Masters Thesis in Interaction Design

Flow, Interaction Design and Contemporary Boredom

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Gothenburg, Sweden 2004

Chalmers Department of Computing Science

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Summary

My theory is that there is an increasing amount of boredom and depression in comfort focused western society today and I believe that our obsession with commodities and technology is a major contributor to this. By eliminating small daily challenges with the help of technology is proving in many ways to be disastrous for our experience of life. By researching our motifs in interaction design a bit deeper with the help of psychological and philosophical theories we can produce projects that will assist us in life in a truly rewarding way. I will try to shine light on some key issues in this subject with the help of physicists, psychologists, philosophers, designers, popular entertainment and history to possibly map out some pitfalls in the way we approach interaction design today.

As this paper is primarily focused on inventions that are supposed to aid us in our lives in a greater context it's not so much a questioning of the graphical interface, engineering and usability part of HCI which seem to deal on a micro level. This paper is about why we design artefacts, interactive technology and system in the first place. My paper questions many projects existence and discuss some general views and conclusions about designers and technology that are prevalent in the interaction design community today.

The report is written in English.

Keywords

Interaction Design, HCI, FLOW, boredom, comfort, pacification, Donald Norman, Mihaly Csikszentmihalyi, Fight Club, Maslow, Bodil Jönsson.

Foreword

The most common definition of Interaction Design is: “designing interactive products to support people in their everyday and working lives.” By using philosophy, sociology and even psychology, I in this paper try to shine light on some complexities of how we approach this as designers and developers. At times you might find this thesis to be of a very “philosophical” nature, which it most certainly is, although I hope it’s never incomprehensible which I would see as a tremendous failure, a failure not only to communicate my ideas but also affect society in what I believe to be a positive direction. Ultimately I hope this essay will invite reflection where technology and in particular interaction design has been, and will take us in the future.

1. Introduction

As I first started studying Human Computer Interaction and Interaction Design I got interested in some key issues that I found not too commonly approached amongst people in the field. I found that these very fundamental issues need to be sorted out before proceeding to further levels of development of projects. I found them overlooked, ignored or neglected by designers, often in the euphoria of developing new cool commodities and gadgetry. A development that I sometimes felt stemmed from our market driven desires of today's commodity culture.

What I instantly got interested in was the larger behavioral changes interaction design artifacts may have on user's lives and what motifs designers have of creating their artifacts in the first place. One of the first questions that came to me was: Do all artifacts and systems we develop have exclusively positive effects on our intended users, and do our inventions always and unquestionably contribute to a better experience of their lives?

I found that the breadth of technologies affect is most often far greater than any usability study ever touch upon. What I wanted to find out was if we, as designers, are obliged to take this greater impact into consideration as we come up with our technological miracle cures that we so indisputably know is a favor for humanity?

We, the designers, continuously produce new kind of interactive gadgets and systems, and we often talk about "designing for good experiences" and designing "for interaction" as something innately positive. I sometimes find little or no consideration is taken if the behavior replaced was sin fact a "better experience" or even more "interactive" than our technological solutions. Television for example might appear as improving user's lives but could something that from the surface looks like an enrichment of ones life in facto constitute an impoverishment? I say in many cases that it can. However, the basic problem seem to be that there's not many thoughts spent in making sure that the "user experience" in a macro perspective ever gives him/her a better experience of his/her life, which is what it comes down to in the end.

The area that I try to drift into with this paper is if replacing activities with technology make us loose a lot of rewarding experiences in our life, and make us experience less out of it? As I don't want to be exclusively unconstructive and purely criticizing I also elaborate upon how one with psychological research surrounding positive experiences and our needs in mind can design technology which will honestly make peoples lives better.

In the first part of this essay I will talk about a movie which touches upon our current commodity culture and the subject of anxiety experienced by a person who seems to have all modern conveniences one can think of but still doesn't seem to lead a very rich life. It's a movie, which portrays a reality where modern technological miracle cures and gadgetry doesn't seem to be a part of the answer to a widespread modern malady namely, boredom.

In my research I visit IDII, interaction design institute of Ivrea, one of the worlds most prominent institutes within interaction design to interview some faculty, students and professionals to map out my main questioning: **how and if the issue of "designing for good experiences" is approached from a macro perspective, and if designers common assumptions upon "good experiences" corresponds to psychological research conducted within the this area.** The research I base my research and theory on is officially known as the theory of *flow* from the University of Chicago.

I'll start of by talking about flow, which describes how we humans relate to experiences in our lives. Personally I believe the theory of flow to be one of the most important realizations of our time, and that we can, with the help of the insight it gives us, construct a society that will rid our civilization of the contemporary maladies we see on our newspaper headlines every day. This could be particularly important among young people when it comes to unwarranted violence and also depressions and experienced boredom among elderly. It may also be the answer to the mass consumption problems we see in the western world today. A lot of human behaviors show that we are unfulfilled and destructive to our surroundings. Flow describes why we are and what we can do to regain a feeling of satisfaction in our lives, which according to me will save the human race from certain extinction.

2. Theory

2.1 Flow

Why do some people seem more enthusiastic about life than others even if they are given the same opportunity for happiness and live pretty similar lives? What is the recipe, if any, to be a happy, balanced, enthusiastic person welcoming challenges in ones life, not going thru life experiencing boredom and anxiety? “Flow” is a term coined by Mihaly Csikszentmihalyi, professor of psychology at the University of Chicago and concerns his research of human happiness. Thru this theory, Mihaly Csikszentmihalyi tries to reflect about our lives and habits at times when we feel good about ourselves and experience happiness. By doing so, he’s hoping to help people shape daily activities in a way which will make them utterly rewarding and most effective from a “positive experience” standpoint.

Mihaly and researchers around the world has shown thru research that the quest for flow is one of the most fundamental instincts we have as humans and is all about challenges and how we overcome them. As humans we’re all confronted by minor or even major challenges in our lives that we need to use our skills to overcome. When overcoming these challenges with the help of our skills we feel euphoric, much like a jazz pianist who manages to play an error free solo or a wine connoisseur spotting a wine in a wine tasting. The interesting thing is that flow is a part of all activities we engage in and can even be found with a person who manage to install a new water faucet at home without having to contact the local plumber or someone triumphing a friendly squash game after work.

An appealing thing about these experiences are that we don’t always have to challenge and triumph someone else to experience them, it could very well be ourselves, in like driving a certain distance by car faster than ever before that might generate these positive flow experiences. Daily challenges that we feel rather good about superseding aren’t always considered unavoidable chores in our lives; we even actively seek them at work or during spare time just for the excitement and rush of accomplish something with the help of our skills. In his book, *the psychology of everyday enthusiasm*, Mihaly Csikszentmihalyi explain that the ability to experience flow in ones life is independent of social situation, ethnic background or education. He’s research undeniably show that anyone can experience flow and find flow activities in their daily lives as he gives continuous examples which indicate that children just as people in their 80’s still engage in flow generating activities.

Mihaly Csikszentmihalyi bring up the troubling sides of contemporary society where that he has found that people’s lives are filled with an increasing amount of entropy which in turn is devastating for our culture. He explains that most people see work as a necessary evil, only truly living for their spare time and a minority of people can truly use their spare time in a meaningful and enriching way. Many turn to watching television which might fight boredom and anxiety for short periods of time but will not give you truly

positive experiences in the long run because of one being a passive bystander and not an active participant in what ever is engaged in.

Csikszentmihalyi points out that the reward is often the big hitch. There are **auto telic** rewards and there are **external** rewards, **auto telic** being rewards that are internal and produced by yourself, and the **external** of course being external rewards. These internal rewards are the essence of flow activities as there's not always someone else around to reward you in your activity. They also give you more lasting satisfaction than external rewards as external rewards are more shallow and dependent on other people.

The Evolutionary importance of flow activities is also depicted in the book as he describes "The Caveman" who had a brain equal to ours had to continuously use skills to fight of nature and his enemies. He had to continuously find solutions and use problem solving to try to rise above these threats, much like the Native American tribes I'll illustrate later. That's where Csikszentmihalyi sees the evolutionary importance of flow activities, as every time we succeed a challenge we feel euphoric and as soon as we succeed it a second time the challenge was lessened which also diminish the euphoria of success. This unavoidable "boredom induced by accustoming" can be treated by increasing the challenge. And thus you have an explanation of our species unique quest for knowledge, new technologies and finding new challenges to master. It's not only for **external** rewards; it's mostly for **auto telic** rewards and the euphoria you feel by using your own knowledge to master a challenge that you are faced with.

So what constitutes a flow experience one may ask? How do we know a flow experience from just a regular experience? To define flow experiences Csikszentmihalyi has defined some requisites for an experience to be as rewarding as possible, and to be labeled a flow perspective, those characteristics are as follows:

Clear goals
Clear goals of the activity you are doing. If there aren't any goals then the action in itself can feel a less motivating.
Unambiguous and immediate feedback
You need feedback while engaging in what you are doing to know how you are performing and have something to compare your performance to.
Skills that just match challenges
You need challenges that match your skills. To hard of and challenge and you'll experience anxiety, too easy of a challenge and you'll be bored.
Merging of action and awareness
When one's attention is completely absorbed by an activity, one becomes oblivious to any irrelevant external stimuli – such as the worries and concerns about everyday life. There is a merging of subject and object or activity. The two become one.
Centering of attention on a limited stimulus field
A highly concentrated state is the essence of flow. Attention becomes so focused, the range of perception narrows to include only the immediate task or goal at hand.

A sense of potential control
You have to feel that you have control of the outcome and the situation, if you don't you can't reward yourself, or credit yourself of achieving something.
A loss of self consciousness
You become "one" with the action and experience, almost like an out of body experience; loose your sense of self consciousness.
An altered sense of time
You loose track of time, you don't experience time passing. Time flies basically.
An "auto telic" experience
An action with internal rewards, one that you feel internally good about, one you engage in without expecting external rewards or acclaim.
(Greenberg, 1999)

I could go on describing these characteristics in more detail but I think most of us know a flow experience as we all have them in our lives. Anyone who's painted a painting, played sports, music, assembled a model of an airplane and so on have all experienced a complete focus and timelessness that most definitely was a flow experience.

When it comes to requisites for flow experience, we find that one of the most fundamental and interesting from a interaction design and boredom standpoint is that the **challenge confronted isn't too great**, which according to Csikszentmihalyi will induce boredom. Picture yourself playing a game of tennis against Pete Sampras. You wouldn't feel to euphoric about this experience as the challenge is way greater than your skills. If your skills on the other hand way exceed the challenge, like playing a game of tennis against your grandmother, you'll probably get bored and not enjoy the experience either. The trick is to find activities that just match your skills, or just slightly surpass your skills so that you get a chance to improve them to overcome the challenge. That's when we have the greatest chance of experiencing flow.

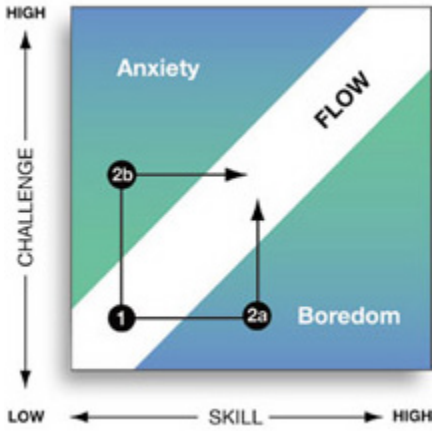

Figure 1. A student (1) will move out of flow and become bored, as his skill in an activity increases (2a), unless the challenge to succeed also increases. Likewise, a student (1) will move out of flow if the demand on him is too great (2b). To stay in flow, he must increase his level of skill. (Greenberg, 1999)

I say that this prerequisite is the most important from an interaction design perspective because I find some of the technology that is designed reduce or eliminate the need of skills to master. Many projects seem to have a hard time keeping users engaged and interested by reducing the challenge too much of an activity, leaving the user with skills in boredom. Activities are often changed or eliminated rather than manipulated in a way which may assist a user in experiencing a state of flow in an activity. I'll elaborate about the role of flow in interaction design later on in this paper.

From describing key components in rich interesting lives and activities, I will now talk about the movie *Fight Club*, a movie which at least according to me deals with the apathy experienced by embedding ourselves in to much commodities, technology and comfort. It's about people who will go great lengths to find primal flow experiences and a sense of control, although in gruesome ways.

