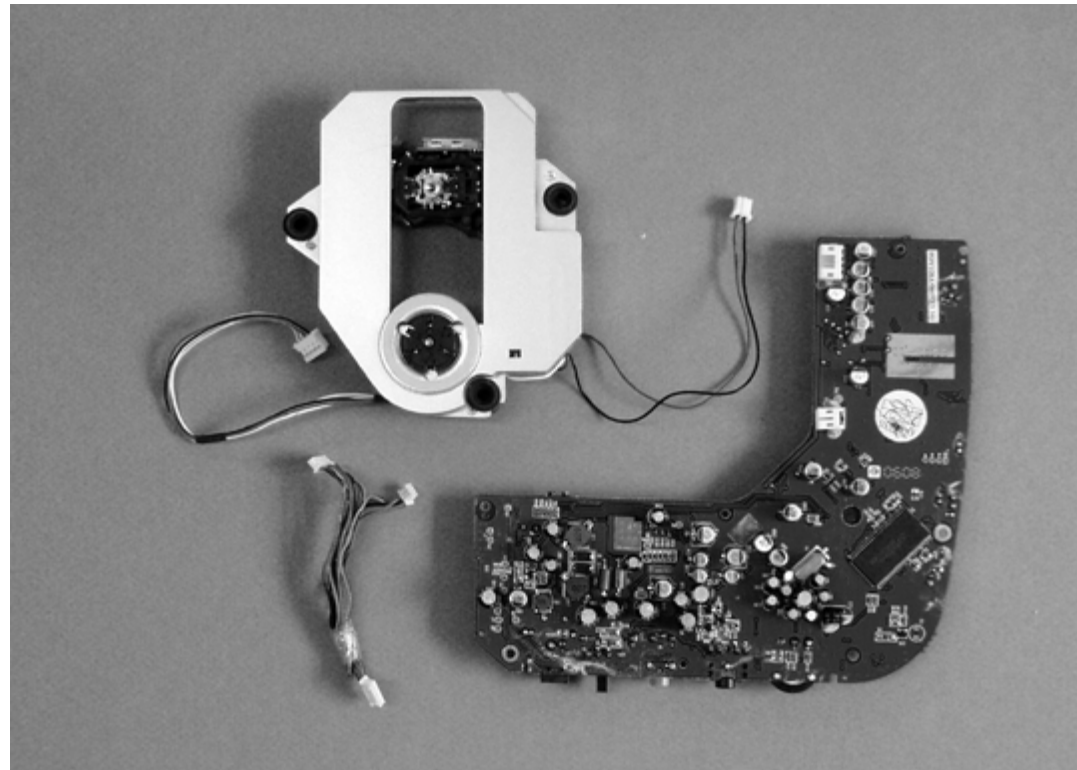
### Wireless HD enabled Projector



## Dissection of Portable DVD-player

I dismantled a portable DVD-player in order to find out which types of components are necessary for converting the image stored on a DVD into a signal output. It turns out that the setup is quite simplistic. After removing the screen, speakers and other components that will be superfluous when the device is used in conjunction with a television set, there are basically only two items left. First, a mechanical

cluster which controls the rotation of the disc and the movement of the laser. Second, an electronic unit, which in addition to all necessary circuitry also contains in/out connectors and user interface controls. At this point I am making an assumption that the technology necessary to run a Blu-Ray device is comparable to that of a DVD-player.





## Users

To make this project a challenging one, I wanted to make my BD player appropriate by the users most likely to be dominated by the players already available and planned for release. Relying on experiences from observing the people around me I concluded that women in their fifties and older would probably constitute the group of people that experience the most difficulties and alienation when dealing with home electronics (Masnick, 2005). I also imagined that young men would stand the greatest chance of appropriating a Blu-ray player, and since they, in a way, constitute the demographic opposite of older women, I took it as me being on the right track. So who are these women I picture before me being so alienated by home electronics. First, I believe them to be depending on the devices to some degree. They really enjoy culture, including watching good movies in the home, whereby they might have to rely on their own ability to operate a DVD- or BD player. I imagine them

being fond of other people, family, nature and animals. They buy goods that are natural and of high quality in materials like wool, stoneware, earthenware, wood, rattan, etc. They like simple things like the smell of flowers and the feeling of dirt between the fingers while poking around in the garden. They like beautiful things like art, clothes and interior decoration. Time is important to them, they like to spend it well and not be forced to scurry around in order to keep up. I imagine them to yearn for peace, quiet and a calm environment where they can take it slow and enjoy their pass-times.

In addition to forming an idea of who the users I'm addressing are, I wanted to see how real people arrange the furniture in their living room or any other room where they keep their television set. I got a good amount of data on this by visiting real estate agents' online showings of homes for sale.





users



94 pictures of real rooms with televisions in them.





