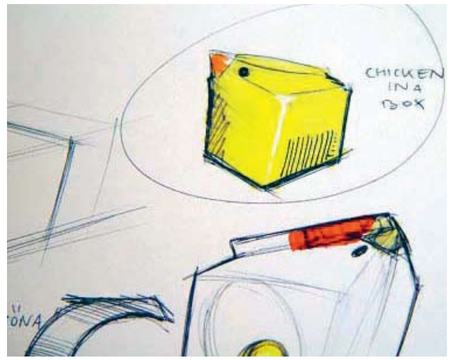
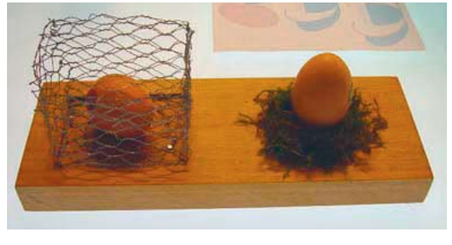
Curriculum examples
Year two
Contents

Workshop, Pack an Egg
Sebastian Peetz





Packaging graphics and graphic design course and workshop. Get information about graphic design and packaging. Take a moment, decide for a function, transform it into a shape, shape is the first of three steps of packaging Think about a material, take it, experiment with it, transform it into the shape, check your idea, develop the details, think about unpacking, don't forget the waste factor, sound, recycling. Focus on your target group, age, status, life-situation. Communicate your function without words. Use colours, grids and pictograms. Make drawings, show your concept of bringing the egg to someone else, explain how it works, opens, closes. How you throw, drink, smell, breathe, squeeze the package, refine the graphics, be the best, draw, colour, paste, cut. Create a packaging and learn about all there is between the product and the customer. Create a new design.

Design methodology

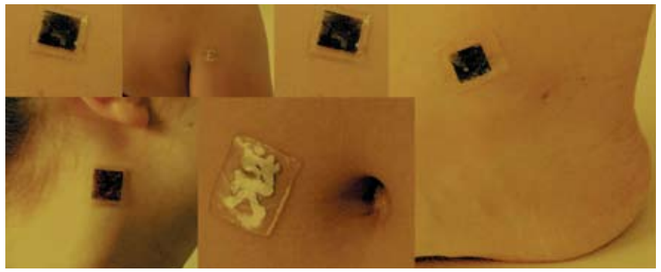
Claus-Christian Eckhardt

Design process and design methodology habitually have a tendency to be confused; although related they are dissimilar. Design process is a succession of particular actions over time, generating desired or unforeseen results. Design methodology is a formulation of the systematic of how and when certain measures must be taken. Once a method is chosen, a process can be applied.

As incited by Tomás Maldonado (HFG Ulm), issues in design cannot be resolved solely based on an idiosyncratic artistic approach alone; it is through application of scientific and technological knowledge that appropriate design solutions can be found.

At the basis of the design methodology course lies the formulation of a strategy that – being individual, variable and design related – enables students to plan and to (re)act accordingly. This rationale is based on the assumption that a majority of design tasks in the educational context is open to interpretation and cannot be anticipated. To solve them, the schedule that delineates all measures must be constantly supervised and adapted if necessary. The aim is to relate the methodological problem analysis and synthesis in industrial design, i.e. the overall planning, to those particular actions that need to be performed to resolve the given problem. It is a holistic model of creative and scientific proceedings.

Students shall be made aware of the complexity a designer is faced with – to establish methods that enable them to subsequently execute their own design process. In addition to their self-managed design tasks – key to their individual progress – a project with a company is executed to practise the realisation of external schedules and milestones.