2.2 Fight Club

First a quick review of the novel/movie *Fight Club* by Chuck Palahniuk:

"Fight Club Based on the debut novel by recent University of Oregon graduate Chuck Palanhiuk about a confused young man in the not too distant future. With no family or close friends, he frequents cancer and disease support groups as a way to bond with others, pretending to be terminally ill or feigning various other infirmities to fit in. Sick of his dead end, white bread, white collar corporate career and disgusted with the empty consumer culture that his generation has been doomed to inherit, he and a very devious friend named Tyler Durden create a new club where young men come to relieve their frustrations by beating each other to a pulp. The popularity of this club grows exponentially, and eventually some very profound rules are created to govern it. Because one of those rules is no more than 50 people to a fight club, soon new fight clubs are popping up everywhere and spread across the nation. Tyler Durden, the fight club's founder, quickly becomes a cult hero of epic proportions, a new messiah for a dead generation."
(IMDB, 1999)

As my ideas within interaction design took shape, the novel/movie in particular caught my attention. The movie was *Fight Club*, starring Brad Pitt and Edward Norton. I knew that movie had something important to say about our contemporary western society, not only to people who live today's highly comfort focused lives, but also to people who design and develop all forms of technological gadgetry we surround us with today. I liked the movie when I saw it back in 1999, but didn't really get it. I hadn't lived my "buy useless crap every weekend to reward yourself for your meaningless job" lifestyle yet. Two years later I had and I began to understand the importance of the movie, a movie which I believe will prove it self to be one of the most significant in our day of age.

As I decided to look further into the thoughts and philosophies of the movie I found a vast movement of likeminded critics of our contemporary comfort-lifestyles and a lot of great books/ essays and information to help me to structure an answer to an interesting

question: In what way could computer technology, especially my field of interaction design (technology) be held responsible for what the people in Fight Club are experiencing?

"*You have a class of young strong men and women, and they want to give their lives to something. Advertising has these people chasing cars and clothes they don't need. Generations have been working in jobs they hate, just so they can buy what they don't really need. We don't have a great war in our generation, or a great depression, but we do, we have a great war of the spirit. We have a great revolution against the culture. The great depression is our lives. We have a spiritual depression. We have to show these men and women freedom by enslaving them, and show them courage by frightening them.* (Palahniuk p.149)

I had a feeling that we sometimes basically design a lot of things that people don't really need. This because: why if we've been so successful in making peoples lives so much better by adapting them to our technological commodities do a lot of people experience boredom, anxiety, and having a hard time finding meaningful pastimes as we constantly hear inner-city kids and men and women relating to Fight Club, The Matrix, American Beauty and Office Space proclaim? If our gadgetry and wonder solutions help users as much as we say they do, why do they when on vacation want to get as far from our technological gadgets and commodities as possible? It seems like they enjoy living a more *simple* life. But wasn't our gadgetry supposed to make your lives just that?

I wouldn't say that I got my ideas from Fight Clubs project mayhem or that I want to totally demolish contemporary society but what caught my attention was people out there, the writer Chuck Palahniuk obviously, plus all other around the world who didn't seem to live lives filled with rich very positive experiences even if their lives seem highly comfortable. Being surrounded by gadgetry in their homes and steady nine to five jobs seem to have little or no effect on their quality of life. I get the impression that a great deal of people are longing and yearning for something that's been lost in their present lives and lifestyles, I find role-playing and "live games" popping up everywhere exemplifies this in a undeniable way. There seems to be a longing for simplicity, almost until it becomes a perverted longing for a primal life or at least primal experiences, getting as far away from the false reality of commodities and comfortably numb IKEA lifestyles. Rebelling against these this kind of nightmarish scenarios by Donald Norman:

"*The central home computer senses the car pulling up on the driveway, so it signals the front door to unlock, the hall lights to go on, and the oven to start preparing the meal. By the time you arrive in the house, your television set has already turned to your favorite news station, your favorite appetizer is available in the kitchen, and the cooking of the meal has begun. Some of these systems "speak" to you (with voice synthesizers inside their computer brains), most have sensors that detect room temperature, the outside weather, and the presence of people. – going to miss your favorite show on television? Call home and instruct your VCR to record it for you. Coming home an hour later than expected? Call your home oven and delay the starting time of the meal*." (Norman 1988, p. 184)

Does Fight Club have an interesting point? The point that all these gadgets and pre-packaged technological ubiquitous cures for daily annoyances are getting us further away from what we are truly seeking? Not that we are seeking lifestyles and experiences similar to the characters of *Fight Club* but does the mindless consumer hysteria and human destructiveness of it's surroundings have an origin in a dissatisfaction of our contemporary society? Is there dissatisfaction as we are getting further away from **whom** we are and **what** we are by building ourselves into hi-tech fortresses much like the house of the future imaginatively depicted by Donald Norman? I personally believe there is, but the most troubling thing is that these kinds of scenarios aren't outtakes from nightmarish science fiction literature; it's a well known reality that people within interaction design try to make reality, people who work in the area of making peoples lives **better**.

The most eerie thing about Mr. Norman's depiction is, not too surprisingly, that the possible negative effects he can foresee from this kind of scenario is one which, unfortunately, is very common among hi-tech evangelists, namely concerning the complexity of managing all these conveniences all at once. My fear is that people get bored and depressed in these scenarios as small but yet important flow experiences are reduced from their lives. Although some technological visionaries discuss a much darker future, a discussion that might appear a bit apocalyptical, but still has its points.

"*It might be argued that the human race would never be foolish enough to hand over all the power to the machines. But we are suggesting neither that the human race would voluntarily turn power over to the machines nor that the machines would willfully seize power. What we do suggest is that the human race might easily permit itself to drift into a position of such dependence on the machines that it would have no practical choice but to accept all of the machines' decisions. As society and the problems that face it become more and more complex and machines become more and more intelligent, people will let machines make more of their decisions for them, simply because machine-made decisions will bring better results than man-made ones. Eventually a stage may be reached at which the decisions necessary to keep the system running will be so complex that human beings will be incapable of making them intelligently. At that stage the machines will be in effective control. People won't be able to just turn the machines off, because they will be so dependent on them that turning them off would amount to suicide*." (Joy, 2000)

A developer or designer who's not equipped with a basic knowledge of human nature and who doesn't have the emotional, intellectual intelligence of foreseeing possible scenarios can in many cases do more harm than good for humanity, harming users by creating lives without flow, bored like the characters of Fight Club.

2.3 Contemporary Boredom

"I'm bored to death.

Boredom kills in direct and indirect ways. A precursor and often a component of depression, boredom frequently fills the mind with thoughts of suicide. It is the eighth leading cause of death in America and an extended period of boredom is often a warning sign. Its victims are frequently teenagers and senior citizens.

Boredom is the mind's demand to be "fed." There is an aspect of the human psyche that one's mental life be stimulating. Lacking that stimulation, the mind goes in search of ways to find it.

Thus, boredom may be a component of the decision to abuse alcohol or drugs to deflect stress or induce a brief period of euphoria or simple "peace of mind." Deaths caused by drunken or drug-dazed drivers are a national problem. As often as not, the drivers die as well. Simply being bored is likely the cause of many common accidents. Overall, accidents constitute the fifth leading cause of death in America.

Physical problems such as obesity may be linked to boredom as well. The person who over-eats often does so to compensate for feelings linked to boredom. Eating for gratification, to "do something", replaces actually doing whatever it takes to truly feel better about one's self. The boredom that can creep into a marriage can lead to cheating on one's spouse. It attacks the marriage contract and bond. It can lead to divorce and broken families. The boredom many young people feel in school can lead to dropping out, a very bad decision.

Anti-social behavior involving all forms of crime can also be linked to boredom. Especially among young people, vandalism, stealing cars, muggings, and worse forms of crime are often an expression of the need for the excitement that comes with such behavior. Law enforcement authorities have long known that even murder can be prompted by the boredom that seeks expression in homicide.

The media, whether it's for entertainment or news, knows well the public need for stimulation. The fixation on any sensational murder is an example of its exploitation of this need. Most films feature violence as the basis for attracting an audience, as do many television programs whose theme is crime.

For nearly two decades, I have received countless inquiries from people around the nation and the world experiencing a lot of boredom and seeking to overcome it. These are the lucky or smart ones who know they are in trouble.

The good news is that it is easy to overcome and avoid boredom. Reading keeps the mind tuned and should be a part of everyone's daily life. Hobbies are essential. Being involved in organizations that share one's interests is important. Getting out of one's home and

apartment to travel, even if it's just for a long weekend to attend an event or visit some place of interest, is yet another way to deal with boredom.

When people say "I'm dying of boredom", they are a lot closer to the truth than they know. Boredom can and does kill." (Caruba, 2003)

The problems due to boredom that Alan Caruba mentions above seem to be prevalent in our day of age, almost to the extent that we don't even think twice if they appear on headlines at the magazine stands. Were these problems as common in past civilizations, and how did they approach boredom?

[The Canadian anthropologist Richard Kool gives yet another example on how a culture can build flow into their lifestyle as he describes an Indian tribe in British Columbia.]

[The Indians regard and still do, the Shushwap area to be an affluent region: there's plenty of salmon and game and plenty of edible roots – a rich country. People lived in permanent villages and made expeditions through out their surroundings to congregate what ever they needed. They had well developed technologies to make use of the resources of their environment and they saw their lives to be very good and affluent. But the sometimes the eldest said that the world became too predictable and the challenges disappeared from their lives. Without these challenges, life lost its meaning. So the elderly used to, thru their wisdom, decide to move the whole village every twenty-fifth to thirtieth year. The whole community then moved to another part of Sushwap, and by moving they found new challenges. The new location had new rivers to learn, new paths in the forest to explore, new vast areas where to find edible roots. Once again they found the sense of purpose of life, and a reason to live. All felt rejuvenated and healthy. Because of these traditions, the land they left also got time to re-grow and rejuvenate after years of utilization.] (Csíkszentmihályi 1996, p. 106)

Some Native American tribes seemed to have a good understanding of the destructiveness of a life without flow, do we? What if all the problems in modern society associated to boredom is due to a lack of stimuli in our domesticated hyper-comfortable lives? And if so, what role does interaction design gadgetry play and do most interactive artifacts and technological solutions have a positive or negative affect on giving us challenging stimulating lives much like what the Indians above experienced? Well, the most obvious answer from most designers would probably be yes, it has a positive affect because the artifacts he/she designs give the user stimulation – or at least more stimulation than if the user would be doing nothing at all. But that doesn't really answer my question: if the stimulation is greater/more challenging and therefore more rewarding with the artifact than without it? Let's elaborate. Let's say the artifact a designer just designed will replace or modify a behavior, does this new behavior generate more or less flow experiences? Are the chances of experiencing flow increased or decreased by the new product/artifact and also behavior?

A simple but good example of this phenomenon could be an electric corkscrew: Let's say we have an electric corkscrew and a regular old-fashioned one. Which one would be

better from a flow perspective? If we're going to examine the benefits of an electric corkscrew compared to old fashion ones we not only have to look at the obvious benefits from a "way of the least resistance", efficiency perspective. Where does the user have the biggest chance of having a flow experience? The challenge of opening a bottle of wine with an old fashioned corkscrew is as follows:

1. Screwing the corkscrew in by hand
2. Getting the screw to penetrate the cork as vertical as possible to minimize the chance of getting cork into the wine.
3. Getting the cork out of the bottle without soaking your dinner guests yourself with the contents of the bottle.

The challenges you have from opening the same bottle with the electrical corkscrew are as follows:

1. Place the electric corkscrew on the bottle, and press a button.

I don't argue that an electric corkscrew is completely useless; it's useful for people who need them for physical or mental reasons. For the rest of us who like overcoming the challenge of opening a bottle of wine, these electric corkscrews can be devastating. The old fashioned corkscrews invite greater challenge and therefore satisfaction in handling obviously compared to the electric one, even if it's minute. There's also a greater element of satisfaction, and danger of dissatisfaction. I guess it's like with all truly rewarding activities: as the risk of failing is greater, so is the satisfaction when succeeding. It's sometimes worth there being a risk of dissatisfaction than there being no activity or challenge at all.

It's vital to shine light upon the advantage or disadvantage from a flow standpoint when it comes to technology that aid and entertain us in our daily lives because of the dangers of boredom described above. I'm not arguing that an electric corkscrew will force one to commit suicide, but an excess and abuse of comfort technology might decrease ones experience of life, which I find very interesting from an interaction design standpoint.

What I'm trying to get across is that it's important that technology today help us avoiding boredom and not just help us increase comfort. Probably a majority of theorist worldwide would agree that boredom is a bigger threat to western civilization than a lack of comfort.

"*What is it about advanced nervous systems that demands excitement, that requires absorbing stimulation? For that is the need that boredom creates: exciting stimulation. The urgency with which we try to avoid boredom has a function, a purpose. It makes animals want to explore and learn what their environment is about. For us humans that learning has wide encompassing implications. We are indeed meant to be life long learners: a learning with which we enrich not only our own lives but potentially the rest of human society. And if we fail to fulfill the demands of our nervous system for productive stimulation, lurking like demons are the dangers of destructive alternatives*."
(Fuller 2002)

An irony of our current approach is that we seem to apply tremendous amounts of time and money on comfort technology where it's least needed, in the western world, opposed to let's say the third world where it could really help. We design and deploy even more comfort technology on top of our existing one in the west, not that we need it, but because that's where the money and profit for the producers is which in turn could really question technology corporation's motifs of wanting to "help" humanity.