LG BH100



Pioneer BDP-HD1



Panasonic DMP-BD10



Samsung BD-P1000



Sony BDP-S1



Samsung BD-P1200

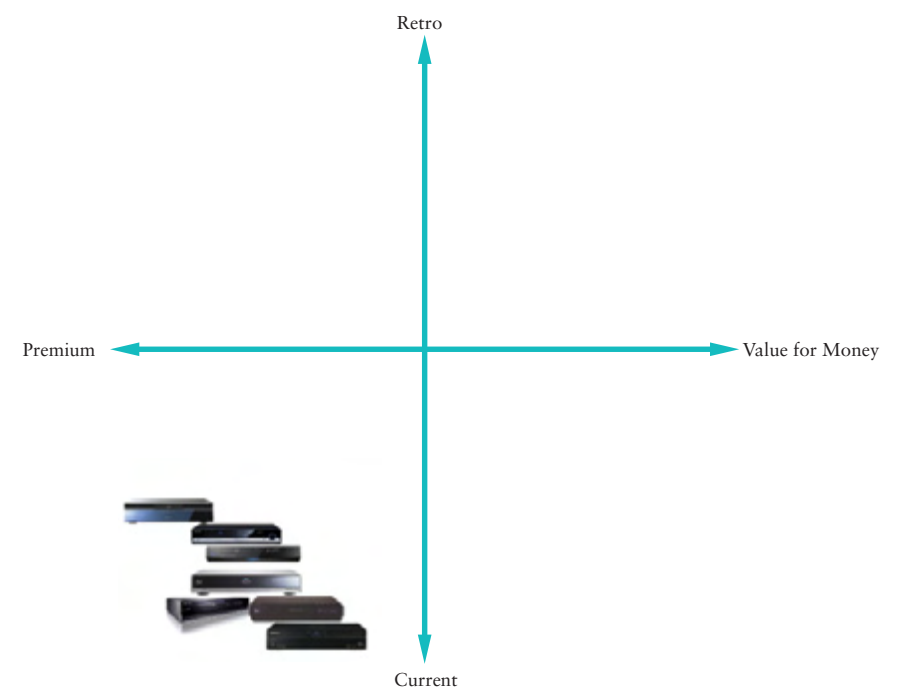
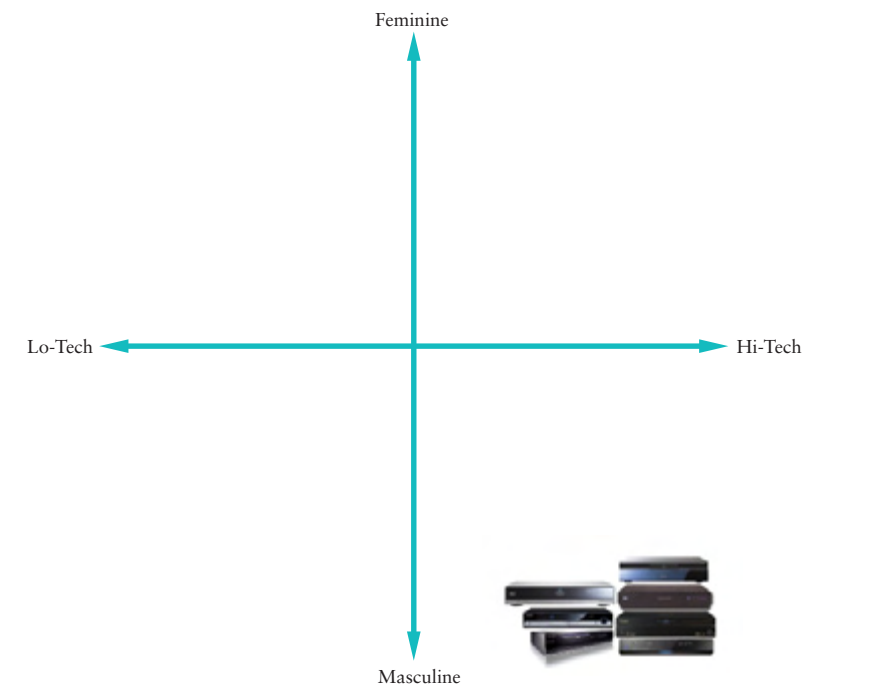
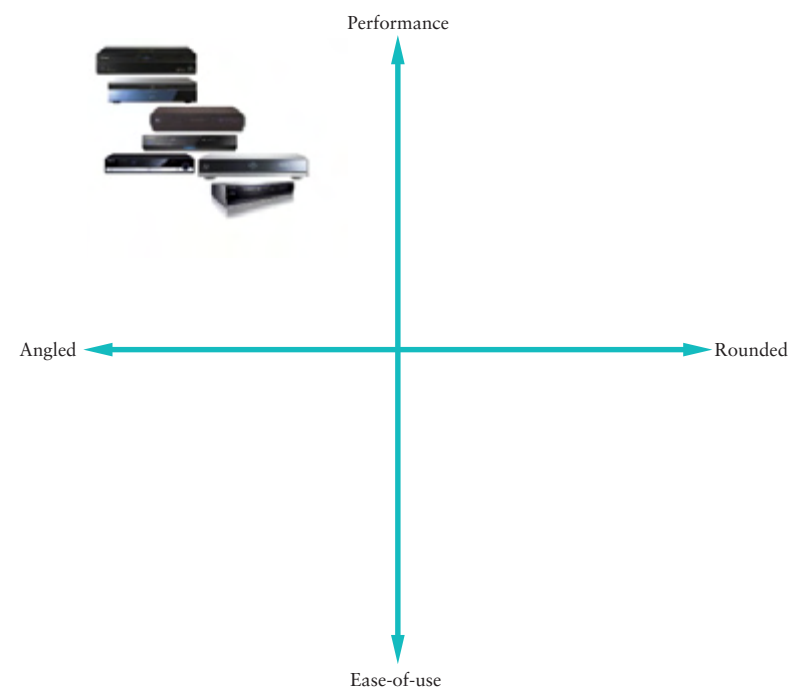
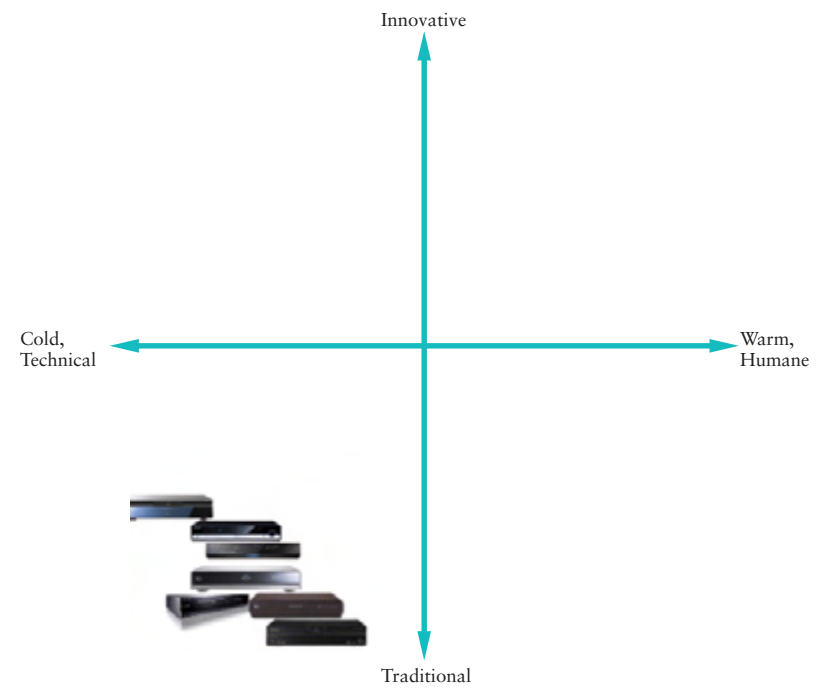


Philips BDP-9000

## Market

Since I'm basing my design entirely on the needs of a user group, a market research effort is not essential to the process. I decided to make a simple market analysis anyway for fun. Since the market for BD players is very new and still contains a very small amount of competitors, it was almost possible for me to include the entire field of available BD players in my analysis, as opposed to a small group of representative products. The ones that escaped me did so because I was unable to find high quality pictures of them. However I am quite certain that they would not negate the result of this quick

and simplistic market analysis. As we can see over the following pages, the market is so homogenous that no matter what system of coordinates we put the competitors in, they end up bundled together leaving the field wide open for introducing alternatives. One could easily attribute this huddling together in the corners of the graph as a symptom of an emerging carefully trading market. Still, if we were to do the same with DVD-players who have been around for several years now and are produced in thousands of different models, the result would most likely not differ significantly.



# Design Process

## Step by Step

The following sections illustrates which steps I went through in order to go from the brief and the research findings I had, to the final concept. As most of the techniques I used constitute standard practice within the field of Industrial Design, they are not explained beyond what information the images provide.

