Uncertainty Principle

a study of the uncertain relationship between people and object

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Abstract

When we observe or use something, its property seems to change because of the way we establish relationships with it. Inspired by the Uncertainty Principle – a physical theory published by Heisenberg in the year of 1927 – I take both people and objects as something always in an uncertain status. We cannot fully define objects, but only try to understand and live with it in a complex and constantly changing context.

Three pieces of furniture are created to visualize the idea about how the relationships between people and objects could be from this viewpoint, exploring how far away people could accept the imperfect but surprising experience of the world.
Introduction

The theme of this project is ‘Uncertainty Principle’, a study of the uncertain relationship between people and objects.

When we observe or use something, its property seems to change because of the way we establish relationship with it. Therefore we could never see what that thing exactly looks like. People are irrational and changeable, but does object never change or uncertain? If what we know is what we observe, then is it indicated that maybe we don’t know object quite well, just as we don’t understand people well enough. In this way, I take both people and object as something always in an uncertain status, therefore, the relationship between people and object no longer simple. People and object influence and change each other when they interact with each other, and this effect work for both sides, with variability and unpredictability.

If we consider both people and objects something uncertain and unpredictable, then we also need to redefine our relationship with objects. Regards the space we life in as a background – I call it ‘Context’ here – both people and object are a part of the context, not something put into it. Then when look at the picture from somewhere outside, I feel like people and object are kind of equal—they are both a part of the context. Everything is connecting to each other in a various way, kind of chaotic, but it is just the truth.

This leads me think that, as a designer, what will happen if we put human beings into a less important ranking, not only focus on human being, but pay more attention to the context around us, creating something to allow people live with object but not live above object? Is that possible to make people enjoy the uncertainty and provide a chance for people to have a different understanding of the object around them, and perhaps also reflect on their life? Also to what extend or how far always could people accept something cross the existence boundary between people and object?

I chose to work with furniture and find out three topics to describe my idea of how I want to redefine the relationship between people and object. I design three piece of furniture, one for each topic, as a collection, and try to test people’s reaction, to see what they think about it.
Starting Point
A World of Uncertainty

Before twentieth century, scientist showed people a wonderful picture, that the universe was totally ‘been decided’. There must be one or a group of principles, once we knew the state of the universe in a certain time; we could use the principle to predict what would happen in the future. This assumption made people feel that, after thousands of years’ fight against the nature, we finally had a chance to be able to understand and control our living space in a kind of fatalism way. Although people at that time were not capable to find out that principle, this persuasion was consider as the standard to put forward hypothesis in science study in a long time. However, the uncertainty principle published by Werner Karl Heisenberg (1901.12.05 – 1976.02.01) in the year of 1927 -- a German theoretical physicist who made foundational contributions to quantum mechanics, and also made important contributions to nuclear physics, quantum field theory, and particle physics -- told people a different truth.

‘In order to predict the future position and velocity of a particle, one has to be able to measure its present position and velocity accurately. The obvious way to do this is to shine light on the particle. Some of the waves of light will be scattered by the particle and this will indicate its position ...... the more accurately you try to measure the position of the particle, the less accurately you can measure its speed, and vice versa. (1)

--A Brief History of Time, Stephen Hawking

Werner Karl Heisenberg (1901.12.05 – 1976.02.01)

At Heisenberg’s time, this fact was regarded as a technique defect, which hopefully could be fixed in the future. But Heisenberg was trying to say that, this is actually an important property of the universes. People could observe the position of the particle only if through the photon which was been reflected, but when a photon hit the particle, it change the motion state of the particle at the same time. When we try to observe something, the thing is changed because of the way we observe it, therefore we could never know the certain present. The fact is, a principle which could
derived the future state of universes according to the states of universe in a certain time, and even restrict everything else, including human’s existence, will never be found. Uncertainty principle established the base of quantum mechanics, and pushed people’s cognitive ability into a higher level. It also shows the very truth of the universes, the complicated and surprising truth.