It's important to not just stimulate, but also give room for a user to learn, explore and grow by the help or without the help of our interactive technology, if not we will fall victims of the dangers of more destructive alternatives.

2.4 Technology and Comfort

I find certain deal of automation in our lives to be of great help, certainly a great deal of comfort too. But I do think that it's not good to get too comfortable, or live in a too automated world.

"*Automation has its virtues, but automation is dangerous when it takes too much control from the user. "Overautomation"- to great degree of automation - has become a technical term in the study of automated aircrafts and factories. One problem is that over reliance on automated equipment can eliminate a persons ability to function without it, a prescription for disaster, if, for example, one of the highly automated mechanisms of an aircraft suddenly fails. A second problem is that a system might not do things exactly the way we would like, but we are forced to accept what happens because it is too difficult (or impossible) to change the operation. A third problem is that the person becomes a servant of the system, no longer able to control or influence what is happening. This is the essence of the assembly line: it depersonalizes the job, it takes away control, it provides, at best, a passive or third-person experience*." (Norman 1988, p. 197)

Not only are there certainly dangers from a usability and error frequency dangers in over-automation, there's also dangers to our private lives. A pitfall is that we now days in our highly comfortable lives don't always know what we need or what makes our lives truly better. Maybe our lives are as comfortable as can be and just too saturated with technology that make us rebel against it, much like with commodities in *Fight Club.* In experiencing this discomfort by being too comfortable, we design even more technology to approach very minor annoyances in our lives falsely believing that's the problem, while it's obviously not. That's why I find studying psychology, sociology, philosophy and more humanistic subjects is a vital step for any interaction designer, If not **the most important**, because no technology in the world can make up for a project that is based on a incorrect conclusions, which turns the project useless and sometimes even harmful.

How do we know if a project or intention of a project is useless or not? Well, user groups, participatory design and other common forms of taking the users experiences into consideration in development work fine for interactions and projects that have efficiency and problem solving as its sole purpose. It's easy to find out if a system or item is enjoyed and easy to interact with, which you find that out pretty quick, but it's a totally

different challenge to find out if a system or artifact and ultimately a changed behavior is enjoyed in the long run. Alternative forms of design processes and usability studies should be developed and available where people are closer to their customary lifestyles and where they are studied to find the true effects or changes in behaviors. I find that these behavioral changes induced by interactive technologies to be sometimes overlooked and not taken into consideration. Are there any usability studies within interaction design that is conducted during a period of lets say 2 years to see what major changes an artifact had on peoples lives?

"*Plentitude is American cultures perverse burden. Most Americans have everything they could possibly want, and they don't think it's nearly enough. When everything is at hand, nothing is ever hard-won, and when nothing is hard-won, nothing really satisfies. Without satisfaction our lives become shallow and meaningless. In this era of gigantism-corporate megamergers, billion-dollar-grossing films and grande lattes - we embrace the value of* ***more*** *to compensate for lives that seem, somehow, less.* " (Lasn 2000, p.11)

How can we turn this "design for more comfort" around as designers? How can we find new ways to approach the role interaction design could have in our lives? Well as a start let's stop using Homer Simpson-ish characters to design technological artifacts for and keep in mind to design for a Homer Simpson counter pole, Dalai Lama for instance, even if they probably share many things in common due to Homer Simpson's sometimes Taoist approach to life.

2.4.1 Homer Simpson

As we get into Homer Simpson and comfort technology, an interesting thought springs to mind: That during my research and interviews, I've come across the term "Homer Simpson-interaction design" on several occasions. I find this quite humorous as I've called the very comfort centered projects I came across as a student just the same.

"Can life get any better for Homer J. Simpson? He juggles the roles of husband, father, safety inspector at the Springfield Nuclear Power Plant, bowler, beer drinker, astronaut, small business owner and dreamer, and makes it all look easy. Homer graduated at the bottom of his high school class and managed to earn the distinction of being the longest-term entry-level employee at the plant. Homer is fond of Duff Beer, donuts, Marge's pork chops and watching the Bee Guy on the Spanish channel. His dislikes include his boss, Mr. Burns, yard work and his neighbor, Ned Flanders." (FOX 2004)

If projects of the worst kind from a pacifying perspective seem to be tailored by and for a character like Homer Simpson, then what kind of character comes to mind when designing better projects from the same perspective? Well as I said an example could be a personality like Dalai Lama, the spiritual leader of Tibet. An interesting question would be, granted Dalai Lama himself would be in the field of interaction design, what kind of computerized remedies for current quandaries in our lives he would come up with? If he reason like most designers who design artifacts and apply technology in ways that help people in their lives, what kind of concerns would he feel was important to deal with? I

sometimes ponder upon his facial expression as I demonstrate the technology crammed "smart" home by Donald Norman.

2.4.2 Dalai Lama on Technology

"*Western civilization's science and technology bring society tremendous benefit. Yet, with highly developed technology we also have more anxiety and more fear. Mental development and material development must be well-balanced, so that together they may make a more human world. If we lose human values and human beings become part of a machine, there is no freedom from pain and pleasure. Without freedom from pain and pleasure, it is very difficult to demarcate between right and wrong."*
(Dhondrub 2003)

Much like Dalai Lamas therapeutic role in today's society, we as interaction designer's play a similar one. This role promises to make people's lives better or solve problem in specific parts of their lives. The problem is that most interaction designers don't know very much about humans and their true needs which seem to be a grand disadvantage when designing. A lot of projects are therefore based on dim conclusions and become stabs in the dark much like smart homes that no one seemed to want in their lives. It's time that we as designers think before we act, even before we make our prototypes as they are often made of plastics, synthetic materials and metals that are harmful to ourselves our environment. As we all know there's already too much waste out there, so let's not add to the stacks of waste with our mindless gadgetry crap. Our design rhetoric holds a lot of power and influence over people's lives and we all know what Pippi Longstocking said: That people that withhold a lot of power must remember to be kind. We'll I don't find it kind to prototype, manufacture and sell things for the sake of hype, profit or mindlessness that doesn't increase peoples positive experience of their lives, things that so often also pollute and litter our surroundings and works against a growing consumerist and environmental impacts worldwide.

2.5 Happiness

Our laziness makes it easy to abuse comfortable things, and the tricky part about abuse is that you don't always associate the negative effects to the cause. I fear that if people get depressed by their smart homes described by Donald Norman above, they don't always know that their smart home is the root of their unhappiness. So what is the root of happiness? We'll who's better to ask than Epicurus, who spent his life and research seeking the answer to this eternal question.

2.5.1 Epicurus

Epicurus is one of the major philosophers in the Hellenistic period, the three centuries following the death of Alexander the Great in 323 BCE. Epicurus was born on the wonderful island of Samos and started his philosophical career as early as fourteen, listening in on platonic philosophers like Pamflios and atomic philosopher Nausifanes.
Epicurus was said to have written 300 books during his lifetime, about all kinds of subjects such as: Love, music, Fair Trade, Human life and Nature. So what does this ancient Greek to tell us about interaction design you might wonder? What possibly can he have to say about something as complex as computer technology and how we apply it? Well tools for making peoples lives better is nothing new, even chimpanzee's use tools to fish termites out form their stacks to have for dinner. Applied tools and technology commodities have been around as long as we have so the basic premises are set; it's just the expression that is changed and as technological artifacts and tools have the function to make our lives better and us happier, who else to ask than Epicurus who had developed the perfect recipe for happiness according to himself and many after him. *Friendship*, *Freedom* and *Reflection* where the three key ingredients for a happy life according to Epicurus, an Epicure' being "*a person devoted to sensuous pleasure and luxurious living*" is not really an interpretation that Epicurus himself would appreciate as he lived a very modest, Spartan lifestyle. He lived in a house with his closest *friends* growing vegetables to sell at the local market which gave them the *freedom* from the slavery of answering to a boss at a job that they didn't enjoy, to have a lot of spare time to *reflect* upon their lives. They concluded that the rest didn't add or affect happiness in ones life, certainly not items of luxury and extreme comfort which where common among the citizens of Athens. As abundance didn't seem to be a prerequisite for happiness; anyone who's got these three very basic key ingredients in their life could lead a happy life according to Epicurus, the rest was just more or less superfluous, quite contrary, abundance just give you more things to worry about.

"*And even the billion whose living standards use up what is effectively 100 percent of the world's available resources each year to maintain, and who might be therefore assumed to be happy as a result, do not in fact seem to be so. No social indices in any advanced society suggest that people are more content than they were a generation ago, various surveys indicate that the "misery quotient" in most countries has increased, and considerable real-world evidence (such as rising rates of mental illness, drugs, crime, divorce, and depression) argues that the results of material enrichment have not included much individual happiness*." (Kirkpatrick 2004)

Maybe interaction design as a subject should focus a bit more on these three key ingredients depicted by Epicurus as we design for an increase of quality of life? Some may argue that we are already doing this, but note that Epicurus meant that it's important to have friends close by and not to even have a single meal alone. Sitting in ones solitude chatting to them on for instance MSN Messenger with a TV dinner isn't really what he had in mind. Although internet messengers offer temporary relief for people who can't be with their friends in real life, it's still only a temporary solution; it's still just a weak substitute for something that many long for.

Another interesting thought of the epicurean philosophy is that we're just as bad at knowing what truly makes us happy as knowing what is truly healthy for our bodies. If it wasn't for doctor's information on what is good for us, we wouldn't have a clue or at best we would have some guesses that probably be wrong. As the doctor function as a specialist who knows what goes into a healthy body, the philosophers, according to the epicurean view, are the doctors of the spirit. Just as a medicine is useless if it doesn't help the patient get rid of a disease, philosophy is useless if it doesn't help people with their suffering of the spirit. The same could be argued about interaction designers. We are useless if we don't increase the quality of life of a user, because that's what we are here to do.

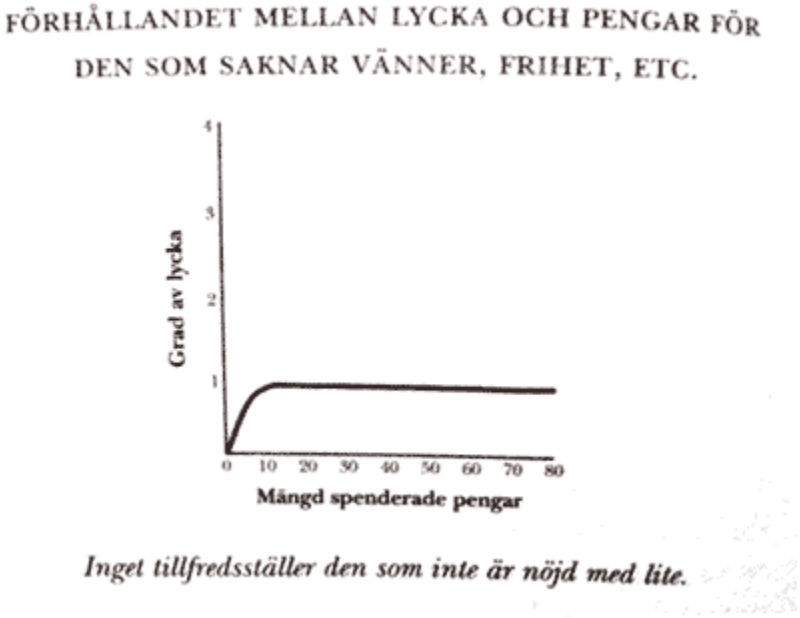

Figure 2. Translates to: The relationship between happiness and money for one who's lacking friends, freedom, etc. Y axis: Happiness, X axis: Amount of money. (De Botton 2001, p.80)

2.6 Subjectivity of Designers

Another problem with interaction design and comfort as I see it is that most designers within the design community have themselves in the back of their head as they come up with concepts or new ideas for projects. Maybe not the motif or for whom they are designing, but when drawing conclusions of what is good or bad for that user, at an initial stage they use their own experience and ideals in making their conclusions. I find that we often have ourselves as model in some way that we design for, often influenced by our own wants, needs and desires. Designers will design things that he or she feels can help someone else in one way or another, how else could a designer day after day work on a project which he/she understands is to no ones benefit? Designers have different values, personalities, experiences, so naturally the way upon how to identify and solve a problem will always differ from person to person, designer to designer. For instance when I approach a project which involves laundry and how one in an efficient way let a user know when the laundry is done, I might not see the point of such a project because I might not identify the problem that the project is supposed to solve*. Doing laundry and knowing when it's done might not constitute a major problem or annoyance in my life and therefore not an important problem that I feel needs to be solved, before any other.

*. A not so interesting note in this subject is that I actually like washing my Gee (costume worn by various martial practitioners.) by hand in my tub. I find this quite awkward as I've always seen myself as a lethargic person when it comes to daily chores. I find it highly pleasurable to wash it by hand as it takes me at least an hour. A peculiar enjoyment fills me in watching how clean it's getting, and how dirty it was. I Rinse, change water, and scrub the fabric with my hands in the warm water as I listen to a vinyl record, first the A side, then the B side without jumping from one song to the other.