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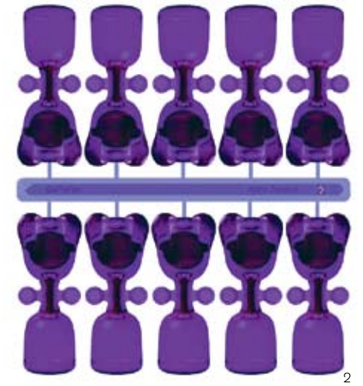

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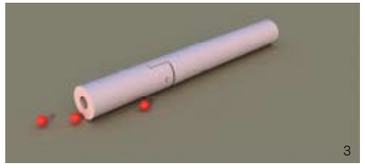

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AstraZeneca, 2001

Per Fridh

In the autumn term 2001 – within the framework of the design methodology course – the students of the 3rd semester Industrial Design took part in a workshop with AstraZeneca to get a more hands-on feel for the industry.

The startup meetings were very positive – just like in “real” life – the actual briefing for the teacher as well as the students arrived at the very start of the course. The project was to be about the findings of latest studies and research done by AstraZeneca into a new indication hitherto named “common laziness” – against which the curing formulation “Cepofan” has already been developed. There were no restrictions given as to how it could be administered except for I.V., and technical solutions for dosing and packaging had previously been researched. “Cepofan” is to be sold as an entry level and exclusive product requiring no prescription.

The reason for involving students was to get additional external input for new approaches to administration, packaging, prescription and how the target group should be addressed. This task polarised the students, being more complex than usual for a 3rd semester class. Also, in design methodology, the students get their first exposure to methods and the analytics of designing. Normally, they analyse a coffeemaker or any industrial product and improve its handling, function and design as well as addressing economic and ecological aspects. The “Cepofan” project in contrast required more visionary and holistic thinking. This fact led to many questions with respect to what precisely was the problem to be solved. For the first time – within a very tight schedule – the students had to actually use methodical and analytical tools of the design process. Because of that, the creativity of this project should be well honoured. We are hoping to continue the relationship with AstraZeneca in the future.

1/ A plaster with a pattern inside, containing the active substance 2/ Turns blue to purple! A gelatine tablet to re-energise you 3/ Pill dispenser

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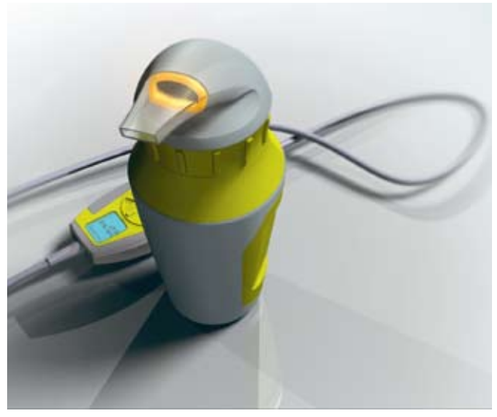
Tetra Pak, 2002-2005
Thomas Waldner

Tetra Pak Research and Development is located in Lund and is developing new material and machine technologies for existing and new packaging platforms. Tetra Pak Research and Development is organised into the three departments Material Technology, Machine Technology and Package Development which drive research and development for Tetra Pak with a customer and consumer focus. The initial briefing allowed Tetra Pak to awaken the students to the complex world of packaging design, consumer drivers and the diversity of consumer needs and preferences. Seven intense weeks followed where Tetra Pak and the students had several opportunities to review the creative solutions being created. Representatives of Tetra Pak attended the final presentation and the students demonstrated a high level of creativity , design skills and presentation dynamics.

1/ Babylon, ice cream packaging concept, 2003 2/ Transformable package for liquids, 2004 3/Packaging concept for a juicy milk product with foldable cardboard spoon, 2002
4/ Morning X-Press, portable breakfast, 2004 5/ Multipack, 2005 6/ Refreshing meal replacement to go, 2002



Teamakers, 2006

We restructured the design methodology course in 2006. Students began with a warm-up phase, designing a low-tier toaster. Instead of the usual long-term Tetra Pak project, this was followed up by a complex one: designing and modelling a teamaker. While on this project, students took part in a three-day “pack air” workshop and a one-week Tetra Pak assignment. The idea was to expose students to working on several tasks simultaneously, training not only the methods relevant to the design process, but also their creativity and coordinative skills.
For the teamaker project, a suitable brand had to be chosen and argued for. Various processes of preparing, serving and drinking tea were analysed and evaluated. Once a meaningful new concept was identified, it was developed and later modelled in 3D as well as a physical model.