Basically, the relationships between people and objects directly indicate how people cognize the world. When the nature was a mysterious and unfathomable existence for people, the fear to the unknown nature made us awe and even have a worshipful attitude towards object. Too much symbolic meaning was given to objects; they were regarded as gifts given by the great power which dominates everything and a media to help people to communicate with it as well. This viewpoint was especially popular in eastern world where people had a strong sense of nature worship, people look at the objects in a personified way, feel that there is a 'spirit' inside the, which is the essential of the nature. People make and use object in a ritualized way. Ignorance and fear made People to be closed to extremely cautious of the nature, respected and cherished their belongings.

The development of modern science allowed people to have a relatively rational understanding of the outside world. People begun to discard superstitions and bias and were able to see the real rule of the nature. However we soon became too over-confidence that we thought we were or we were going to be clever enough to control the nature. Its influence to the relationships between people and objects was also significant. Since the mass-production system was introduced into human life, plenty cheap and nice merchandise could be found everywhere. A material-abundant live was affordable for everyone. However, too easy to get means too easy to get bored, objects were a service people paid for, made them satisfy, been thrown away after a period of use cycle. The relationships between people and object became simple and boring.

Luckily or unfortunately, we know the world much better than the beginning of last century and this better understanding lead us to see where the limitation is. While we choose to accept the truth that the essence of the world we live in is consistent changes and complex interconnection, we should also rethink our relationships between objects. What is the meaning of the objects? How we change objects and how objects change our life and our mind as well? Do we use artificial objects to stock the world or are manipulated and restricted by them? What if both people and objects are just like the particle Heisenberg describes in his principle, always in an uncertain status? If the ways we use or treat the objects also change the property of them, then what is the proper way to understand object, how is our life with objects and how can we define them in our life? When we look at the objects in this way, is that possible to understand our relationships with objects in a different way, have a better understanding of how we establish our relationship with object and how this relationship works with both people and objects?

Background
A Context-Oriented Perspective

We use our eyes and mind as the tool to observe things. Have an opener mind and stay out of the bull may give the chance to see a different world. Speak to design, I am curious about if it is possible to design something not just starts from the point of people, but from other factors.

Human Centered Design and its Drawbacks

As a designer, it is quite normal and also important to think from the point of human being. There are lots discussions around Human-Centered Design (short for HCD below) today. Human-Centered Design (HCD) is a process and a set of techniques used to create new solutions for the world. It usually starts with a deep and detailed understanding of people, especially the people we design for. And then looking for the proper technology to make the idea come true, also sustainable financial support is quite important. But there are several things make this design method not always works well.

People are hard to understand, even designers are also human beings. Individuals have different age, gender, body shapes, culture backgrounds, preferences and so on. All the differentia above makes it kind of impossible to satisfy everyone. The focus upon individual people or group might improve things for them at the cost of making it worse for others.

Another problem is, many of the systems that have passed through HCD design phases and usability reviews are superb at the level of the static, individual display, but fail to support the sequential requirements of the underlying tasks and activities. Although this quotation is mainly refer to interaction design, but since interface can be observed everywhere but have become objects of design only since their more obvious use in personal computers. Therefore we could consider any process people use the product as kind of interaction and this conclusion is also proper to evaluate HCD in industrial design area. People rarely make independent, separate acts. All the human activities are inter-related and support or influence each other. But HCD is an approach to focus on single event, tend to ignore its connection to the context it exists. HCD fail to support the sequential requirements of the underlying tasks and activities.

From the viewpoint of HCD, technique should adapt to human behaviour, but is it really the truth? There are so many changes in the recent one hundred years, steam train, electronic, internet, new stuffs are keeping coming. Although the voice against the fangled things always appears in the beginning but finally people get on very well with the new things brought by the technology. People’s capability of accept new stuff seem beyond our imagination, not just physically but also mentally. A research from Community 102 indicates that people between 35 to 45 years old is the majority user, with a portion of 25%; people between 45-64 years old also share a portion of 29%. The older generation seems a little bit more capable to accept new stuff than we thought.
Examples & Inspiration

In order to understand the relationships between people and objects in a different way, I get inspiration from some exist projects.