Where people have the freedom to choose interaction design projects to work on you often see the projects being influenced by the personalities of the designers. Gather a bunch of gaming enthusiasts to design artifacts and they will be "gaming like", if you have a bunch of children, the project will often be what we grownups call "childish". If you could gather a bunch of apes as designers, the projects will be "apelike", probably involving various fruit and so on. Therefore it's not very strange If you have designers not to oriented with true human needs designing, that their projects won't be very helpful for the rest of humanity at all times. The potential of computer technology is not limited to gathering fruits as we now clearly understand by the ape example, but it's important to understand that you and I also have perceptive limitations to what computer technology can do for us, much like the apes. If there where a smarter species than ourselves walking this planet today they would probably look at us and see all this potential of computer science going to waste because we don't know how to apply it in its most beneficial form. We basically don't know any better. They might even find that we used pretty advanced technology for trivial problem solving and entertainment. Maybe future generations will look back and condescendingly question the way we applied computing technology: *"did you know that humans used all that potential computing intelligence to keep track of their laundry and not like we do now; understand our surroundings, live with and understand the balance with earth, help our fellow man to a better future, be outdoors and have rich real physical experiences and finding the unlimited powers contained in our souls?"*

As I said before, the list of ways you can apply this blessing of computing science is endless and only our imagination set the boundaries, the humorous thing is that we still stand and debate in the margins of this spectrum if we should use it in our refrigerator or in the washing machine.

Why have we exclusively seen very efficiency focused products and projects within the computing sciences until recently? I believe the personalities and backgrounds of the people developing them have played a major role in their appearances. The "barriers of entry" associated with computing sciences such as programming knowledge and expenses associated with computing at early stages probably deterred a lot of non technocrats to venture into the world of computing and computing sciences, until now the computer sciences field has been congested with groups of way to techno-centric people who has programmed software and created artifacts of technology that respond, or are heavily influenced by their own lifestyles. By doing so they have achieved great things, although not the most user-friendly and useful applications of technologies at all time. Techno centrism has its place of course, but on a development or production stage of a project where it's often preferred that you are techno-centric. On an initial concept level where motifs why a project, product, artifact should exist in the first place, being techno-centric could be disastrous. Today, computer sciences are getting beyond this group of developers we see a natural process of letting arts, psychology and philosophy among many other subjects naturally blend into computing sciences, which will produce projects that will be more "useful" and "user-friendly" than ever before. Letting other subjects blend into interaction design will also open new doors of the exploration and true potentials of computing technology.

2.7 Technology and its Side Effects

Much like medical cures and pills are remedies and pain relievers to illnesses, computer technology has a similar role in our lives; it offers a solution to a perceived problem or apparent annoyance. Like medicines, technology has side effects parallel to the desired effect, sometimes positive, sometimes negative. What's in medicine seen as a shift of chemical compounds in your body that cause side effects, a technology often sees a shift in behavior that may have unwanted or unforeseen side effects.

"*Technology touches our lives in far more ways than can check or be checked by the state. It affects our work, our culture, our social relations, even our desires. Recognizing technology's breadth is a prerequisite to reaching any conclusions on its ultimate effects*."
(Filis 2004)

To minimize the negative side effects modern technological solutions have on people's lives, studies should be conducted to find out the full effect of the prescribed "remedy" to daily annoyances that a lot of technology constitutes. As technology might solve a problem in one part of life, it might negatively affect another part of your life and one should get a warning about this before incorporating the technology into ones life. We already see recommendations and warnings for kids and computer games; not only of the

content but for abuse. A computer game or Playstation might have an obvious positive effect on your life as it offers to avoid temporary boredom and entertainment, but activities that you engaged in pre-Playstation might not be part of your life anymore. Does those altered behavior patterns make you experience your life as better? The most obvious answer would be: *yes, why get a Playstation if you don't enjoy what it does to your life*? *If you're unhappy with what it does to you can always discontinue using it.* Well I don't think it's that easy, I believe that a lot of computer games and gaming consoles are easily abused as physically effortless prepackaged entertainment, accessible and provided in an appetizing and appealing way, and I think it takes a great deal of self awareness and insight to understand that you might be abusing computer games and understanding the wide array of areas in your life affected. Therefore I find designers and manufacturers to have a certain responsibility of the possible negative effects their products may have on user's lives, and inform the user about these.

"*The history of technology shows that we are not very good at prediction, but that does not diminish the need for sensitivity to possible changes. New concepts will transform society, for better or worse*."
(Norman 1988, p 209)

Regulations have just come around as we gain knowledge of the effect of a lot of the products/artifacts that corporations want to sell and incorporate in our lives. Brief measurements are slowly taken towards corporations trying to inform us what we need to make our lives better, letting us know in our own best interest of course. Sooner than later we will probably see the same measurements taken with new technologies as science discover the pitfalls of comfort and hyper-consumption of pacifying technologies. Maybe it's not to long until we will see warning labels informing us in what way a certain technology will alter our behaviors?

"WARNING, this GPS mounted in your new Volvo xc90 might get some passengers bored from lack of stimulation previously received from map reading; please install VCR's so that the passengers can at least enjoy poor third person entertainment."

2.8 FLOW and Technological implications

There are numerous examples where technology has played a major role in changing activities that used to generate flow experiences into an activity that doesn't anymore. These are examples where a new "improved" technology has reduced the possibilities of experiencing flow in the specific activity. One such real life example could be the development of Tennis.

"*A growing number of serves are aces that no player could return, and more and more games have become serving contests. In the 1994 men's Wimbledon tournament, Pete Sampras defeated Goran Ivanisevic with a magnificent display of technique, but his 125-mile-per-hour serves bored many fans. The longest rally was just eight strokes, and the correspondent for the Guardian, David Irvine, appealed for action 'to save the grass-court game from self destructing.*'" (Tenner 1997, p. 309)

Not only the experience of watching the game bore people, loosing or winning a game is less exciting as it's done by 125 mile-per-hour serve aces.

"*Tennis shows how unpredictable technological change can be in any sport. For two decades, equipment improved for the average player as for the professional, yet participation never approached the peak of the wood-racket era at the end of the 1970s. The added power of male professionals did not seem to increase the game's appeal to spectators; if anything, the intensification of the game began to bore them*." (Tenner 1997, p. 309)

Well the technological evolution among balls, rackets and courts has made progress in the speed and force of the players, but has this progress been beneficial for the spectators and the experience of the game for the players? Playing doesn't seem to be as fun as players aren't given the same opportunity to play an as varied and entertaining game today as back in the 70's. The sport as participation has decreased steadily since the 70's clearly shows this phenomenon. Although I don't conclude that technological advancements are to blame for the decrease, I believe it has played a significant role.
It seems like not only the players but also the audience are bored of the game because of the intensification. The racket doesn't play the game for you but the speeds in which the game is played with new composite rackets and high pressured gas balls has taken the easy relaxing fun out of tennis for the average exercising player. To win, these new technologies are essential. Quantitative aspects seem to be in focus while the quality of players and spectators experiences is set aside.

As with many other substituting new technologies, the new technologies doesn't necessarily mean that a wider array of technologies are offered, new technologies replace old and what was to become "more" just turned "different". A player who decides to revert to old wooden rackets, slower balls and grass courts, may not be able as they're not offered anymore in production. What was supposed to become **better** has just become **different**, different and sometimes impoverished.

2.9 HCI, Flow and Reducing Displeasure

As I tried to find a framework to work within for this paper, I was looking for some form of psychological model that I could refer to which could portray the treacherousness of highly passive and excessively comfortable lifestyles have upon human happiness. What came to mind was a very novel and interesting theory I had red years before about the Flow. The theory is not as mysterious as can seem, flow experiences are some of the most central, enjoyable, self improving experiences that are around and has been around as long as we've been walking this planet. A flow experience is as I described earlier one where you loose track of time, is completely focused, engulfed in what you are doing and feel truly fulfilled when using your skills to overcome whatever challenge one might have. Flow experiences are erringly similar to what people in the movie *Fight Club* seem to be lacking and what the movie shines light upon: Humans rejecting commodified pleasures overpowering them in contemporary society to find an essence, something real,

challenging themselves in a primal way to escape the world of digitally retouched, fake commercial happiness that is sold to us thru mass media.

Investigating the possibility that intractable technological artifacts/products can have a negative affect on our lives thru reducing flow was not an easy task, especially not in the 20 weeks that I was working on this project; however my intention with this essay is merely to map out an area of concern for further research and investigation. The fundamental question I chose to deal with is not original; it's been a subject of philosophical pondering for hundreds of years. Lao Tzu, Rousseau, Thoreau among others*, all argued (on different bases and in different ways) the superiority of a simple life closer to nature, a life not surrounded with excessive amounts of luxury and conveniences.

*. I wouldn't pull my research or my personal opinions as extreme as many of these authors but I find that a lot of the thoughts and ideas aren't as strange and absurd as a majority of people today might think.

The Idea of incorporating "flow thinking" into interaction design came to me during my studies at the IT-university of Gothenburg ass I thru my projects would like to give people a better and more positive experience of various activities and try to help them in their lives with my designed technology. When trying to help someone else, one first looks to in which way oneself would want to be helped and then try to help someone else, much like I described in the "subjectivity of the designer" chapter. The interaction design community and any technology development in general work basically more or less in the same way that we by our design, use non verbal rhetoric to convince people into changing their behaviors and lifestyles into what we perceive are better ones, or as Richard Buchanan put it in his essay "Declaration by design":

"*By presenting an audience of potential users with a new product - designers have directly affected the actions of individuals and communities, changed attitudes and values, and shaped society in surprisingly fundamental ways. This is an avenue of persuasion not previously recognized, a mode of communication that has long existed but has never been entirely understood or treated from a perspective of human control such as rhetoric provides for communication in language*" (Buchanan 1989 p.93)

But to convince potential users that your technological solution will change or enhance their lives in a positive way is not always that easy. What makes peoples lives "better" has been as I said a topic of philosophical pondering for thousands of years, and still is. How do a twenty-seven year old with no formal training into how human behaviors function, design something that will achieve the larger-than-life task; to make a users life better? Well, for most interaction designers it seems to be pretty straightforward. You take a problem or displeasure in your own or someone else's life and make it disappear or reduce it with the help of your technological solution. This is most often a very useful approach that has helped us in many parts of our lives, but are there any downsides to this approach? Can there be a too much "displeasure reduction" in ones life, not solely from a boredom perspective but from a perspective of appreciating life?

2.9.1 Nietzsche's Philosophy of Reducing Displeasure

Not only modern interaction designers discuss daily annoyences and displeasures and how we try to avoid them, even Friedrich Nietzsche the German philosopher of the late 19th century often referred to as one of the first existentialist philosophers pondered these issues. When it came to challenges in peoples day to day lives, one of europes most prominent philosophers of our time understood that "*satisfaction in ones life will not be reached by avioding setbacks and misfortunes, but by accepting it's natural function as a step towards everything good*." (De botton 2001, p. 265). Maybe the kind of naïve focus on problemsolving we see today within interaction design, as I said before, doesn't utilize the true potential of computer technology. Applying it in this fashion may even be useless in a way of helping us to live more content and happy lives.

To further explain this, It should be mentioned that Nietzsche was a man of the mountains. As he 1869 received a swiss citizenship he became switzerlands most famous philosopher and while living among the alps he woke up five in the morning, worked on his writings until noon to go for long walks in the alps in the afternoon. The interesting thing about Nietzche is that he realized the important correspondance between his wiev upon life and hiking in the alps. Life is a struggle he figured, much like life in the alps with valleys and peaks, life shouldn't be too comfortable as you will never appreciate your arrival onto a peak. Nietzche figured that from a peak one can look down upon life with satisfaction and primitive enjoyment to be alive, be satisfied to have the privilege of viewing down upon the beauty of the world. Nietszche said:

"As you stand at the edge of the cruel glacier it's hard to believe that the glacier has played a role in the development of the green grass and fertile areas down in the valley, to understand that something that obviously contrary to life, can be responsible for the fertileness of a blooming meadow." (De botton 2001, p.281)

This is quite contrary to the mindset of the interaction design community in general today where problemsolving, and *way of least resistance* plays a central role when designing. No doubt about it, there are technologies that help us, roof over our heads, heating in our homes during winter, clothing technology and so on. The vital question is not if modern technology is good or bad for us, it is if there's too much technology of a bad kind? Bad in a way that it tucks us in too much comfort, technologies that invite abuse and make us loose our appreciation of the life we are leading and natural flow experiences?

I find Nietzche pointing out in a very interesting way that a pure displeasure or "problem" reduced life is not always for the better. It might be to a certain degree, but not exclusively. And I find that's something a lot of interaction designers should keep mind when designing: That just because an artifact tuck users in comfort and pacification, doesn't mean that it's a artifact of great worth to human kind.