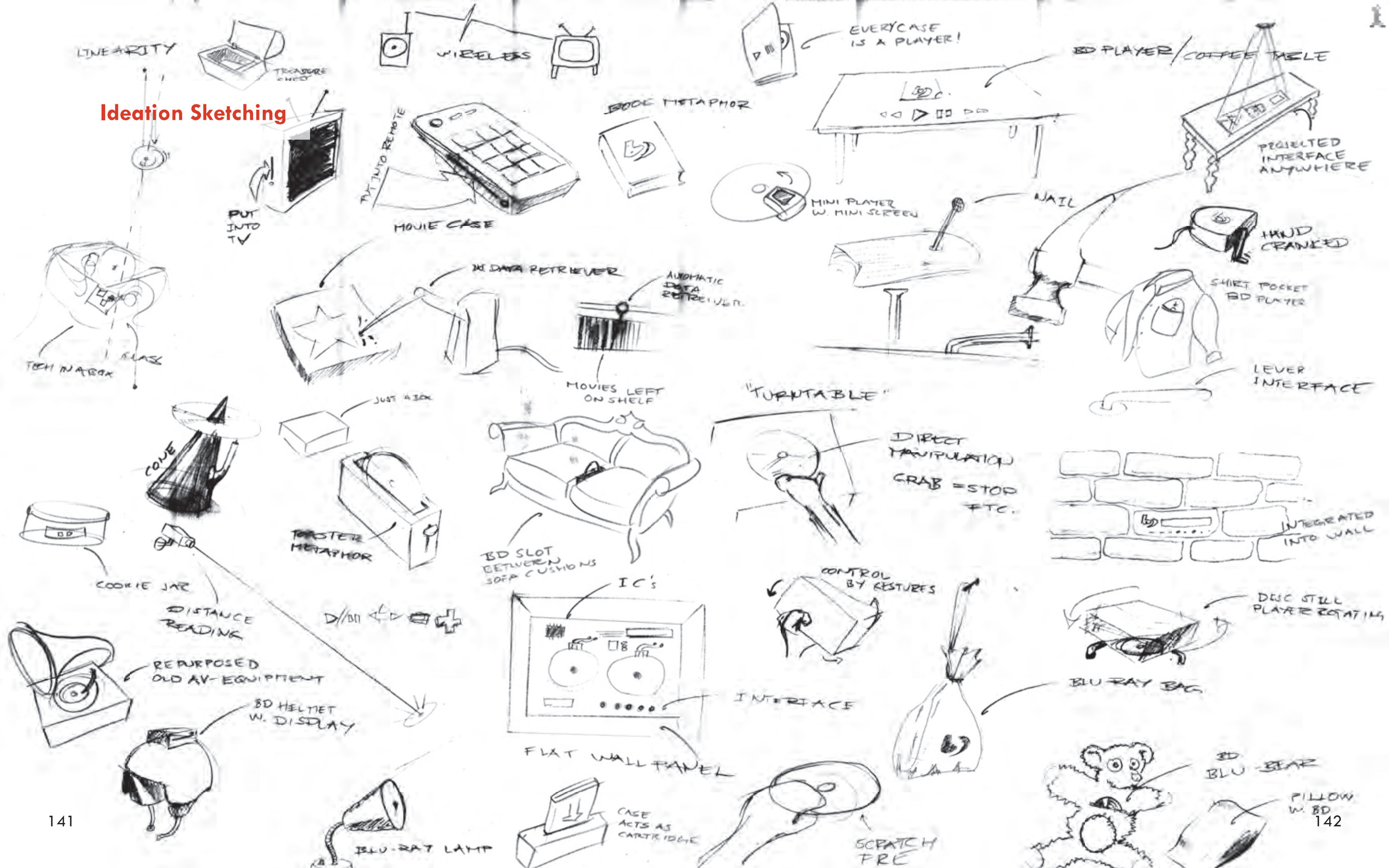
## Function Analysis

Category	Verb	Noun	Type
MAIN	Play	BDs	BF
APPROPRIATION	Allow	Positioning	N
APPROPRIATION	Allow	Destruction	N
APPROPRIATION	Allow	Transgression	N
APPROPRIATION	Allow	Comprehension	N
FUNCTION	Minimize	Energy consumption	D
FUNCTION	Maximize	Connectivity	D
FUNCTION	Afford	Loading	N
FUNCTION	Afford	Starting	N
FUNCTION	Afford	Ejecting	N
FUNCTION	Afford	Usage	N
USABILITY	Minimize	Complexity	N
USABILITY	Allow	Usage	N
USABILITY	Simplify	Usage	D
USABILITY	Maximize	Clarity	D
USABILITY	Adapt to	Surroundings	D
USABILITY	Submit to	User	D
USABILITY	Minimize	Size	D
USABILITY	Humanize	Measurements	N
USABILITY	Minimize	Volume	D
USABILITY	Optimize	Interface	D
USABILITY	Withstand	Handling	N
USABILITY	Maximize	Durability	D
USABILITY	Maximize	Usability	D
USABILITY	Minimize	Interference	D
USABILITY	Minimize	Time consumption	D
USABILITY	Minimize	Knowledge requirements	N

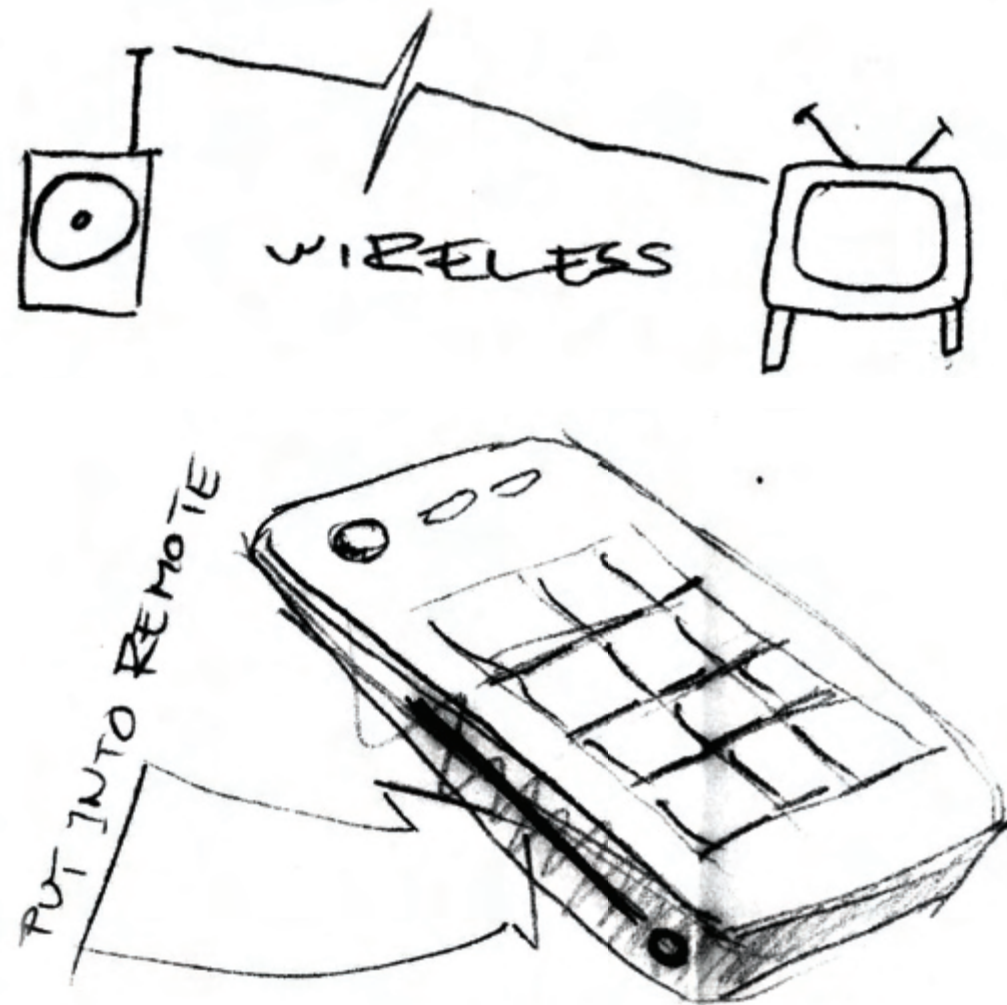
BF = Basic Function    N = Necessary Function    D = Desirable Function

Category	Verb	Noun	Type
IDENTITY	Appeal to	Users	N
IDENTITY	Attract	Users	N
IDENTITY	Express	Robustness	D
IDENTITY	Express	Simplicity	D
IDENTITY	Express	Ergonomics	D
IDENTITY	Express	Functionality	D
IDENTITY	Express	Durability	D
IDENTITY	Express	Quality	D
IDENTITY	Express	Reliability	D
IDENTITY	Express	Smartness	D
IDENTITY	Express	Unobtrusiveness	D
IDENTITY	Express	Authenticity	D
LOGISTICS	Allow	Packaging	N
LOGISTICS	Simplify	Packaging	D
LOGISTICS	Allow	Transport	N
LOGISTICS	Simplify	Transport	D
MAINTENANCE	Simplify	Repairs	D
MAINTENANCE	Maximize	Material quality	D
MAINTENANCE	Allow	Deconstruction	D
MAINTENANCE	Allow	Modification	D
MAINTENANCE	Tolerate	Abuse	D
PRODUCTION	Allow	Production	N
PRODUCTION	Simplify	Production	D
PRODUCTION	Allow	Montage	N
PRODUCTION	Simplify	Montage	D
PRODUCTION	Minimize	Parts	D
PRODUCTION	Reduce	Components	D

# Ideation Sketching

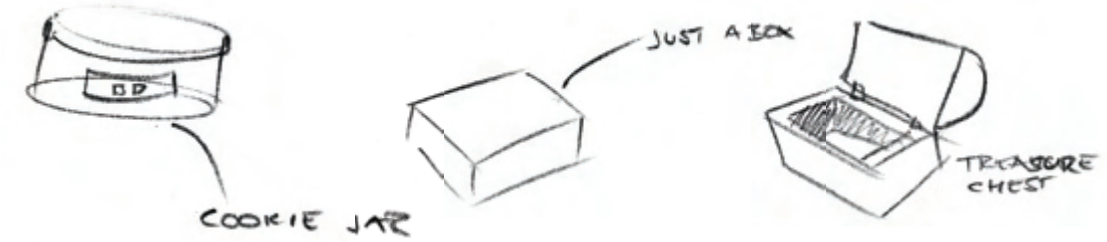


## Concept Selection



All concepts built on a setup where the BD player is a wireless unit that, instead of being kept and used in conjunction with the TV, is kept where the user is sitting - much like the remote control. There are many benefits with this setup. It becomes very

flexible in its use and easy to position in a room, it removes the need for pesky, added wiring around the TV and also makes an added remote control unit superfluous. Three sub-concepts were further looked into and developed.