Compass Table ‘BE HERE NOW’

When one has people over lounging around their couch, one very much enjoys uninterrupted conversation. The table ‘Be Here Now’ visualizes the feeling using over 300 embedded compasses – the magnetic customized porcelain espresso cups entice the compasses underneath to go wild and point to each cup placed on the table.

I saw this table in an exhibition in Musée des Arts décoratifs in Paris. It was really funny that when you put the porcelain cup on it, the nails were upset, shaking and rotating, until they all pointed at the cup. It made the interaction between people and the table lively and interesting, people could see how panic the table is when the privacy was offended by someone. It made the people who broken its peace a little bit perplexed and guilty, trying to comfort this table by taking the cup always and once again cause another ‘panic shaking’. An conversation was made by the visitor and the table with two different language, and fortunately they seems understand each other quite well, as the visitor finally just drop the cup on somewhere on the table or around table and leave the table alone back to silence.

Placebo Project
Placebo Project was run by Dunne & Raby in the year of 2001. It is an experiment in taking conceptual design beyond the gallery into everyday life. We devised and made eight prototype objects to investigate peoples’ attitudes to and experiences of electromagnetic fields in the home, and placed them with volunteers. The objects are designed to elicit stories about the secret life of electronic objects – both factual and imagined. They are purposely diagrammatic and vaguely familiar. They are open-ended enough to prompt stories but not so open as to bewilder.

In this project, Dunne & Raby treat electronic objects as something live with us. They have their personality and even have a private life hidden behind people – in this case, the invisible electromagnetic wave seems have a bigger influence to the object, and the object seems more likely to give response to the change of electromagnetic wave. To use this kind of object is like come to know a person, they follow their way to live and others cannot interfere wantonly. Here objects become a media to help people communicate with the context. People’s perception is changed during they try to understand or accept and finally build an intimate relationship between this kind of object.

People, Object and Context

It seems necessary to think about something bigger while studying the relationships between people and objects, to consider the ‘thing’ ---- the space or the context ---- between or around people and objects as a part of the relationships, not only think about the object from the angle of people. A more human-centered way to look at people and objects is like Picture A below, we use both the outline of our body and the objects around us as the boundary, the outside of the boundary could be considered as the context, and the inside of the boundary is the people or objects. We stay inside of ourselves and look out to see other people and the objects. Another view
is, like the Picture B, we consider both the self, other people and objects are a part of the context. As designers, we could put others, ourselves and objects into the whole picture, and use our professional experience and skill to pull ourselves out of it and observe the whole image from a higher level. (6)

Picture B definitely changes the way how we define people and objects. It provides a chance for people to rebuild their relationship with object in a different way. We think that our behaviors always follow our mind, but this idea is not quite objectivity. Our behaviors actually are controlled by a mental mechanism called ‘perceived affordance’. How we learn the way to use something at the first time when see it? The atmosphere of the space, the appearance of the device could provide the critical clues required for its proper operation. Critical factors help people make their evaluation including:

- Context: the environment or process in which the element is displayed;
- Culture: the influence of societal ‘norms’ on the individual's understanding and use of an object;
- Instinct: an unconscious association often linked to physical characteristics, for example, the size of an object in relation to the human form;
- Mental model: the user’s understanding and expectations of interaction with the object. (8)

We know what we want, but the objects tell us how to achieve it. We always exchange information with the outside, search for a proper way to behave through this constantly communicating process. This processes are unconsciousness, but make us connect to other people and objects closer.
A context-oriented perspective also allows people to see the connection between the sequential people and objects. As mentioned before, people rarely make independent, separate act. People choose to do one thing in one way maybe due to what they did before or what they are going to do later, also people might need to do several things at one time. All of the sequential activities connect to each other in different ways, so are all the people and objects involved in the activities. Each single activity may looks not significant or meaningless to others or the big picture, but for the dynamic whole which people and object are all included in, the meaning of the connection may be different.

If we look at the image really close, the boundary between people, object and context could be regarded as almost not existence. Therefore, we could say that people and object are equal in some extend. But how can we understand this equableness, to what extent could people and object be equal? The existence of people are confirmed by the objects around, the meaning of objects are decided by people. As a dynamic whole, people and object are share a life together, people are not the only important factor in the picture, therefore, in order to feel really comfortable to live with others, a compromised mind is quite essential.