2.10 Explicit, Implicit Flow in HCI

As the book "beyond human computer interaction" by Preece, Rogers and Sharp investigates the area of "not only considering effectiveness in usability design" they mention systems which purpose is other than just effectiveness and productivity, they mention systems and artifacts that have added features of being "*satisfying, enjoyable, fun, entertaining, helpful, motivating, aesthetically pleasing, supportive of creativity, rewarding and emotionally fulfilling*". (Preece 2002, p.18) Although mentioned they are only examined from the perspective of an artifact or system rewarding the user with these experiences, not that an artifact or system should support these experiences in real life. A very strong focus today in interaction design is on technology helping us to receive flow, or any positive experiences in the artifact, not in real life.

I see flow playing an important role in interaction design and computer sciences in two distinctive ways. Those are **explicitly** or **implicitly**. Explicitly in a way where a user will receive a flow experience with the technology itself, much like with a Gameboy or Playstation, and implicitly in a way where one is assisted by a technology to receive flow experiences in real life, much like Laserdome where the focus of attention is on the real life activity, not the technology itself.

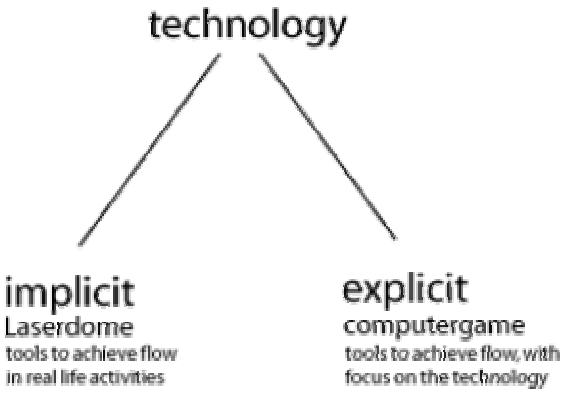

Figure 3. Implicit/Explicit flow

I find the explicit role to have a bigger responsibility to be exciting and stimulating *in itself* than the implicit one, where it's merely serves as a tool to achieve flow in real life and therefore should also be as transparent and unobtrusive as possible. When designing, one should keep in mind for which of these two you are designing. Am I designing an artifact which should in itself be entertaining and aiding, or am I designing a tool which aids in a stimulating an already existing activity? Mixing up these two could have undesired consequences. Therefore designing a website to be challenging for a user to navigate is not a good idea*, much like a laser rifle in Laser Dome it should be as user friendly as possible to aid in an already existing flow activity. When surfing the web it's usually shopping, searching for information, comparing prices, communicating with others, while when playing Laser Dome it's trying to shoot your opponent before he shoots you.

* As comment to using flow theory in web design I would like to add that there are two reasons why people browse the internet, for pleasure and entertainment or for performing a certain task. When performing a task, the website works as a tool and should be as efficient as possible, therefore the tools design shouldn't have any added challenges to "entertain" a user. Just like when you're in your garage to repair something, the tools don't need to be designed in a challenging way to put you in flow, it's the activity repairing that puts the user in flow, although an understanding of flow and the role of the artifact in flow activities should always be present when designing.

When browsing the web for leisure / pleasure, one can safely conclude that the four most popular activities on the web right now is probably file sharing, gaming, emailing, and instant messaging. Why people love these things is because they are flow activities. Writing an email put a person in flow, searching for movies and files to download is a flow activity, playing games where your abilities are challenged continuously is surely a flow activity and messaging / communicating interacting with other has always put us in flow. Nor here is it interesting and entertaining graphical interfaces of these application that put people in flow, it's the activity in itself. The only thing a designer can do to help, is to make the application or website support these activities as well and trouble-free as possible. What does it mean when an artifact "support an activity as well and trouble free as possible"? Well always meant that it's user-friendly, so all the hype about "flow in web-design" is just good old user friendliness.

2.10.1 Flow and Tools

Flow could although be considered to be designed into tools when the activity performed is boring and monotonous to increase chances of positive experiences and implicit flow. One could for instance design a timer onto a lawn mower to challenge a user or several users in cutting the lawn the fastest or dust-measurers on vacuums to see whom can vacuum the most dust at one time. These commonly perceived as boring activities would suddenly turn stimulating, and invite for flow experiences more effectively than acquiring a self vacuuming robot would.

The automatic vacuum will probably leave you more time to "*free our minds from unnecessary work, and connect us to the fundamental challenge that humans always had: to understand the patterns in the universe and ourselves within them*" (Weiser 1996, p. 9) as Mark Weiser said about the promising future of ubiquitous computing. Is he right or will most of us just watch more TV? My bet is on the latter. Well one could probably "*understand the patterns of universe and ourselves within them*" by watching more TV, although watching today's hyper-commercialized television, I find that extremely hard to believe.

Mark Weiser also believes that by letting technology and computers take care of our daily chores, they will help us to "*free our minds from unnecessary work*". The problem is that without these small, often welcomed daily chores most people don't know what to do with them selves. Maybe these daily chores have a vital function in our lives, they remind us that not all of life is comfortable, and they make us appreciate more when our lives are. A Zen Buddhist, or even Taoist would probably argue with Mr. Weiser on that one.

"*Maezumi Roshi, founder of Zen Mountain Center, was known for working on the grounds of his temple wearing a t-shirt, jeans, and a baseball cap with the word "Retired" written across it. One afternoon, an earnest young couple came to the door. Roshi was out in the front garden doing some weeding. They asked him where they could*

find information about Zen. "If you go upstairs to that office, they will tell you what Zen is," he answered. The couple went upstairs as he had suggested. They then told the person behind the desk that the gardener had directed them here for some packets of information. The laughter that ensued helped them to realize that they had just walked right past one of the most accomplished Zen teachers in the world in order to find something in a booklet." (Zen Mountain Center 2004)

Maybe weeding and other "*unnecessary work*" holds more secrets to "*understanding the patterns in the universe and ourselves within them*" than Mark Weiser and a majority of technology evangelists could ever imagine.

2.10.2 The Insignificance of Technological Complexity

Maybe fishing, hiking even gardening and other fairly primitive activities people perform while having time of from work and home is a welcomed chance to feel in control and challenged again, a chance to escape their smart homes to regain a feeling of being needed and useful for something, that their actions and decisions are vital for the success and survival of their everyday. Being able to outsmart a fish in a lake with a fishing line and a hook gives many a content and euphoric feeling no sitcom ever can give them. A very simple and primitive technology makes some euphoric and a very complex technology as a television doesn't.

It's time to reconsider what technologies do for us. It's time to understand that it's not the complexity of technology that is important especially when we don't know in what way to use it to give us the most positive experience. The fishing and television example proves in a simple way that the complexity of the technology is of less importance when it comes to positive experiences and entertainment. When it comes to rich experiences, it's important that the technology doesn't pacify us and steal the limelight in our lives. Television is a great example of such. It's very beneficial as an educational and informative tool, but that is vastly abused as an article of entertainment.

"*The enormous entertainment industry that has arisen the last generations is designed to provide our spare time with pleasurable experiences. But instead of using our physical and mental resources to experience flow, most of us spend hours every week watching praised athletes that perform on enormous sports arenas. Instead of music, we listen to gold albums made by rich musicians. Instead of creating art we admire the paintings which raised the most money at last week's auction. We don't dare to act on our convictions but rather spend hours every day watching actors pretending to be in an adventure and having meaningful experiences.*

This pacified participation at least masks the emptiness in our own wasting of time. But it's only a weak substitute for the attention and participation one invest in real life challenges. The flow experience that is derived from ones ability to use ones skills leads to personal growth, passive entertainment leads to nothing […] *Mass culture, mass entertainment and even forms of culture if you engage in it passively and of external reasons, are parasites in the mind. They consume mental energy without giving you*

strength in return. They only make us more exhausted and weaker than before." (Csíkszentmihályi 1996 p. 189)

As with television, it's never the fault of a technology if it cause change in a negative way, it's how television is applied. Therefore it's very important that we apply technology with flow in mind and incorporate flow thinking in the design process as we apply artifacts that most certainly have great impacts on people's lives and behaviors. At the same time we can't guarantee the negative long term effects of what we design, but we have a possibility to minimize them by understanding the human and our needs better. It's especially important within interaction design as intractable products applied in our lives tend to have greater impacts than static ones and therefore also a greater possibility to redirect our lives down unwanted paths.

2.11 A brief comparison

Since interaction design is a subject directly linked in many ways to how people communicate, live and pursue their lives in general, it has a certain responsibility to enrich their lives and make them better than they where before, which has always been the role of technology. When it comes to flow, there are projects that change a person's life in a way that is negative from a flow perspective as there are projects that positive from a flow perspective. I'll try to give an example of one of each below. I have selected these projects not because I don't respect the work and the ideas that are put into them, I selected them because they are particularly interesting for the points that I'm trying to make. I base this on how I've understood the requisites that constitute a flow experience described by Mr. Csikszentmihalyi in his research. I won't get into too many analytical technicalities as I don't find that to be necessary to come thru with my point.

2.11.1 Positive

Laser dome

We all know what Laser Dome is, a laser beam sensor shooting game in real life and supports a cowboy and Indian type game for users.

Comment

According to me chances of experiencing flow might be improved whilst using this technology in a game as the feedback from users skills are more direct and accurate which directly demonstrate if ones skills to shoot, point and move is good or bad compared to players. As the feedback is more accurate, the greater is the chance of feeling good about oneself and also bad for that manner; the point is that it increases the focus and concentration of the user which helps tremendously in the occurrences of flow experiences. Laser dome is also a game where the technology plays a more secondary or passive role compared to a computer game in the flow generation which demands both mental and physical skill, which increase the ways of which a user can feel good about one selves performance.

2.11.2 Negative

RFID Chef

"RFID Chef" and is a "*prototype application in the household domain that is used to experiment with various technical and methodological aspects in ubiquitous computing. It uses radio frequency identification (RFID) technology to connect real-world artifacts, like groceries, to a digital representation*." (Distributed System Group ETH 2003)

RFID chef is basically a computer which calculates what kind of recipes you can cook from a selection of groceries that you put on a counter in your kitchen.

Comment

The only real difference and effect on a behavior is that one of the challenge that needs skills to master. It's probably more *challenging* and rewarding for a person to think of something to eat, have the knowledge of how to prepare this dish, knowing what ingredients and in what amount is needed to cook this meal, than it is to get a bunch of groceries on your kitchen counter and getting a printed receipt telling you your possible choices for dinner. The step to getting you groceries delivered to your kitchen and then having a machine cooking your meals entirely without your involvement is not far, which would eliminate all flow experiences from cooking. A worst case scenario for people who find shopping for groceries on the local market, knowing what to cook and how to cook it, getting the positive feedback from people that what they've cooked. I guess that's a great majority of people who have used cooking skills as major source of flow experiences throughout the history of humanity. Even the *encourages concentration, hinders distractions* point is probably stronger in the scenario without the RFID chef, as you need more concentration to prepare a dinner without it. Although I do see the implications of my reasoning:

"- people probably get their flow activities somewhere else than from cooking anyways, both women and men work late, they just want to get all those kind of activities out of the way so they can get more time to get the kind of flow experiences they choose to have."

This is correct. What I'm portraying is that I don't believe that all of us are very good at using the time he save by using modern conveniences to purposely seek other flow activities. Some do, but most probably just spend more time in front of the TV's which is devastating from a flow perspective, much like sociologists noted years ago:

"*Sixty years ago the famous American sociologist Robert Parker noted that: "I would say that the biggest waste in the American lifestyle is in the wasteful way we are using our spare time*"
(Csíkszentmihályi 1996 p. 189)

GPS – both sides of a technology

A GPS as we all probably know is a global satellite positioning system. A navigational gadget powered by satellites which can be used in many various ways, in cars, in boats and by foot. The interesting thing about GPS is that it portrays the applicatory challenges

technologies can have from a flow perspective. In one way a GPS can be positive and from another flow perspective it can be negative, it's all about how it's applied. A GPS used as a tool of navigation in cars and boats can have a negative impact upon flow experiences of a navigator as none or minimal skills are demanded from the navigator, hence less chances to experiencing flow, while the same technology added to an outbound adventure as a tool for "Geocaching" (see www.geocaching.com), a high tech treasure hunt, may increase flow experiences in an activity tremendously.

2.12 Technology and its Side Effects: Revisited

The objections I have towards projects like the RFID chef is that they're a bit to task oriented, too detached from a bigger behavioral perspective. I find that hasty conclusions and naïve generalizations has been drawn to dive right into technicalities and complex technological gadgetry, any tech nerds' wet dream.

Humanity has undoubtedly produced great technological solutions to many problems in our daily life, insinuating anything else would be preposterous, although we wouldn't loose so much time and produce as much junk in coming up with very helpful artifacts for people if more attention was put upon more deeply investigating the "technological cures" that we so hastily throw at them. We might even save peoples time by not misleading them into believing that there's always a technology for any difficulty in life.