One sub-concept was based on the idea of a very simple container, like a jar or a case of some sort. With the freedom to use almost any material, this concept has the potential of ending up as something that can blend into many home environments nicely. The name of this concept was "en ask" - meaning "a box/case"



Another sub-concept was based on a similar idea, but where I would aim for something that had a very soft body and had more in common with pillow and stuffed animals. The idea behind this was that it would be able to sit quietly - almost camouflaged - in a sofa or armchair. The name of this concept was "en kudde" - meaning "a pillow"



The final sub-concept was somewhere in between the other two and took the shape of a folder, book or similar. This would be able to be kept in a bookshelf or on/under a coffee table or perhaps stored together with the movie discs themselves. The name of this concept was "en mapp" - meaning "a folder"



## Concept Refinement



The three moodboards describing each of the final concepts.

## Evaluation

On the morning of April 30th 2007 I took to the streets of Malmö in a search for members of my target group. Since I had defined the group in part by what they shop for, I went to stores that fit this profile and waited for people that seemed to belong to my target group to emerge from the shops. The shops I waited outside were Gudrun Sjödén (clothes and home textiles in natural materials), Formargruppen (crafted ceramics, glass and jewelry) and Norrgavel (high quality furniture and interior decoration items in natural materials).

I approached all women that seemed to be between the ages of 50 and 65, though I never asked anyone about their age, of course. All in all I talked to seventeen members of my target group and got their opinion about how to proceed with my object. To keep the interviews swift and simple, I didn't tell them I was making a Blu-ray player, since this would have called for an explanation of the term. Instead, I just told them I was doing a DVD-player. As stated earlier, I based my selection of this target group upon an assumption of mine about a high level of technology alienation among middle-aged women. This assumption was proved to be correct as many of the women I talked to reacted

to my inquiry of asking them about DVD-players by exclaiming "Oh, I won't be of much help, I don't know anything about such things!"

I presented each person with three boards depicting each of the three concepts under consideration with sketches and photographs of possible variations and contexts. I also verbally explained each concept in very broad strokes, trying to not be too specific about how the final product would look. The order in which I showed the concepts varied and, without having planned to do so, I found myself emphasizing the different features of the concept to different people. In spite of all this randomness and the difficulty I had had deciding which concept was my personal favorite, every single one of the interviewees opted for the same alternative. The winner was the case/jar concept.

The main reason for the superiority of this concept over the others was that the women felt uncomfortable with having the technology be contained within something soft. They felt that circuitry and mechanics were things both delicate and expensive and should for that reason be housed in something protective. As for having the option of keeping the unit lying around in the furniture like a pillow, they were generally not keen on the idea. They were



Formargruppen, Malmö.



Gudrun Sjödén, Malmö.



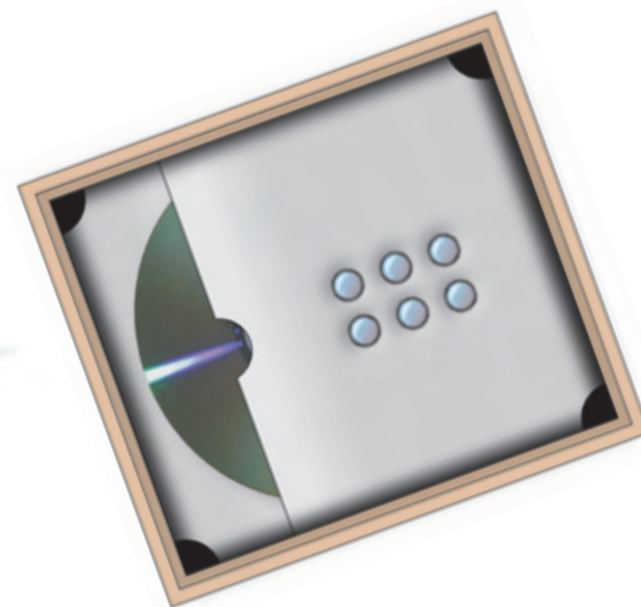
simply afraid that they or someone in their family would sit on it, causing it to break. When I explained to them that it was possible to build it in a way that this would not be an issue and that there are products like this in the market that work very well, they still felt uncomfortable with the notion. One person expressed concern about spilling food and drinks on the unit if she kept it too close-by while enjoying a movie and snacking. The attitude towards wireless transmission of video was very positive and, as I understood it, the freedom to place the unit wherever one wanted would be greatly appreciated.

A few expressed negative views on the appearance of modern televisions and one person encouraged me to address the entire home entertainment setup and come up with a new design for a television that wasn't so 'plastic'. Within the concept of the case/jar a few were intrigued by the thought of housing an electronic apparatus in a porcelain or stoneware casing, but a majority of the interviewees expressed a liking towards the plain wooden box. I must admit that this was a great surprise to me as it went against my preconceptions about my target group. I had expected the interviewees to opt for one of the softer, rounder suggestions, but that did not become the case.

At this point, the question of which main concept to go with was decisively settled and I also felt that there was a strong enough support for the plain wooden box design in order for me to continue the development of that variation with confidence.

The preferred concept of each person was marked with a mark on the sheet illustrating that concept. All 17 marks ended up on the same sheet.