Design Project

In order to have a further discussion, I decided to use the context-oriented perspective, start from the point of the context, to study how the relationships between people and objects look like from the angle of the context, how people and objects live with the context and how they change and influence each other. Here I am not interested in people’s desire, not totally followed people’s requirement but try to explore possibility and uncertainty between people and object, make the object as a media to connect and help us understand the whole context we live in.
Working with furniture

I decided to work with furniture in home contexts. I choose furniture to work with for several reasons:

Super Normal

We are surrounded by furniture since we were born. It could be seen everywhere around us. One spends 1/3 of our life in bed, 1/4 of our life in chair. It merges with our life so deep that it is kind of invisible for us. Using furniture may be one of the most significant differentia between human being and animals. People live without any furniture is usually under a depressed condition, for example, homeless or arrested. Furniture showing people’s consciousness of occupy and control a space and make ourselves feel comfortable to leave with it.

Simple to Understand, Simple to Use

The function of furniture has an intimate connection to human body. They are always used to support people, to cover people’s body, protect them from everything people want to escape away, to preserve personal staff for people. Each piece of furniture has a clear purpose of how to be used and it make this piece irreplaceable in a certain space.

Social Connection

In the past, there were rules to connect the style and material of furniture to their owner’s social hierarchy. Only royally family and noble family were allowed to use beautiful nice furniture made by fine solid wood. The style or the decoration of the furniture carried strong message showing that how powerful and wealthy their owner was. The ergonomic factor was not always necessary to be considered. Now day, people has the freedom to choose whatever they want (anything they can afford), but furniture is still a way people choose to show their life to others. This time, furniture is more about the owner’s taste and attitude to life. In other word, it is about the life style people choose, showing in a tangible way.

Emotional Object

Compare with other kind of product, furniture have a longer life span. Due to this, people are more willing to build an emotional bond with furniture. It is not quite about quality, but more about how people use the furniture. When one certain piece becomes special for certain people, it becomes the thing to evoke people’s memory about things happen around this furniture tangible.

Design proposal

1. Time Aging

Time is an eternal theme for people to discuses. We live with time. We could feel it through the passing of the day and the changing of the season. But how time works to objects, can we touch it or feel it without other reference? What does it mean to us?
Overall speaking, people prefer brand-new stuff to old stuff, but quite a lot of people do love antique furniture. People like them, not only because of the style, but also because they feel that there is a story behind. To touch the trace left on the surface of the furniture, people could be connect to the past old time they cannot live in or the fascinating life style they could never have.

Not all kind of trace could be considered as beautiful, there is a difference between aging well and getting old, but all the traces are the proof of how objects live with time, a record of everything happen in the period, this changing is inevitable. How can we see the meaning of the trace and try to explore the possibility to find out how to use it to turn objects become more attractive.

**A study of different kind of Trace**

There is also trace which cannot be seen.

The trace is the evidence of how objects live with time. It is also the reaction from object to the context. Trace visualized the passing of time. Therefore it reminds people the existence of the past and its influence on things. It is a witness of the past and keeps some certain time point to connect
people to the past. Give us a chance to touch the people and things in our memory.

People sometimes try to prevent or just ignore this change but it is meaningful and also beautiful. Therefore I want to try to magnify this visual effect, make it clearer for people to see, to touch and to feel. I think object could be a container to collect and record something. Changing is inevitable and it doesn't mean make things worse. Understanding and tolerate the imperfection of the object sometime means a compromise to ourselves.

**Growing Table**

I choose table for this subject, as table is always loads something. People put things on it or take things away from it, but they rarely move the table itself. When the stuff on the table is removed, only weight, smell, and temperature are left on the surface, proof something was there before. People cannot really see it, but it is possible to feel it, just as how we feel the passing of time. They never intend to play a noticeable role in our life, but they are always there, like a container, to accumulate and store things, or a recorder, collect memories.

I want to make people to feel the passing of time, to touch it and to see how it happens. So I come up with the idea of growing, as show a lively process of changing, make everything around it involved into the process, air, sunshine, winds, water, people’s activity and so on.