Computer Aided Product Development and Simulation, Autodesk Alias Studio Tools

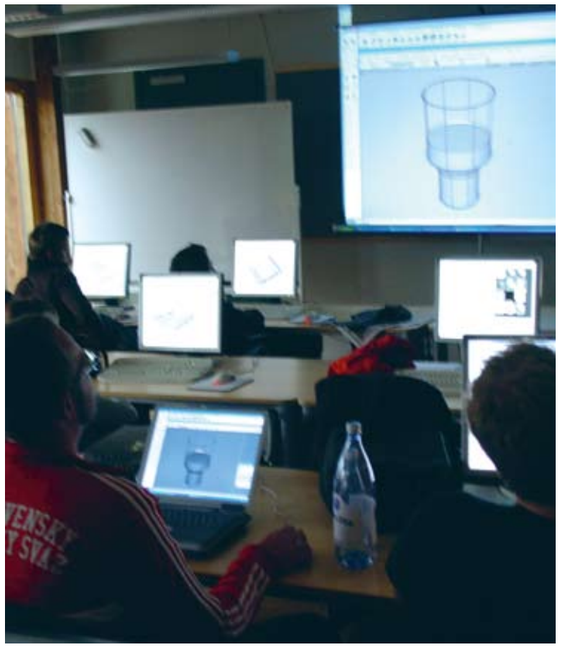
Andreas Hopf

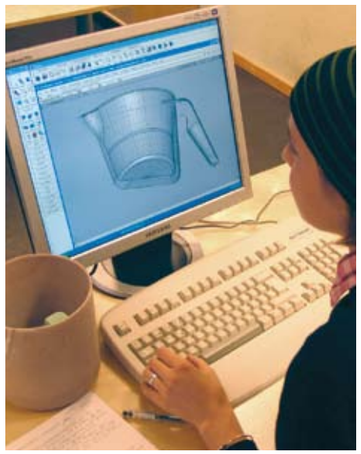
Often, the rationale in teaching and using complex 3D-software is: to produce the ubiquitous flashy images or animations of design concepts and create some data along the way. This conventional approach is a rather short-sighted view on a topic, which has far greater importance for the contemporary design process, especially in markets such as consumer electronics, small home appliances, packaging and the like.

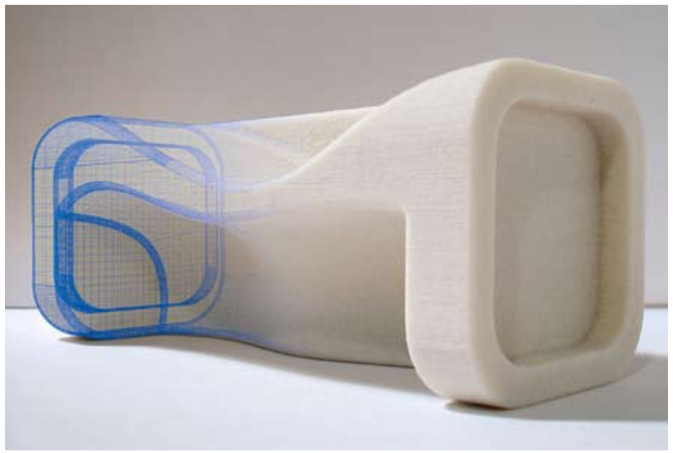
The approach in the industrial design courses at LTH is somewhat different. Our aim is to embed 3D-software education in the curriculum in such a manner as to preserve the maximum of creative expression whilst generating meaningful images and/or data at a later stage. There are three prerequisites that should be fulfilled when using 3D-software in the design process:

- Images are meaningful only if they precisely denote those visual aspects of a design concept (form, material, texture and colour), which are relevant for the evaluation and decision-making process.
- Animations are relevant only if they either contextualise a design concept to confirm a specific attribute or illustrate its versatility and functionality.
- Data is useful only if it is transferable and exploitable for engineering, prototyping or manufacturing.