## Detailing



## Materials

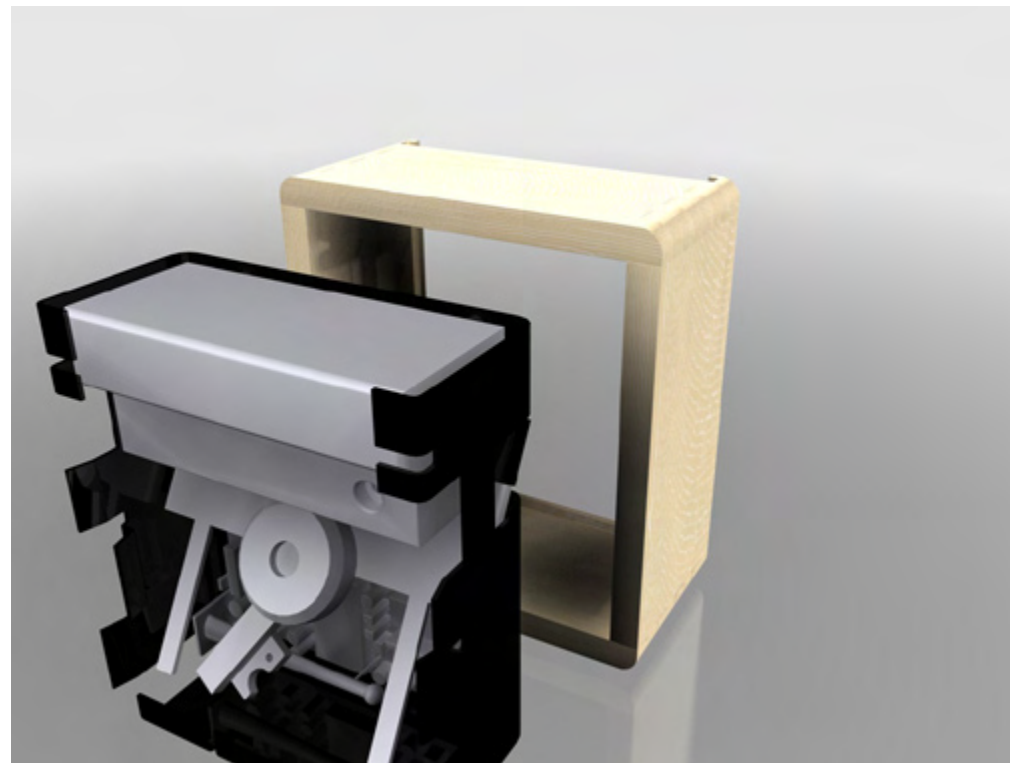
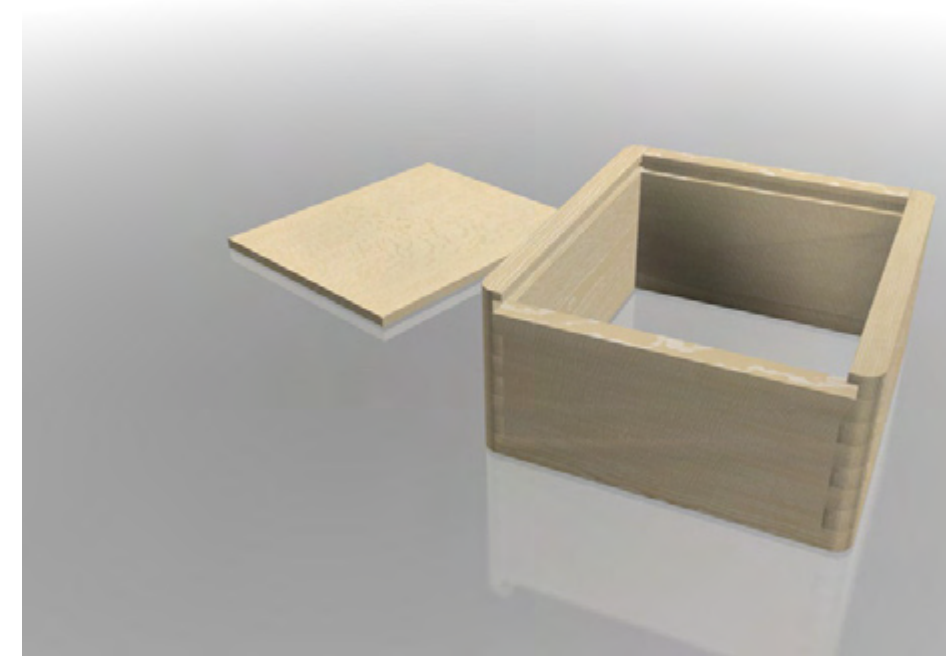
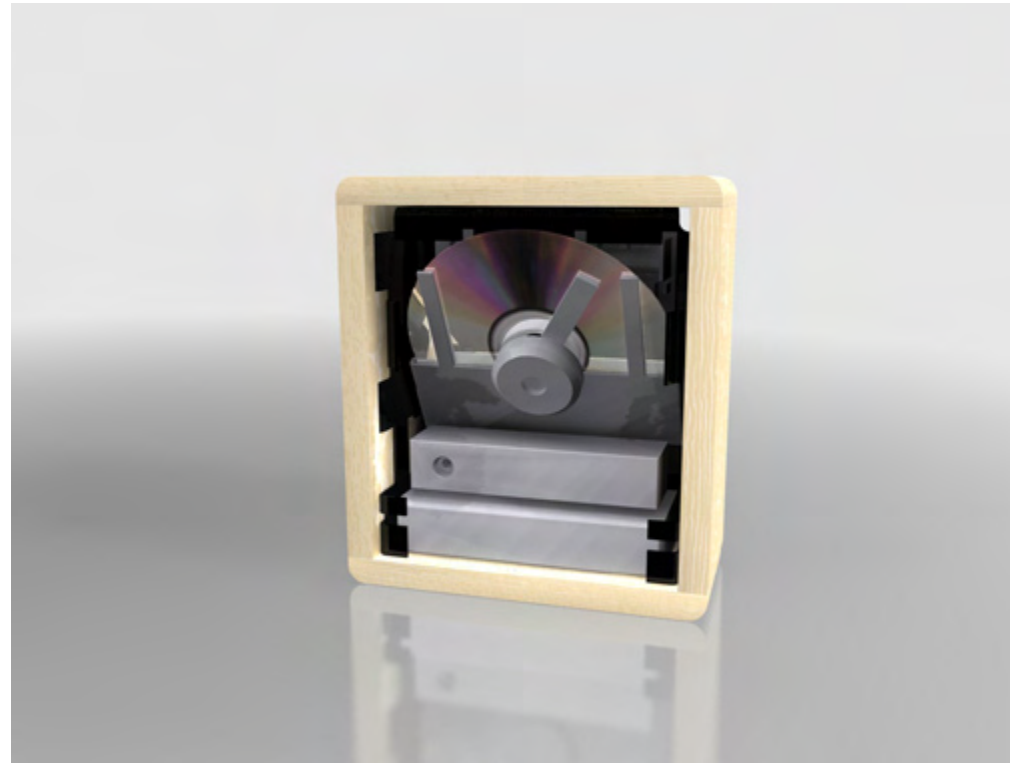
In the part of the user study where I examined the setup of people's living rooms, I noticed that common materials in today's audio/video equipment (variations of silver painted resin mostly) was not present in any other part of the room. Furniture and decoration were all mostly made of natural materials pleasant to the touch and perhaps reminiscent of a different period in time. Wood, stone, glass, metal, porcelain, ceramics, textiles and leather were typical materials to be found in objects that occupied a place in the living room by choice as opposed to necessity. It felt natural to act on this insight and make the product in materials such as those mentioned above. I also felt that this was in line with the notion of appropriability, since natural materials are more comprehensible and predictable by the average user, it seems that they for that reason would be more appropriable than synthetic materials.

The concept evaluation had pointed me towards making a wooden box, so there was no question in my mind that I would use wood. The type of wood was chosen on the grounds of maximizing appropriation. If I would have chosen a dark, rich exotic wood I believe that users would have been hesitant towards manipulating it since it feels very exclusive and expensive. For that reason I chose a light wood which is more familiar to most people from crafting it in school at a young age. My personal preference among light wood types is birch, which is what I chose for the casing.