There are hollow-out grids on top of the table with a container under it. Soil and seed could be put into the container, so people could grow plants like grass or herb inside. The plant will grow above the surface.
Possible Scenarios in Use
Use it as a dinner table, people can pour the left beverage into the table and also the food scraps as fertilizer.
Use it as a desk, if people always put some heavily thing in a certain place, then the plant at this part might grow worse than other parts.
Also people could keep different plant in different squares, for example, grow beautiful flower in the corner.

Conclusion Regard to the Table
It might be not as good as ordinary table to use, but it show a picture how people live with things around, how things influence each other (the effect is not just between people and objects, but also objects and objects, objects and context).
The Process of Growing is a complex process make a lot of things involve into it. It absorber and witness everything around, literally and metaphorical.
How people spend time with it makes what it look like in the end, it is something unique and beautiful.

2. Symbol
Here I want to study how people live with the space. Photographers use an empty chair to indicate people’s existence in the space. One of the reasons why they choose chair but not any other furniture might be that chair is meaningful furniture for people. Chair is the symbol of human civilization; therefore it is the perfect choice to be used as a metaphor of a person, with personality and expectation to life, going to start a life in an existence space. By study how the chair associates with the context, I want to make people realize our real connection to object and context.

A study of Chair
Basically, sitting is a meaningful posture. In ancient time, only few people with a certain social status have the right to sit down. Social hierarchy also decided what kind of seat people could have, a chair with a high upright back stand for the power and privilege. By saying ‘have a sit’, people showing their attitude of welcome others entry their space. Have a fixed seat means people belong to this space in some extent.

A study of Chair in Home
I took a group of picture of a chair in my room in different time, to see what does it looks like, what happen between the chair, me, and my living place. Although there is no person shown in the picture, but one can feel someone live in here.

By study how the chair associates with the context, I realize our real connection to object and context. Also I want make a way for people to introspect themselves. People are not isolated; we keep on exploring and searching in the outside world to find a proper way to live and the end of the exploration should be ourselves, we looking for the way to make the communication between our mind and the world we live in goes smoothly. Things are connected to each other. People manipulate objects but also been constrained by objects. Try to realize and deal with this connection is the way to know the world and also understand ourselves.

Unstable Chair
There are no back legs but several handles on the back. The chair must find something to support it,
in order to stand up, hanging or leaning.
The height of the handle is something people could easily find around them:
The height of ordinary table and sill window (about 73 cm)
The height of coffee table (about 60 cm)
The height of closet (about 45 cm)
The height of bench (about 30 cm)

Conclusion

Regard to the Chair

It is kind of interesting to carry it around and try every place to find out a perfect match height to support the chair. In one way, it provide more possibility to sit, at some place you cannot sit before, in other way, it also give new constraint, as it has to be put against the table, wall or closet, which lead unpleased experience sometimes.

3. Territory

Our minds not always follow our body. Sometimes there is special mental requirement need to be take care of. Here I am looking for some pure mental needs, trying to take care of this kind of feeling in an unconventional way.

Sense of Security

Our animal instinct makes us enthusiastically occupy a piece of land in a space. We do it not because of we need to live with it, but because we are looking for the sense of security. By announce the occupation; we build a psychological boundary between our territory and the outside world. And this boundary keeps us away from dangerous from the outside.

Home is definitely a place where we feel been protected and taken care of; a space belonged to us,
physically and psychologically. But we still full fill this space with furniture and other personal stuff as well, the physical size of an apartment still too big compare with human body, we need to use something to divide the space into more specific sub-space, to make us stay closer with smaller space with certain definition. Contradictorily, in one hand, people want to be protected; on the other hand, we don’t want to be totally isolated, because loneliness is another significant source of fear. Therefore, one of the functions of furniture in home context is to keep a kind of balance, to make people feel safe and comfortable, been protected but not be divided.

When thinking about how people want to feel safer when they at home, I remember when I was a kid I always like to hide under the table. Not because I felt scared or I made some mistake and want to escape away from punishment, but just because I wanted to have fun. I felt good because I still can see people walking around me but they cannot see me. Also it made me feel it a secret place only belongs to me.