What I just supposed begs the question:

- *Well isn't it up to X to buy whatever X feels help X with a given problem or issue in X's life? And that developers and designers just come up with concepts that may or may not be realized by the economic laws of supply and demand. If people want the gadget, they're going to buy it, if they find it worthless, they're not.*

Well, true in a sense, although the same logic can be applied about McDonald's business concept: If people like the burgers, they're going to eat them, if they don't find them delicious, they're not. But does that mean that the food McDonalds serve is good for the "users"? Justifying actions and behaviors upon economical logic is dangerous. Just because you make money upon doing something doesn't necessarily constitute that you are doing something good. Just because a lot of people want what you do doesn't necessarily mean that you are helping them. I find a lot of project in interaction design to be McDonalds solutions to a perceived problem. The technology not being good for the "users" in many cases, it might pacify, make us bored, isolate us and getting us further away from our natural balanced selves and diminish our flow experiences in our daily lives.

2.12.1 Our Lives Seen as Jobs

Another problem that the RFID chef so beautifully portrays is seeing our lives from an efficiency perspective, very much like the tennis rackets. This is what the developers of RFID-chef say about their project, and how they approach the "problem".

"Non-technical environment: *In contrast to classical office environments where people have long since accepted the presence of technology, a kitchen is a social space where so far manual labor has played a dominant role. In order to be accepted, technology needs to be combined with tangible interfaces [7] such as knives, pots and pans, or counter tops*." (Distributed System Group ETH 2003)

Comment

Well, the reason why technology has penetrated the office environment, or "space" as we interaction designers so fashionably would put it, is that the office is a place for work, not pleasurable spare time, while the kitchen still often is. You want to be as efficient as possible at a place where you have mostly negative experiences and monotonous work tasks, to basically get the job done. You want to get whatever you are doing out of the way. That is not really how most people perceive the kitchen and cooking, and shouldn't according to me. People worldwide see cooking as a great source for flow experiences and pleasurable spare time, that's why automating technology hasn't penetrated the kitchen as much as the office. A lot of people just don't want the whole cooking and eating experience "out of the way", sometimes they do, but surely not always as all Jamie Oliver apprentices across the western world show us. Too much atomizing technology would basically spoil the fun and get in the way of their flow experiences. Plenty of people would probably disagree with me as they probably see the kitchen as a place where one doesn't spend more time than necessary, to return to ones counterstrike computer game or football game on TV, but for the rest of humanity, cooking isn't always seen as something negative.

Cooking is a rich source of flow experiences as we see when comparing to some of the requisites of flow. Cooking is an excellent source for flow because it has clear goals and rules upon which to act. Find the right recipes, something that you and others can appreciate, finding the freshest ingredients at your local market or grocery store for the right price. Cook something that doesn't look like a disaster that people hopefully appreciate to put in their mouth and swallow. Well, as you cook you can smell and taste how you are performing, and usually as people start to eat you'll get all the feedback you need to draw conclusions upon your cooking skills and your performance. Cooking also encourages concentration, lots of it, especially if you don't like to loose your pinkie in the salad or put fire to the kitchen. It's also a challenge that takes skills to master that a person can improve upon, which explains people glued to the television when the naked chef is on and all those exotic cooking classes given to people of all ages. Why do you think people buy cook books like mad, because they want to get cooking "out of the way"? Do people buy books about what they are doing at the office every day and enthusiastically read them on their spare time? Some might, but I have to be a bit subjective and claim that most people don't. People have always wanted to use their

skills and feel good about them and are going to continue doing so. We as interaction designers can choose to hinder or support this phenomenon.

3. Method

3.1 Ivrea

A trip to an interaction design institute was conducted as part of my research to find out more about how designers approach the problem of passivity, "design for experiences" and flow. I chose Ivrea for our research as we felt that it was important to study some of the projects that are developed within interaction design by people from a mix of cultural backgrounds, cultures, languages, customs and traditions. This would prove very important in my research.

Simona Machi and Michael Kieslinger who are both assistant professors at the institute were our initial targets of investigation as they probably where the most philosophical and macro oriented professors at IDII. We spent ten days meeting with professors and students as I participated in projects and took part of the think tanks which gave me the chance to analyze designers thinking processes as they engage and develop their projects. I got a fair chance of investigating designer's motifs and driving forces behind a lot of projects and luckily, the European Union incentive "Disappearing Computer" held its yearly exhibition in Ivrea at that time which gave me a chance to get first hand experience of the projects that are being developed in the European Union within the field of interaction design.

The goal of the investigation and visit was to examine the so popular term of "designing for experiences" and what designers mean when they say they are doing just this. Are they taking flow experiences into consideration, keeping the treacherousness of pacification in mind while designing their interactive artifacts? I wanted to investigate if deeper considerations were taken to greater impacts and implications of their artifacts in users' lives on a larger context.

By unstructured interviews, participation in some projects and filming and taping student's and professors, even visiting professors material was gathered to analyze my theory; **if one of the most fundamental theories of human behavior and experiences was taken into consideration when designing interactive applications.**

3.1.2 Why Interviews?

According to Yin, interviews are one of the most important components in a case study (Yin, 1984, 1994). Interviews can be conducted in different ways depending on the topic of research or study situation. In an "open ended" interview situation, the interview adopts the characteristics of a discussion, more then a questioning. The discussion is pretty informal and the interview is just semi-structured. If the interview is "focused" it's conducted during a shorter time period and the questions are clearly specified in forehand (Ibid). Andersson (Andersson, 2001) has a similar division although he makes a distinct differentiation what he calls *structured* and *unstructured* interviews. Structured interviews have a predetermined order of a set number of questions, while with

unstructured interviews; the questions are formulated during the questioning and therefore adapt a slightly more informal nature. Unstructured interviews are harder to conduct as great deal of interview experience is necessary to get the most out of them. Also a great knowledge in the subject matter is needed. The alternative to these two interview techniques are a so called *semi-structured interview*. This kind of interview has a subject already determined for the interview, but no pre set order or formulation of the questions.

Interviews can be conducted in group or individually. They both have their pros and cons. According to Andersson (Andersson, 2001) group interviews should be used if there's a chance the interviewees might stimulate each other but there's a risk that the interviewees are affected by the group dynamics created. This can lead to interviewees not expressing as much, or holding back on some answers as they let others in the group take more space.

This study is based on semi-structured interviews. The reason for not using structured interviews is because of not knowing what kind of questions will provoke the answers my study was trying to survey. Unstructured interviews where not conducted because of lack of knowledge necessary in interviewing technique to get interesting results.

3.2 The Interviews

The semi-empirical part of this essay contains five interviews with various interaction designers from the interaction Design institute of Ivrea, Italy. Designers at IDII, where a whole array of cultural backgrounds helped me get as much input from the visit as possible. The cultural backgrounds of the people I interviewed were; Brazilian, American, Austrian, Italian and Swedish.

The interviews were conducted during a time period of one hour and were semi-structured. Another reason for them not being structured was because of the risk of interviewees being influenced from what I was looking for in the investigation. The interviews began by the subjects describing the most recent projects they had been involved in. This to understand the motifs and reasons for a project to come about, the designer's thoughts and reasoning when it comes to interaction design. As the interviews progressed, questions concerning "good experiences", and how to design such was confronted the designer.

The motifs of these interviews not only to get some form of understanding of how designers relate to interaction design as a whole, but also how a designer reason when it comes to design for users experiences. The interviews where noted and also recorded onto a minidisc for further analysis and exploration. The interviews where then carefully analyzed. (The names of the interviewees are altered and kept confidential)

3.2.1 Moses

Moses believed that it's narrow minded to find a way to solve a usability problem as the usage depends upon the user and its context. The question surrounding; if today's design focus is on pacifying or activating a user, Moses affirmed that generally the focus is upon doing things as efficient as possible. To minimize, automate and simplify. "Engineer-thinking" is still the most prevalent. There is a certain joy in being active, not passive according to Moses, there's some kind of value in having to work on things, making an effort. One reason could be that over-automation could lead to a higher margin of error, much like what Donald Norman's says. As an example Moses brought up the example of the nuclear power plant on three miles island, USA. Processes in the plant had been automated which meant a lot of intractable physical objects and activities had been replaced by non physical ones. In turn, the holistic understanding of the processes in the plant was lost and too much reliance was put on automated processes that a disaster was soon to happen.

Moses claimed that interaction design not necessarily is technical and computer based. The subject matter spans all forms of interaction. To design a paper calendar and accompanying pen is just as much interaction design as a PDA calendar. Moses also didn't consider interaction design to be a subject by itself but a much needed subject within design when it comes to design intractable things in these new times. On the question: How do you understand what a good experience is, and how do you design for such? Moses meant that humor is an important tool to use as you design new objects. The designer has to imagine how much fun it is to use an object and design according to that.

Moses view on the role of the designer in a larger perspective was that he/she should take into account people who aren't in the immediate group of users, and consider how the artifact will also affect their lives. It's basically a bit to narrow to point out the intended users as you design intractable artifacts. The artifact will probably change behaviors and the surroundings in many ways, and it's up to the designer to take these into account.

Moses believed that instead of continuously looking forward; sometimes take two steps back and by doing an appreciation of the added value of an artifact. Just because a technology is available, that doesn't conclude that it's favorable to use or even that we are applying it in a favorable way. Examples of that lack of perspective could be seen in the car industry where rolling down the window is replaced by automated technology. According to some scientists from one of the worlds biggest car manufacturers that where represented at the institute, was the buttons that opened car windows an invention of obvious "techno-centricity". Although I must say that it's probably safer to press a button than cranking while in the driving seat to get the car window down.

3.2.2 Silvia

Silvia asked herself the question, why do we design for stereotypes like men in their twenties, women with children etc? Why don't we design for depressed people, bored people etc? Basically changing or including categorization of users to include a broader spectrum of possible users.

Silvia said that fixed design solutions shouldn't be the goal of a designer. "Instead of offering a fix solution, leave the space open". Users should be given the opportunity to personalize the artifact and not be forced to a certain form of usage. She meant that the user should work as a form of co-designer, whom should be participating in the design of the usage of an object. An example of a system with this kind philosophy is Lego's "bricks" where the user is participating in the design of the usage. The reason for the user to work as a co-designer when it comes to the usage is because without this openness for ways of usage the interaction will be boring and uninspiring usage and users. Silvia's view upon technology in general was one where the technology in itself shouldn't be in focus. It should rather serve, inspire and support real life activities.

An important issue to consider when it comes to the design of an entertaining interaction was according to Silvia to keep users motivated. She claimed that the best way to make sure of this was by observing users. The best way is to observe and to really try to understand how the user confront and interact with the system. Interviews are less effective in this case because of the users not knowing what they find lacking or what kind of experience they want. Ethnographic tools are therefore very important. Users should be involved in the design as we are trying to understand what motivates them.

According to Silvia, it's important to ask oneself the question; when do we have fun, when are we entertained? Silvia concluded one of these answers to be when something unexpected occurs. An example of such occurrence could be John Maida's investigations at airports where he has observed a majority of users responding in a positive way to deliberate error messages on the check in monitors. In such case a very dysfunctional piece of software could be quite inspiring. Perhaps we don't need to design things that work properly; in some cases it could even be beneficial to design for user intervention to get the artifact to work properly, to challenge the user. Silvia called this "unfinished design", insisted such a focus could spawn more motivated users.

3.2.2 Bell

According to Bell there are various ways to design for interaction. There's a functional path, a strictly rational path which is purely goal oriented. The latter path is short and concise and doesn't offer the user anything else in return than the goal which the user interact towards achieving. There's also a longer path one could choose to take, a path that withhold elements that are not strictly functional. These elements could be beauty, entertainment, reflection etc. These non functional paths trigger users' imagination and give a more positive interaction. According to Bell, we are suffering from a "dictatorship of functionality, efficiency and productivity". We tend to view objects not related to this dictatorship as superfluous and pointless, even if that doesn't have to be the case.

The fact that there are various paths to take doesn't imply that either the one or the other has to be taken. According to Bell it's better to design usability and interaction in a way that it's up to the user to choose which path he finds at the time most appealing. The design should have some form of tolerance to adjust to the will of the user. It should be

thru the design be possible for the user to choose the either the functional path, if he so wish or the aesthetic path.

One of Bells ideas for important elements of the experience of an interaction was to “try to create a feeling of non-reversibility”. Basically all modern technology and software have a “undo” button. That’s one of the fundamental features of the digital technology, that actions can be undone. Bell wanted to get away from this to create more sensitivity in the interaction. ”The undo takes away the care of the interaction such as the concentration and the respect”. As “Undo” has given us a great deal of freedom and flexibility, we’ve also lost certain elements of the interaction according to Bell.