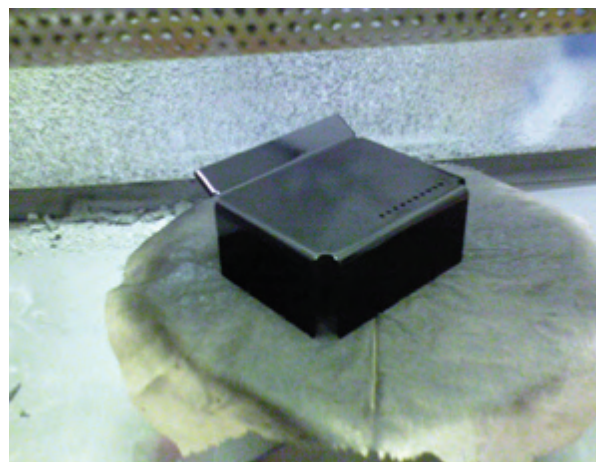
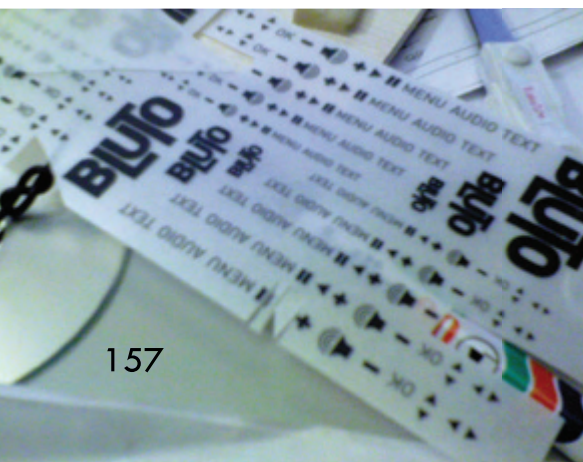
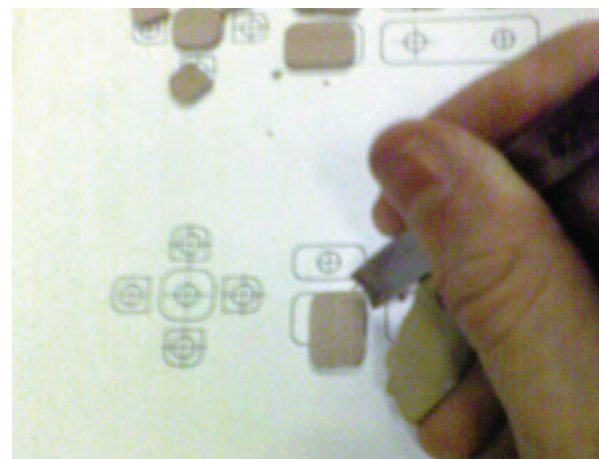
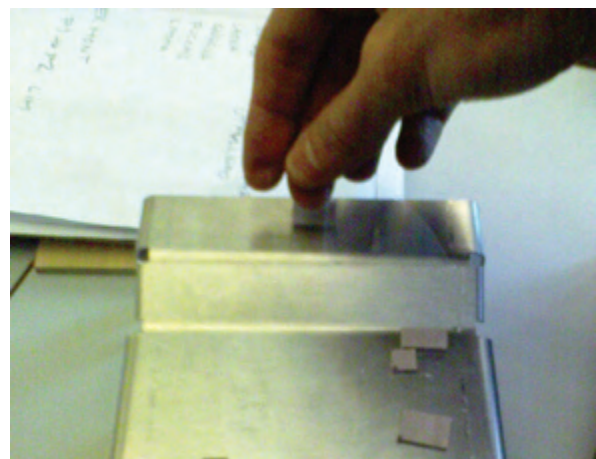
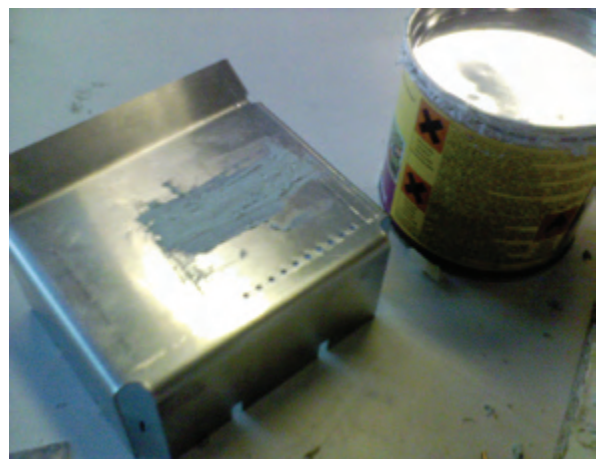
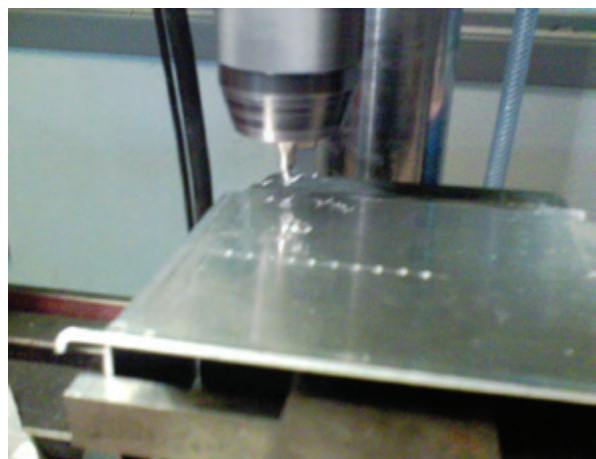
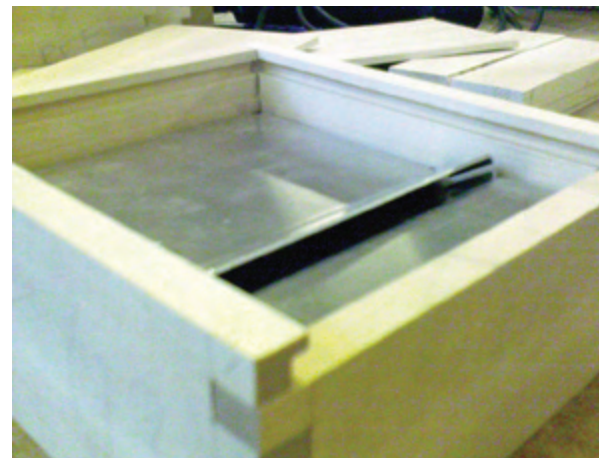
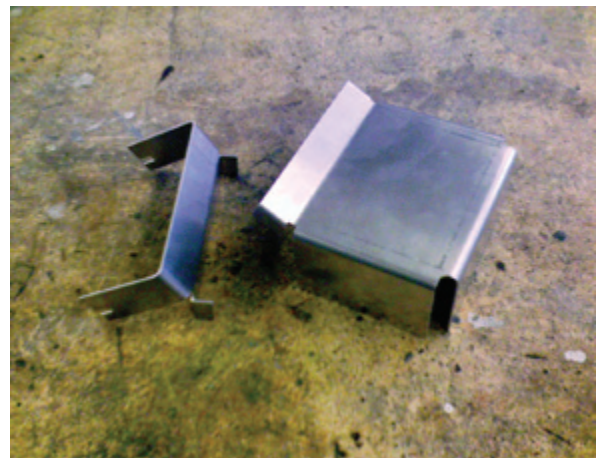
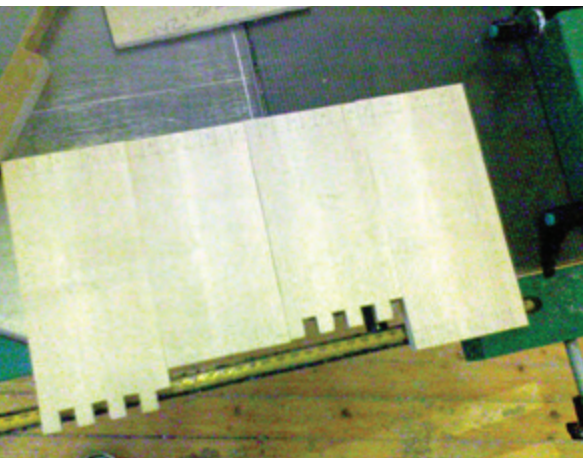
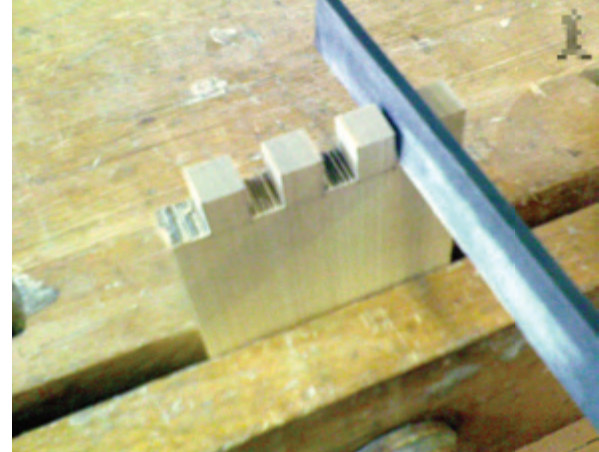
For the internal parts that require better accuracy and strength because of their interfacing with the electromechanical components of the device, I chose painted aluminium sheet. Its durability and relative lack of mysterious properties and glamour, seemed to suit my ambitions at this point.