**Secret Cabinet**
I made a cabinet without bottom surface and have soft upholstery surfaces inside. It provide a smaller and private space for people to hide when they feel extreme tired or sad. The soft upholstery also could be regarded as a metaphor of people’s most emotional side, a person with a soft and warm heart. It makes people feel safe and comfortable when they touch it and lean on it.
Conclusion Regard to the Cabinet
It is really a warm surprise when people open the cabinet and see what is inside. It provides a chance for people to get pleasure through something seems quite normal but have an unexpected function. While hide inside this cabinet, people might feel that they are like a common stuff stored in furniture, they are just a part of the whole context and they are at the right place doing the right thing, therefore, they are safe and feel comfortable.

Interview
I brought the chair and the picture of the table to meet a few people, and have short interviews with them talking about how they feel about these two items.
Interview I: Growing Table

People’s feeling / Reaction

*It will be really beautiful with plant grow inside

What are People going to do with it

Cut the grass like mow the lawn
Grow herb so I can take it when I am having dinner
Use it as a flower nursery

Is it Accepted or Not

*It would be nice to have in home, as a coffee table or put it beside sofa
*I don’t really like soil because I feel it is kind of dirty, but might want to keep one, grow some really beautiful flowers on it.

Conclusion from the Interviews

It might be not as good as ordinary table in use, but it show a picture how time live with things around, how things influence each other (the effect is not just between people and object, but also object and object, object and context).
The Process of Growing is a complex process make a lot of things involve into it. It absorb everything around, literally and metaphorical.
How people spend time with it make what it looks like in the end, it is something special and beautiful.
Interview ii : Unstable Chair

The First Impression

* Is this for use?
* I am not sure if it is still a chair...
* Wow, An impossible chair

People’s Feeling / Reaction

Some of the people are quite confused, but feel interested in explore the possible ways to use it.

Some of the people interested in it a lot and begin to looking for a perfect match height immediately.

Some people have a strong emotional imagination of the chair.

Is it Accepted or Not

* Could be accepted as a art piece with the theory background
* I want to have one, but I won't just left it at home, I want to bring it out and play with the 'height'.
* Feel happy because it extend the sitting surface, even if only use it at home.

Conclusion from the Interviews

It is kind of interesting to carry the chair around and try every place to find out a perfect match height to support the chair. In one way, it provide more possibility to sit, at some place you cannot sit before, in other way, it also give new constraint, as it has to be put against the table, wall or closet, which lead displeased experience sometimes.
Final Discussion

In this project, I started from the physical principle ‘Uncertainty Principle’, trying to break the boundary between people and objects, explore the different possibilities beyond the simple use and be used or occupy and be occupied relationship. The uncertain relationship between people and objects make this world imperfect but full of surprises, it is hard to find out an object totally match people’s need, but this imperfection and dissatisfaction leaves a space to become the source of the pleasure and the chance for introspection. It point out ways for people to see something meaningful but easy to be ignored.

While I kept the basic form of the three pieces of furniture I made for this project, I took away most of the function it should have or make it not functional in the normal way. In the design process, my purpose was to focus on how to make the distance between people and the environment closer, how to make people have a better understanding of the context they live in. Meanwhile, I didn’t want to give too much definition or restriction to the object. I wanted to take away people’s inherent impression of these three pieces of furniture as well, and leave the opportunity to the user, give them the chance to define and understand the object with their own experience and preference. Also I want to give people the freedom to establish personal relationships with the object. I want to make the process when people use my furniture as a new exploration, and to be an eye-opener to see the world.