Bell discussed the way in which technology sneaks into our homes and creates homes with a more individual room instead of rooms where people coexist. An example of this is could be meals which are social situations in homes, where the television has rearranged this situation into many choosing to have their meals in front it.

If we add functions and technology that aren’t ambient, we’re probably going to see two problems: The house is going to start looking like an office, and the inhabitants will have the function of system administrators. People will start evaluating their actions from an efficiency perspective and if they don’t have a home which isn’t efficient enough, much like an office, the inhabitants, the system administrators will be frustrated.

Interaction designers have to be aware of these occurrences and try to co-architect the best possible future for people. If not, they’ll develop a bunch of homer Simpson’s with a lot of irritations and problems with their homes.
Bell considered that “a good user experience” is:

”*A good experience is if the user feels this duty in the process. To achieve this I focus on things that make you concentrate, that take time in almost a ritualistic sense, steps with timing. If the things are not undoable you must do things with concentration. You can’t for example cook and at the same time read the laptop. Then you will burn the food.*”

3.2.4 Andy

Andy described his view on design as follows: ”All design are tools to help people reach their goals. The people don’t want to know the tool, just reach their goal […] there are some goals that people have in terms of having something that is very satisfying to use and that satisfaction is not specifically the goal they are trying to achieve but one of the things that helps them achieve it in a way that make them happy”.

In the development of IT artifacts, Andy is trying to understand how the user experiences a situation to create products which reward the user with a positive experience. Subsequently, the products efficiency of achieving this is evaluated. Andy suggested interviews and ethnographical studies as major tools to map and understand how a user experiences the product. In addition to this, a lot of usability testing is conducted where one observe the user interacts with the product under artificial circumstances. Even focus

groups are used to find out what the user experiences. An additional method is to let the users write a diary where they explain how they use the product and how it works in their lives. These are all test phases according to Andy, and he understands the dilemmas and difficulties in understanding the long term affects of a product on users.

According to Andy, there's several heuristics that are used within the interaction design area. He mentions Nielsen's rule of thumbs among others where when followed, the end result is not bad, but not necessarily very good either. Every situation differs from the other and there's a need for more than a couple of heuristics to design well. In some cases it's good to use heuristics; in some case they play a minor roll, but the context always have to be taken into evaluations and consideration. Summa sum arum, according to Andy, "*Interaction design is about first understanding people, then creating things based on that understanding*".

3.2.5 Keith

When it comes to pacifying technology, Keith believed that: "*People love to go the way of least resistance*." To justify a design, you have to first justify different levels. The first level is a motivational one. What's the user's relationship to an IT artifact, and does he really need it? Which role is it going to play in his life? According to Keith there's a relation between the motivation to the design and how intrusive it should be. The less motivated a design is, the less intrusive it should be. Obstacles must be eliminated. The advantage one gets by using a service is related to the obstacles of using it. If using a service or artifact is to complex or strenuous compared to what you get out of it, the user soon looses interest and motivation to use it.

"*I think you always design with some idea in mind of how it would be in society. How it really is then, is another thing*."

A good example of this is according to Keith, SMS that initially just worked as a communication tool for telephone-mast assembly and repairmen. SMS was later on adopted by the broad public as a tool of communication.

Confronting the question whether designers have a structured way upon how they perceive "a good experience" Keith claimed that he was skeptical to that being the case. He asserted that:

"*You always design it with your personality, and your world of thinking. I design what I think is good for you*."

Keith didn't have a clear answer upon how to approach this problem surrounding good experiences in theory. He mentioned participatory design as a way to get closer to an answer. The problem according to him was that most users and consumers of IT products don't really know what they want. Some needs are invisible to them before anyone notifies them about their existence. Therefore it's not sufficient to only consult the users when designing.

Keith's fundamental attitude concerning interaction design was: " *I design it for my self and if you're lucky you like it to*." and he believed that today's "smart technology", has a patronizing relationship to most users, which in turn make the user feel unintelligent. He meant that;" *Why don't we use the intelligence of the people and make the robot stupid? Then people will be happy to use their own intelligence*." Much like one project of his where they'd try to the "smart-tech-thinking" upside down by creating a robot that couldn't take care of him self, in much need of users to manage him. This robot was a camera-robot without any mobile qualities. It could nevertheless speak and interact with users by asking users to accompanying him in performing various tasks. The user suddenly became a central part in the scenario and had to invest a part of his own intelligence to help the robot in carrying out whatever he's designed for.

4. Analysis and Discussion

The interviews shine light upon the necessity of designing an interaction in a way in which give the user possibilities to experience flow. I find that many of the emerging thoughts in interaction design could in one way or another all have something to do with flow. One can safely conclude that none of the designers interviewed had ever thought of flow in interaction design although several of them had ideas that in parts had similarities to the theory. If we quickly recite the requisites for flow experiences we find:

Clear goals, Unambiguous and immediate feedback, Skills that just match challenges, Merging of action and awareness, Centering of attention on a limited stimulus field, A sense of potential control, A loss of self consciousness, An altered sense of time and An "auto telic" experience.

Ideas by Silvia to leave some design "unfinished" left open, interactively entertaining and challenging will stimulate creativity and skills needed to operate the designed object, which would stimulate flow experiences. Both Keith and Silvia had ideas about letting the user add whatever they can due to their abilities, to not let technology do everything for them, keeping a form of creativity and challenge open for the user to feel good about him/her self, one of the major fundaments of flow experiences. Bell's ideas concerning how concentration is associated with positive experiences and how non-reversibility fosters concentration are much in line with flow. Something essential within flow experiences, as Andy described, that it's not only the goal but the path that has to be taken into consideration, which is one of the key elements of any rich experiences, and certainly flow experiences too. Keith's unintelligent robot which turns the computer stupid and the user smart is a great way to stimulate flow experiences, as control is shifted back to the user of the artifact, the user and his/her skills become central in the result of using the technology, key for a person in a flow activity.

What bell said about the smart homes and inhabitants becoming system administrators is similar to what I talk about when describing the pitfalls of for example the RFID-chef approach. The pitfalls of starting to see our homes from an efficiency perspective much like an office, a space where you want to get things over with as fast as possible to get more time for the your real life. Well maybe what you are hurrying thru and trying to get over with as soon and efficiently as possible ***is*** your life?

The kind of thoughts I found at Ivrea, seem to be commonly contemplated subjects among some designers that no one yet has pinpointed or categorized within the interaction design community. It should be remembered that these thoughts within interaction design is in no way widespread in the mainstream design establishment and are still perspectives of interaction design which are considered somewhat defiant and atypical. Today these kinds of philosophies are slowly creeping into more and more of the objects that are designed at our research and design studios around the world; therefore I see the necessity of categorizing all these kinds of alternate design forms under one name. They most definitely all have to do with flow, that's their key common

denominator, but what this area of design will be called is for the future to decide, maybe something like ***Flow-Computing*** or ***Pro-Vita Computing*** due to its liberating qualities.

What it all boils down to is that it's important what Andy said "*interaction design is about understanding people and then design based on that understanding*" that we really know what we are talking about when it comes to "*understanding people*".

4.1 Further Development

One could incorporate flow thinking as a step into the design process an interactive artifacts and systems. This already exists in the development of computer games and so on where implicit flow is a key ingredient to any successful computer game, but is less common or nonexistent among explicitly flow supporting technologies. Macro-studies should be done on technology to pinpoint larger scale effects of a technology, much like Andy said.

5. Two new ways to approach interaction design

A common denominator of a lot of the techno centric gadgetry that we today surround us with is the topic of saving time. From remote controls to microwave ovens, they all have the purpose to make our lives better by reducing the negative experiences, the "usefulness" of this function in a lager perspective may questionable be to some extent as I explained with Nietzsche earlier, but also their timesaving usability can be questioned. Their designed function to save us from loosing time can be somewhat puzzling at instances.

5.1 Timesaving

It seems like much technological gadgetry have the sole function of saving the user time, as so many other modern technologies are made to do. Even when it comes to opening a door, it seems like it can't be done too fast or effortless. It's said that most of the environmental problems we see today is produced by humans trying to save time. An interesting reflection about saving time was given to me by a Norwegian interaction designer at Interaction Design Institute of Ivrea. As he was going home to Norway for Christmas break he insisted on taking the train, not flying. I asked him why he didn't fly between Norway and Italy as plane tickets are a bit cheaper than a train ticket. He explained to me that: *"Well, I rather take the train than flying any day, even if it's more expensive, as I'll at least get a voyage included in the price"*. I found what he said most amusing and also interesting in how we view technology today. Yet again a focus on quantity of an experience rather than a quality of an experience, precisely like with the tennis rackets and RFID chef. Something people today seem to forget is the quality of their experiences, hence the obsession of saving time. Some rather spend less time traveling, not enjoying themselves than traveling slower enjoying them selves. A half day of hell seems better than a whole day of heaven. I guess it's just a matter of perception like so many other things in life. One can win a lot by perceiving things a certain way.

My Norwegian friend perceptibly found the quality of the train ride made up for the hours "lost" by not flying. A nice quiet train ride with restaurant cart, plenty of legroom, beautiful view, no need to commute to airports, chances to walk around and being unobstructed in your sleeping and reading might cost a "user" more in time than the faster alternative but might reward him with a more positive experience. Two people under the same circumstances seem to be able to *not loose time* and *loose time* in the same activity, weird isn't it? It seems to depend on how they perceive the situation and the experience. Who doesn't appreciate what he/she's doing experience a *loosing* of time, and one who appreciates what he's doing doesn't. There seem to be people who always loose time no matter what they are doing, this because they never appreciate what they do, as there are people who never *loose* time because they appreciate most things they do, even the smallest things in life. Time enjoyed is never time lost. My Norwegian friend apparently appointed other qualities to journeys than just measured scientific time saved.

Not to long ago I red a book about timesaving by a Swedish professor in Physics and Rehabilitation Technology, Bodil Jönsson who also talks about this phenomenon. Her book "Ten thoughts about time" basically reflects upon our obsession to measured,

scientific time and she wants us to focus on time as it is experienced not measured. Back of the book reads:

[*It's said in our culture that we're chasing time. What we really mean is that we let the scientific time chase us and that we focus industriously on saving time, by for example using all kinds of technical gadgetry. But what you are really longing for has nothing to do with clocks or watches. It's your personal, experienced time that you want to get more of. That's the one you want to have plenty of.*] (Jönsson 2002)

Isn't that exactly what my Norwegian friend was talking about? He deliberately turned his back on a timesaving technology (airplanes) to extend his experienced time by taking the train. This kind of reasoning never passes by unquestioned and begs the question:

- *Ok, well if it's so great to turn your back upon modern timesaving technological solutions, then why isn't he walking from Norway to Italy?**.

An answer could be that I guess he finds it unpractical as he conducts his schooling in Italy, not that he wouldn't **enjoy** it more than flying, or get a better experience out of it.

*. By the way, these questions are very common to be confronted by when you are promoting vegetarianism, critiquing modern technology, discussing issues surrounding alcohol and global consumption. Some people seem to have an innate problem with others, who in their eyes aren't consistent. They might eat less meat, drink less alcohol, use just enough technology, and try to consume less. Many seem to prefer that you either drink or you don't, that you either go shopping at the mall every weekend or you don't shop at all. I personally think it's better to do something than nothing at all. And that it's better to try to make this world a better place than not trying at all.

Once again the discussion comes down to if there is **just enough** employment of technology in ones life, not if technology in itself is bad or good. Elderly people growing up with less timesaving technology often choose not to use a technology, doing things the old-fashioned way because they don't always see the daily chores as obvious negative element of their lives, they might even enjoy them. As technological gadgetry slowly invade our lives a lot of alternatives vanish and going back doing things the old way isn't always an available alternative like with the tennis rackets and courts, and growing up in a high tech environment with no low tech experiences in your life which to compare, it's hard to make necessary adjustments of comfort-technology saturation in your life.

To relate this to interaction design one could argue that if designers in the community really want to help people to *save time* they should make people enjoy and appreciate their activities and not constantly take activities away from them or reduce them. A lot of the projects I observe within interaction design don't help you enjoy or appreciate elements in your life, they take them from you to *save you time*.

Another way to perceive and approach computing, and for this technology to venture into is what I call "computing for self-actualization".

5.2 Computing for Self Actualization

Humans have a great variety of needs, like explained by Maslow, and it's time to let technology respond to the greater spectrum of these needs, not only our need of physical comfort. On of these new ways in which computer technology and HCI artifacts may wonder into in a present future could be what I call ***computing for self-actualization***.

I believe that all forms of technology fit into one or more of these steps of needs and all of whom this paper is concerning already have food, shelter, and comfortable lives. Our inventions have already succeeded in satisfying our most basic needs and by adding more comfort technology, upon more, doesn't necessarily mean that our happiness multiplies, just like Epicurus concluded. It's might even be that we are making our lives poorer and ourselves unhappier in the process as we get less experiences out of life. Therefore one could argue that most of us in western societies are at the top of Maslow's hierarchy of needs, at the "self-actualization" level where technology plays a non existent role, but could do, in further personal advancement.