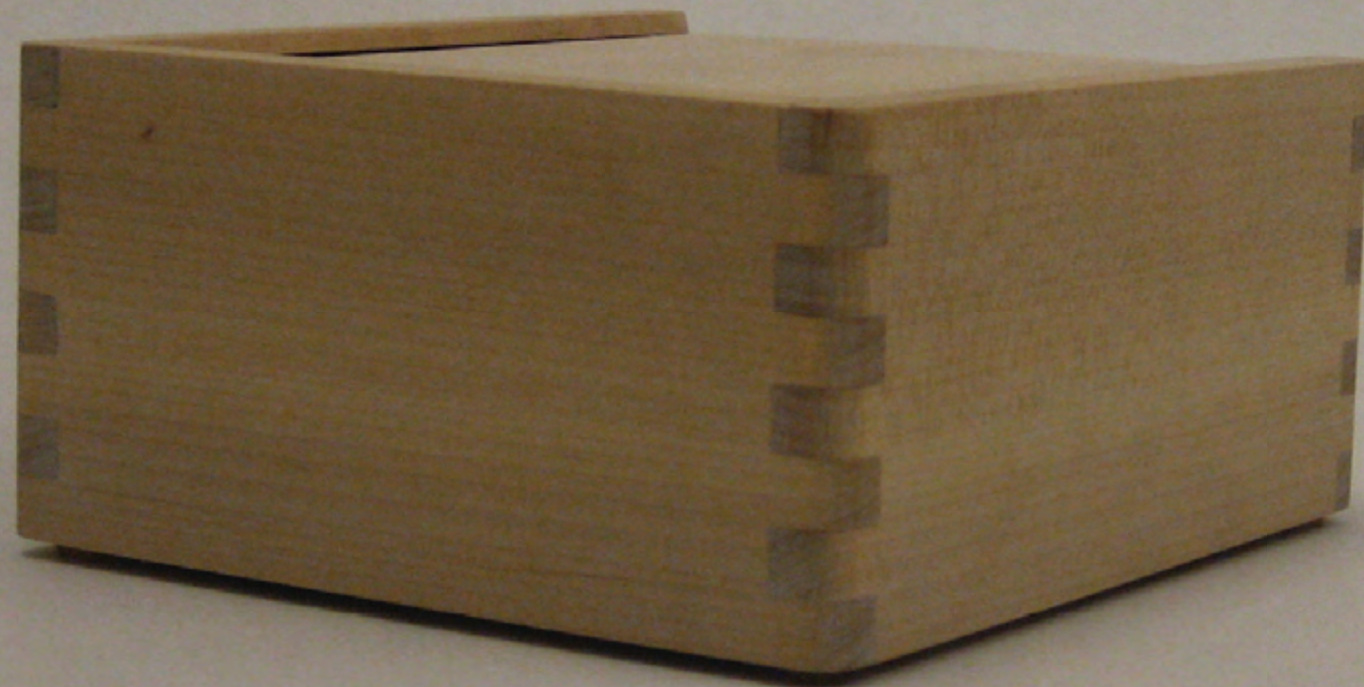
## 3D Modelling and Rendering



Physical Model Making



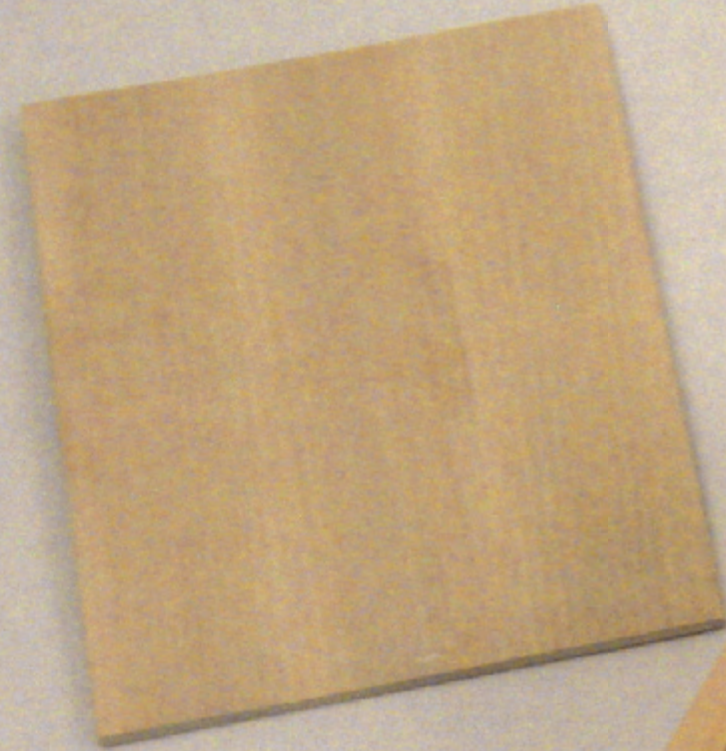
# Result





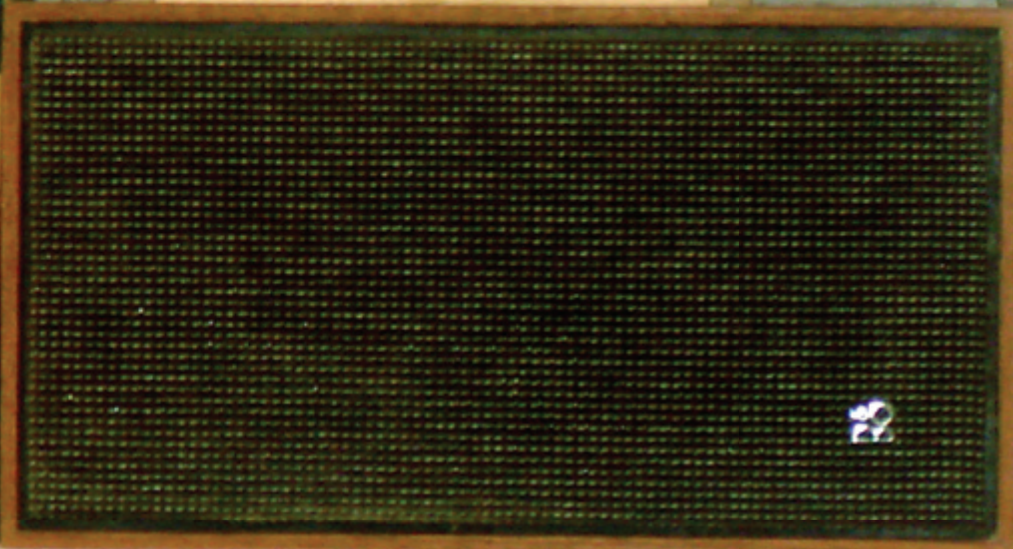
















# Final Evaluation

Now is the time to look back at what came out of this experience and attempt to gauge the appropriability of the product designed.



## Position

Seeing as the device is wireless and battery operated, the range of freedom has increased dramatically compared to traditional DVD-players. The box design could encourage a behavior similar to those surrounding board games. You put the Bluto box away when you're not using it (when of course it will be charged) and then bring it out for movie time, in much the same way as you may keep board games stacked in a shelf somewhere and bring them out whenever you feel like playing. After all, watching movies on DVD or BD and playing board games are activities that, for many people probably including my user group, take place once in a while. This makes it unnecessary to keep the device on display constantly. If you like, you can keep it as a stationary unit next to your movie collection if you have one. You really can keep it anywhere you like and chose freely between keeping it in that place during playback (supposing that place is within reach) or taking it out and putting it back in occasions of use. The use pattern could also come to resemble that of cellular phones, which are often left to charge in one place (bedside table, desk, floor, center console of car, etc.) and then kept in either the same or a different place (pocket, desk, handbag, center console of car, etc.) while in use.