In other cases, the direct hands-on approach of working with sketches, 1:1 scale drawings, mock-ups and precise models yields better results in terms of design quality, time and budget. The sensual and perceptual aspects of manual design work cannot be underestimated, especially in designing furniture and objects that derive their form language from tactile material properties. Even so, at any given point the intermediate result can be transferred into 3D space for further investigations and/or refinement.







Teaching and personal coaching is done adjacent to or directly at studio level so as not to separate the 3D-process from the students' daily (and sometimes nightly) workplace.

At this time, we are using Autodesk Alias Studio Tools software, because it presents the fewest limitations in free conceptual exploration of form and integrates easily with other 2D/3D software as well as rapid prototyping and CNC systems. As technology progresses, this might change in the future if benefits can be identified, qualified and quantified.

The first step is an introduction to the software interface, menus, icons and window system, the latter being the key to swiftly navigate and design directly in 3D-space. In understanding the latter, emphasis is placed on the fact that many operations and transformations have a close relationship with manual model making; therefore students are taught the concept of modelling strategy ("where to begin"), which is crucial when it comes to a design process directly wrapped up in 3D with no traditional 2D groundwork. We try to discourage downloading demo and sample models in order to keep the students from the common mistake of "preset design", the emphasis is placed on understanding what 3D surfaces are and how they can be used and "subverted". The same approach is used in the production of images. By observing material properties, light and composition in real life, the understanding of "what makes things look the way they look" is developed so the creation of plausible and meaningful imagery comes much more natural than simply using default settings found on- or offline.

As of 2006 students can also output their data with a 3D printer and other means of rapid prototyping if traditional CNC milling is too slow or costly.

Theoretical and Applied Aesthetics, Product Semiotics

Gunnar Sandin

Our everyday things speak to us. There is always a message, or a number of messages, linked to the things we see and the things we use. They speak to us through the ways they look, feel, smell, sound and taste – they tell us how to use them, they point to their relation to other similar things, they show their belonging to cultures, life-styles, attitudes. The semiotic aspect of a product deals precisely with these kinds of messages. A mobile phone, a toothbrush, a road sign, a bus shelter – and so on – may on a first glance seem to have a fairly self-evident appearance. But when we begin to think about what these objects can provide and what feelings they evoke, we find that they may convey quite a complex cluster of "messages". The person who should know most about the message of a product would be the designer, as the one who has "tested" different possible messages, and by shaping them so as to get our attention, attract us, and make us understand.

In the Product Semiotics course for the second year students, much effort is put into a critical analysis of everyday objects and their cultural context. Within the course there are several short exercises. One of them can be summarised as follows:

Take as point of departure a failed product, a badly communicating product, and work with the semiotic shortcomings that you find in it or in its presentation.

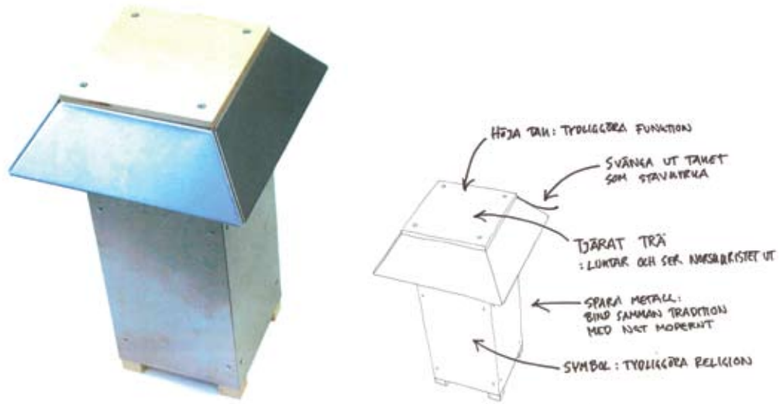
Change your chosen product's semiotic qualities – so that it conveys another message than the original one. You may proceed to improve the original message in order to make the product better. Or, you may also, starting from the set of found weaknesses, work out a radical change that leads the product in a completely new direction, perhaps to a completely new area.