This project also makes me think about the question why do we design and what do we design for. It is absolutely true that design will become more personalized. However, where is the limitation of this personalization, how to keep the balance of satisfy the user and take care of the practical design and produce process at the same time is still a problem. Through this project, I think one of the solutions could be, when people already live in a material world which takes a great care of their physical requirements, we may step back and give up some of our requirements, accept the imperfection and dissatisfaction, have fun from a uncontrolled and uncertain state

People are willing to accept unconventional or useless furniture within an area which make them think that it won’t threaten or totally change their normal life. And in this safe area people are really enjoying the unexpected pleasure at the risk of losing usefulness and experience a little adventure.
Quotations

(1) ‘In order to predict the future position and velocity of a particle, one has to be able to measure its present position and velocity accurately. The obvious way to do this is to shine light on the particle. Some of the waves of light will be scattered by the particle and this will indicate its position …… the more accurately you try to measure the position of the particle, the less accurately you can measure its speed, and vice versa.’ A Brief History of Time, Stephen Hawking/ Chapter 4

(2) ‘Human-Centered Design (HCD) is a process and a set of techniques used to create new solutions for the world.’ IDEO HCD Toolkit, p17

(3) ‘many of the systems that have passed through HCD design phases and usability reviews are superb at the level of the static, individual display, but fail to support the sequential requirements of the underlying tasks and activities.’ Human-Centered Design Considered Harmful/ Donald A. Norman

(4) ‘can be observed everywhere but have become objects of design only since their more obvious use in personal computers.’ The semantic turn: a new foundation for design /Klaus Krippendorff, P78

(5) ‘Community 102 made a research to study the age distribution of the people who use the social web. It indicates that people between 35 to 45 is the majority user, with a portion of 25%; people between 45-64 also share a portion of 29%, which seems not as smaller as we thought.’ Internet action, How do different age groups interact across the social web?/Community 102

(6) ‘As designer, we could involve them into the whole activity, and use the professional experience and skill to pull themselves out of it and observe the whole image from a higher level.’ Design not for design = the best design: the design of ecological theory/ Fukasawa Naoto, Sasaki Masato, Goto Wu, P54

(7) ‘Context: the environment or process in which the element is displayed ... Mental model: the user's understanding and expectations of interaction with the object.’ The Motive Web Design Glossary/ Motive

(8) The designers Jasper Morrison and Naoto Fukasawa have compiled 204 everyday objects in search of 'super normal design' Jasper Morrison argued that super normal object is the result of a long tradition of evolutionary advancement in the shape of everyday things, not attempting to break with the history of form but rather trying to summaries it, knowing is the artificial replacement for normal, which with time and understanding may become grafted to everyday life.

(9) In Donald A. Norman's book Emotional Design, he proposed a framework for analyzing products in a holistic way to include their attractiveness, their behavior, and the image they present to the user -- and of the owner. In this work on design, these different aspects of a product were identified with different levels of processing by people: visceral, behavioral, and reflective.
Reference

The semantic turn: a new foundation for design /Klaus Krippendorff/ Boca Raton, Fla. ;London :CRC,2006
IDEO HCD Tool kit
Design not for design = the best design: the design of ecological theory/ Fukasawa Naoto, Sasaki Masato, Goto Wu/ ISBN: 9789866538490/
Appendix

Measurement

(1) Growing table
(2) Unstable Chair
(3) Secret Cabinet
Source of the picture from Internet

P3
http://www.notablebiographies.com/images/uewb_05_img0328.jpg

P7
http://tomk001.files.wordpress.com/2011/03/design_noir.jpg?w=490

P11
http://t3.gstatic.com/images?q=tbn:ANd9GcTumTDijqY9W_9HHEqbDRN1Y1eR8d1_qeAXTsD36cf8C5APBocC
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http://t2.gstatic.com/images?q=tbn:ANd9GcTh1w41TTWJoRBA02Q_.-CZPpkYZguLMx7uvNRtMKEXFgxl2lh7

P19
http://t2.gstatic.com/images?q=tbn:ANd9GcSFeoDM7gCuOG3zVAtnmiLqcJBq63ZktYH_5Tpuj34MANNw6mrT
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P20
http://t1.gstatic.com/images?q=tbn:ANd9GcRXpgBH0T_pF7OX72HpKEi3SudZytjsoA2Dq0xJZgheshA0tH9bjw
http://t2.gstatic.com/images?q=tbn:ANd9GcSxSVJMWwp27nauXQMeo2sBi3oh0pke7yuQS6qQolGy6XSfSkEA