## Destruction

The simplistic dismantling of the device encourages remodeling and manipulation of the wood elements. By simply sliding the sheet metal component out of the wooden box, that box becomes easily modifiable whether by painting, staining or restoring it to its original state by doing a bit of sanding. One can also dispose of the wooden case altogether and build a case of one's own. Although somewhat less accessible, the sheet metal part is also destructible and repairable, so any intended manipulation of this part might require a bit more skill on behalf of the user than interaction with the wood does. There seems to be some connection between how impressionable and destructible a part of a device is and that parts closeness to vital parts, such as electronics.

## Transgression

I have given this a lot of thought, but naturally it is a hard aspect to make predictions about. I think that people might be more open about sharing devices like this between them, since they are not kept as fixtures in the home, but are loose items. I imagine that the transmitter chip could be hacked in order to allow simultaneous reception on multiple TV-sets. People might start their own miniature television networks in their apartment buildings after hacking their Bluto in that way. While it would have been possible to include this feature in my product from the start, there could be a vast amount of other possible features that I might not have thought of. It is a fact that many of the features and capabilities of our products today started as a hack by a user of a preceding product.

## Comprehension

An attempt has been made from my side to demystify the device somewhat by making it possible for the user to see through the device in the corners of the sheet metal. Also, the circuitry of underbelly is partially exposed to further demystify the innards of the machinery. The user interface is stripped of all functions except those necessary for playing back a movie with the preferred language settings. A volume control is added so that the whole experience can be controlled from a single unit and does not require the TV-remote as well. The battery indicator is easily discernible in both dark and light situations.

## Overall Results

In all, the appropriability of the device is no doubt increased compared to other BD or DVD players according to my theory. Each of the four appropriation modes is represented through the specific features of Bluto compared to traditional devices. Whether or not this means that it would actually become more appropriated by its users is another question altogether.

As discussed earlier in this report, unpredictability is in the nature of users and for this reason, the success of a device such as Bluto is impossible to assess. If I were to develop the concept and produce working prototypes which could be tested by different users over a fairly large period of time, it might have been possible to identify the various acts of appropriation that would occur and perhaps also to attribute these acts to the features of the product. Such a study would require large amounts of resources and time and it would probably be more suitable to perform a similar study with less complex objects at first.

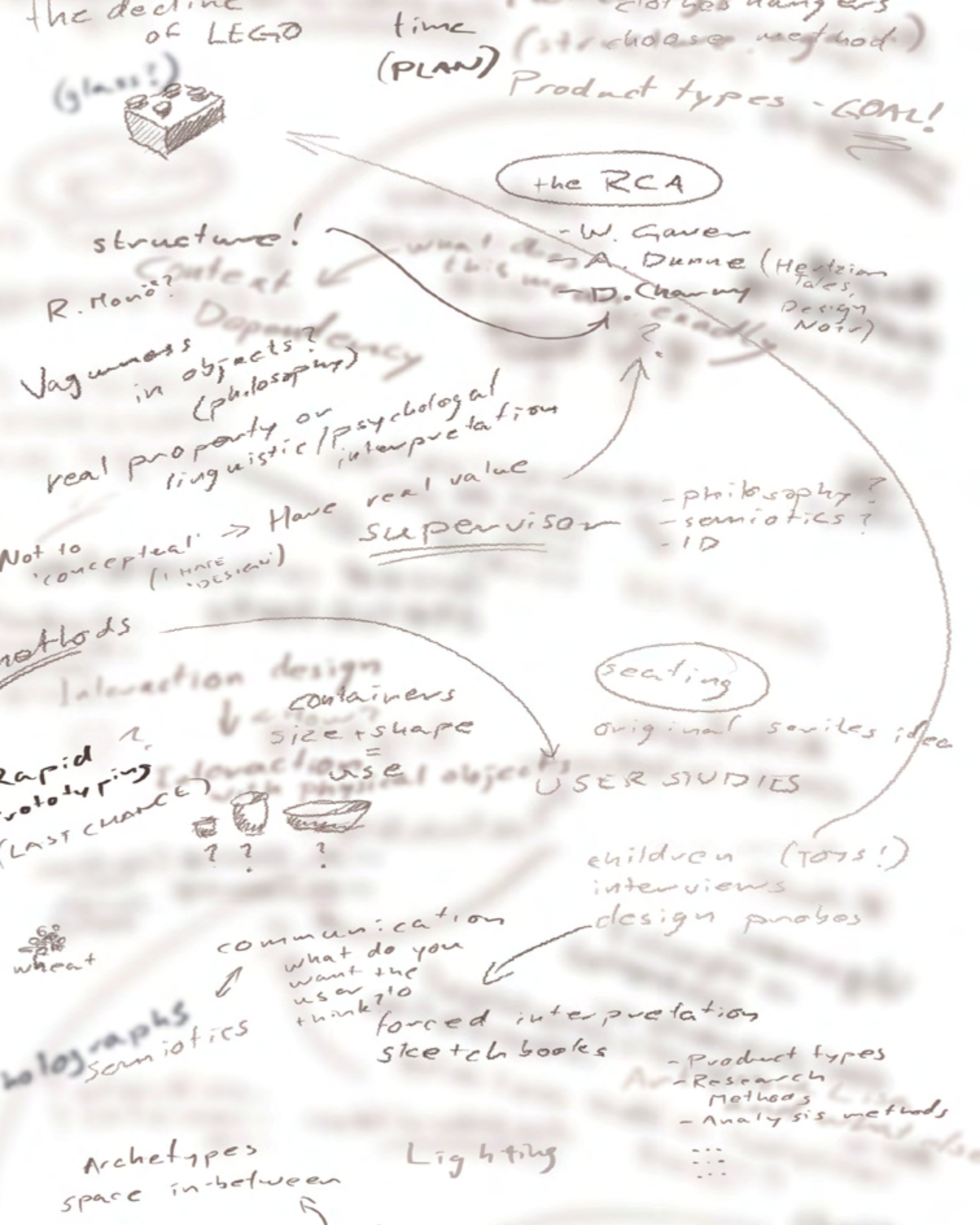
As a concept, Bluto's main duty is to illustrate how the overall design of a

product is influenced by a rather strict adherence to appropriation guidelines. The moderate tone of the guidelines is, to my mind, echoed in the final design. Bluto is still recognizable as a media player and it does not seem likely that it would alienate users by being bizarre. This shows us that there is a lot of room for implementing increased appropriability in future products. We do not have to fear that this practice would alter the identity, appearance or function of the products beyond a point where they are not marketable. In the introduction I wrote:

“I argue that we not only can afford to cater to the more personal, individualistic needs of consumers, we really cannot afford continuing basing the design, production and distribution on mere generalizations.”

I strongly believe that the way to achieve these goals is through the implementation of increased appropriability, since it brings about products that are more suited for each individual user without being compromised in other ways.





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7	<i>Scan of magnetic recording tape packaging of unknown brand</i>	60	<i>Offecct</i>
10	<i>Exactitudes</i>	62	<i>Blå Station</i>
17,30,88,129-130,133,135-136	<i>Unknown</i>	65,75,80	<i>Amazon.com</i>
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53-54	<i>page247.files.wordpress.com/2009/11/ guernica_pablo_picasso1.jpg</i>	180	<i>Bang &amp; Olufsen</i>
55	<i>Screenshot from David Cronenberg's "The Brood", 1979</i>		
56	<i>Screenshot from Ridley Scott's "Alien", 1979</i>		



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