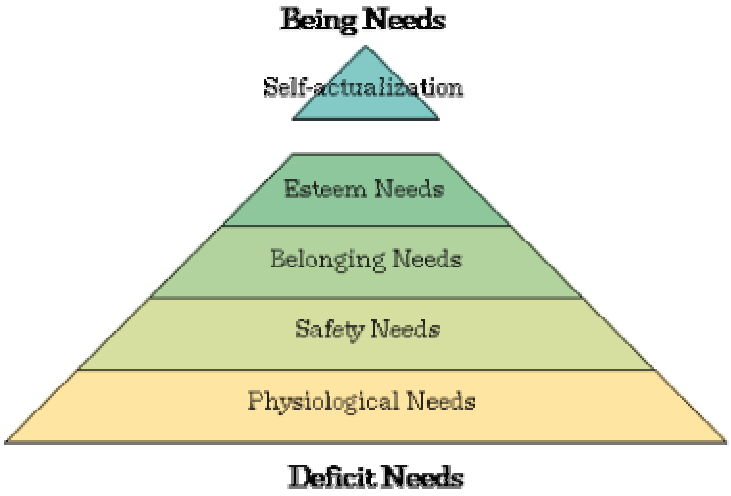

Figure 4. Maslow's hierarchy of needs (Boere 2002)

Can we design to help people live a better life when it comes to these higher levels of human needs? Could one design for self-actualization? Some people seem to manage to self-actualize just fine, but what about the rest who misleadingly believe that acquiring more and more technology aimed at comfort will improve their lives dramatically? Can we design to help them with self-actualization, the appropriate level where most people in the western world need to be helped? I believe we would have a greater impact on people's quality of life by focusing our interaction design projects on this level instead, than on needs that we as designers invent that people may or may not have. I think self-actualization could be one of the areas in the future where humans will be aided by computing technology and where humanity will find computing technology most useful, and responsible for the greatest increase of quality of life.

"*For most people on earth, their goals in life are quite simple: to survive, to raise kids who'll also survive and if possible do it all with a contentment and pride […] But as soon*

as these fundamental questions of survival are no longer an issue, it's not enough that people have food and some place to live to feel content and happy. New needs arise, new desires appear…Despite the evidence that most people are trapped in this spiral of increasing expectations, there's some who have managed to get out. Those are the ones who independent of their material predisposition have managed to increase their quality of life and satisfaction. Those individuals live very vivid lives, are open to different kinds of experiences, continue to learn new things until the day they die and have strong bonds to that unite them with other people and their surroundings. They appreciate everything they do even if it's bothersome or difficult; they are seldom bored and take life as it comes. Maybe their biggest strength is that they have control over their lives"
(Csíkszentmihályi 1996, p. 28)

I believe in many cases that people who'll acquire technological artifacts to get their lives more comfortable will be more disoriented when it comes to self-actualization than the people who won't, and for those people we have to be extra clear in our design rhetoric. We all know examples of miserable people who'll mindlessly shop to wallow themselves with all kinds of modern gadgetry, not because they need to, because they're dissatisfied with their life. Therefore as we use the full force of our design rhetoric to convince people that our product will help them, we should make sure that our artifacts unambiguously illustrate the extent of its use.

"*You get a 30 day money back guarantee if this product fails to improve you quality of life within this time period*"

5.3 Design Rethoric

"*For decades, technologists have tried to persuade audiences of the expediency of their inventions and discoveries, producing objects that often seem to meet human needs and promote better, well-ordered life. Yet, the life they have promoted has frequently proven to be harmful and discordant with human values. The concern is not with the outright failures of technological reasoning, but with those instances in which the result has been an inhuman mechanical order (a) or even frustrating disorder and social chaos*." *(b)*
(Buchanan 1989, p.93)

In the very same way it could be argued that developing interactive artifacts is not a science as finding out the laws of physics or discovering a new form of chemical compound. Interaction design is about creating or modifying behaviors. Designers and technology developers persuade users with design rhetoric to change their current behavior into what they find a better one, hopefully also what the user find a better one. But is there enough emphasis put on assuring that new behaviors being superior to old ones in interaction design today? I say that there's not. What I find lacking is a deeper and more profound design process where sociological, psychological aspects are taken into account; to if not guarantee but increase the possible positive affects in users lives, to guarantee that what we develop is truly functional for the users.

5.3.1 Discussion of (a)

The Pullman community in Chicago is one example. Designed and built in 1893 to be a complete, harmonious environment for 14.000 workers and managers of the Pullman Company, it combined the latest technology and a concern for aesthetic quality, attracting visitors from around the world who marveled at its advance over then contemporary planning. Within months of completion, however, workers protested the rigidities and mechanical regularities that the design promoted and George Pullman was attacked for forcing his personal values and ideas about social life on the residents. He could hardly imagine that such ideas, derived from the mechanics of building railroad carriages, were questionable when applied to everyday life. The workers' strike of 1894, caused by a variety of factors, was one of the most bitter and violent in American labor history. (Buchanan 1989, p.93)

5.3.2 Discussion of (b)

The impact of various western technologies on third world cultures provides one of the most striking illustrations of this. More important for our purposes , however, such examples give glimpses of what moments of our own cultural history may have been like under the influence of technological change.
(Buchanan 1989, p.93)

5.4 Functionality

Functionality is a pretty interesting thing. Functionality is a very fashionable word, used in architecture, furniture design, websites design and many other places. But what's interesting is that most designers and even people in general see the word as positive, or to have positive connotations. Functionality is generally considered to be a trait that is good, positive, and good for humanity. The interesting thing is that we can turn guns, systems for missile launching, shots for narcotics, waste station systems, dustbins, a shopping mall parking; user friendly. It doesn't intrinsically mean that we are making the world a better place. Sometimes I get the feeling that designers are more focused on the functionality of **what** they are designing than on **why** they are designing. The functionality of the artifact becomes a motif in itself or a reason for its existence which I find worrying.

I saw a cartoon once that I found striking in this subject: A gun designed with the barrel pointing the reverse way, toward the user. You can make this gun as "user friendly" as you want, you'll still shoot yourself. If not enough thought and time is spent on finding out why we design, what we are and why we should design certain things in the interaction design community, we could be hurting more than we are helping. Hurting in the way that what we've designed for functionality is working against us and in the end becomes very dysfunctional.

Another pitfall of functionality and interaction design projects is that the system in where projects are developed is often of an economical nature. Our world is shaped after economical concerns and economical motifs and more often than not, those motifs conflict with human concerns. As Georg Henry von Wright says about functionality in his essay collection "*the myth of progress*":

"*A house or an area that is functional for a family isn't usually functional from administrative, commercial or industrial purposes. When it comes to planning this can*

lead to conflicts. In Habermas well chosen terminology, this can be described as a conflict between peoples life world, lebensweldt, and the system[…] The consequences may be that those who work in the city have to suffer for hours in traffic every day. This is obviously not functional*." (Wright 1993, p. 33)

Designing something that will benefit a system sometimes conflicts with what is really beneficial and good for the user and the users' surroundings/environment. Misfortunate projects can actually be a disservice for the user in the longer perspective.

The interesting thing about industries and commercial areas is that people seldom see the problem of the dysfunctional system; they see the problem of one of the size of the roads. Just like they see their body as the problem when they get a headache, not the system (lifestyle) or surroundings that they live in. If they saw the system as a problem, they would relax, change stressful situations in their life and so on, but instead a majority pops an aspirin and continues their lifestyle. If they wouldn't, there would of course be no market what so ever for aspirins.

*. Habermas was a student of Theodor Adorno, and a member of the Frankfurt School of critical theory. He is perhaps the last major thinker to embrace the basic project of the enlightenment, a project for which he is often attacked. When compositionists and rhetoricians pay attention to Habermas, it is usually to pair him in a theoretical debate over issues surrounding postmodernism. (Wright 1993, p. 33)

6. Summary

As we interaction designers, appointed pioneers of human technological progress will propel humanity into the 21st century with the help of computer technology and interactive projects, we have the opportunity to help changing people's lives to the better, introducing new concept of approaching life, establishing new views upon our behaviors and ourselves in our society, but is this opportunity taken fully advantage of? I personally don't believe so. It wasn't long ago science concluded that computer technology had its limitation and was merely useful as a tool of mathematical calculation, computing was said to be a fad that would disappear rather quickly which makes me wonder how we'll in the future look back upon today and our perceived limitations to computing technology.

The field of interaction design sometimes seems too occupied with curing illnesses that modern technology has brought upon us, trying to cure illnesses brought on by technology, with technology. Much like the role of western medicine for so long. Everything from smart furniture to smart pillows for communicating with loved ones are as I see it just reactions to much wider problems of our society, modern technology distancing us from each other. "*What if it wasn't for this technology? My life would be so dreadful without it*" is a common reaction and quite misleading according to me. To use an analogy, it's much like an obese lazy TV-watching couch-potato who credits modern advancements for helping him loose weight. "*Thank god for modern advancements, how else would I have been helped*. " I say this is sometimes misleading because modern advancements gave us many of our problems in the first place. In much the same way there's a big demand for internet messengers today as we are getting distanced from each other, a need that probably wasn't as great in lower-tech societies where people had more face to face, normal communication, and often lived and worked closer to friends and family.

Many would argue that we today live dissatisfactory lives, not that we are unhappy we just seem have a form of nagging discontent in our lives. Why else would we constantly be looking for technologies to change the way we live, changes that has nothing or little to do with surviving. Most of us will seize anything interaction designers, a salesperson or marketer tell us will improve our lives, even if we don't really need it and our lives are as comfortable as can be. An example of this is the big screen TV that is getting so popular now days. The parents of a friend just bought one and my friend, who is a movie fan, hate watching movies on it. He finds the picture to be too clear. The mood so often present in his favorite movies is now absent. His parents never even watch TV that often, but still they didn't have anything to do a weekend so why not replace the old TV? People buy technologies even if they don't have any use for it. Being surrounded by technology is a goal in itself many times. Why? Well, you acquire a technology as you have been assured an increased quality of life, this by designers, marketers, manufacturers and salespeople, people who don't always have the most noble of intentions when it comes to why they want a technology to be incorporated in your life. Abuse, Novofilia, boredom, quality of life and flow experiences are all of key importance to keep in mind when designing artifacts and technology for the new century.

Our perception of functionality in a macro perspective needs to be examined. Highways, hour in traffic, fluency of labor and industries may be functional from an economic and productivity perspective, maybe not from a human. When it comes to the often unquestioned positive connotations people have to functionality, I'd like to say that we need to make good tings as functional as possible and bad things as dysfunctional as possible, which might sound obvious to many but I think it's harder to accomplish than one might believe.

As I found out in my research, the thoughts surrounding experiences similar to flow experiences are becoming more and more common in interaction design and computer technology field, although there is still no structured or methodical way how to incorporate this thinking into projects. Not only science but popular media, literature and movies are starting to acknowledge the treacherousness of contemporary commodity culture, I guess it won't be long until we see this kind of thinking incorporated into the products that we surround us with. As designers start arriving from the whole spectrum of professional fields and even personalities we will see projects that are increasingly "useful" from a wider array of perspectives, and which responds to more of our needs as humans than just comfort and physically passive entertainment.

Designers need to open themselves to the knowledge that history withholds, as a lot of the issues we are confronted with is not as unique as we might think, as you read more and more history and philosophy you realize that what we are experiencing is nothing new below the sun, even if we would like it to be. Only by using knowledge about humanity and ourselves to the fullest we will generate projects that will prove them selves to be truly useful for us.

We need to be more sensitive in understanding what happens to us and our flow activities when we have a technology taking care of most things in our lives. Native American Indians seemed to have this understanding, partially does Donald Norman with his talk about over-automation. You may say that: "*well that's how it's always been, technology replacing knowledge and skills possessed by people, that's what fuels our progress*", which I find as an acceptable reason to be extra skeptical. One thing philosophy if anything has thought me is that one should be extra skeptical when someone is justifying their reasoning in a particular question with "*well that's how it's always been*".

Thanks to everyone at Ivrea

I must say that the visit to Ivrea was outmost rewarding. For designers within the interaction design area to meet and discuss their ideas, philosophies and projects is essential for keeping up the quality of what is being produced within the interaction design community. It's important to maximize the potential excellence of the projects and minimize projects which can have disastrous long term affects on users due to subjectivity, cultural narrow-mind ness, technocracy, and sometimes even good old idiocy by designers. Great minds and great people from a mix of cultural backgrounds were found at Ivrea, also a very constructive willingness to listen to unconventional ideas, not only to how a solution to a problem could be solved in an unconventional way, but also how the problem is examined approached. Special thanks to Michael Kieslinger and Simona Machi for being so incredibly welcoming and interesting, Peter Ljungstrand for tutoring me in this project.

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