If for instance the dubious or bad feature is related to the ergonomic shaping, the choice of control buttons, the colour, etc, you may depart from this "wrong" feature and use this "negative" situation as a positive point of departure.

Make an analysis of how your suggestions will alter the field of usage and how a target group may be either broadened or adressed specifically.

The notion of target group is here treated not as a group of people specified beforehand in order to be suited, but as one that can be discovered when the product is altered. The target group may thus here emerge as a consequence of the suggested alterations, rather than as an estimated pre-condition. This way of thinking leads away from the common solving of a specific technological problem. Instead, it provokes thoughts where a "problem" may lead positively to another set of issues. This way of thinking is, in my view, at the very core of a designer's identity, because it allows the designer a role of seeing alternatives, and in the end other, and different, ways of living.

As an example of a response to this exercise in Product Semiotics one could mention a suggestion to an alteration of a lamp, made in 2002 by a second year student (see fig. on opposite page). A somewhat pure and enclosed lamp, solid, metal-based and "Scandinavian" in its minimalism, was turned into a sacral and literally more open one, giving off a tar fragrance and featuring a Norwegian stave church roof. This suggestion to a radical semiotic change led to a fruitful discussion at the final review not only of form, colour and technology, but of possible receivers' cultures and of design clichés.



Light and Colour

Jan Janssens, Thorbjörn Laike

Located in the School of Architecture, the Department of Environmental Psychology focuses on how individuals are affected by design and the built environment. The goal is to develop new ways to improve the environment and create designs that will more effectively meet the needs of end users. The department's staff consists of both behavioural and planning scholars and has many fields of interest. The primary function within the design education is concentrated on design elements relating to light and colour. We provide students with a comprehensive overview of the effects that light and colour have on individuals and their surroundings. The students are presented with several lectures given by professionals from the field and visit leading lighting manufacturers. The students also experience hands-on manufacturing and development of lighting designs and they are offered several scenarios to choose from. The students are required to design and build a lighting prototype and, as part of their design process, they must develop a booklet with illustrations describing their project and design concept including floor plans, material selection and all technical information. This booklet is intended to help students with the presentation and marketing of their products. As part of their design concepts, they must consider the function of the lamp as well as practical issues such as fire safety, colour rendering and light distribution. The course is intended to give students a well rounded overview of light and colour as well as the opportunity to create a solution of their own. It is our goal that students gain more in-depth knowledge of how these elements of design will function within the environment as well as how the design affects the individuals that encounter it.

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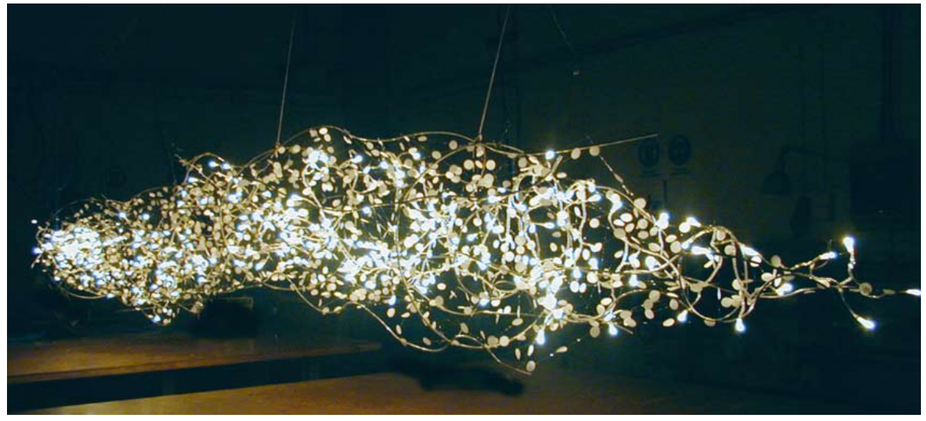
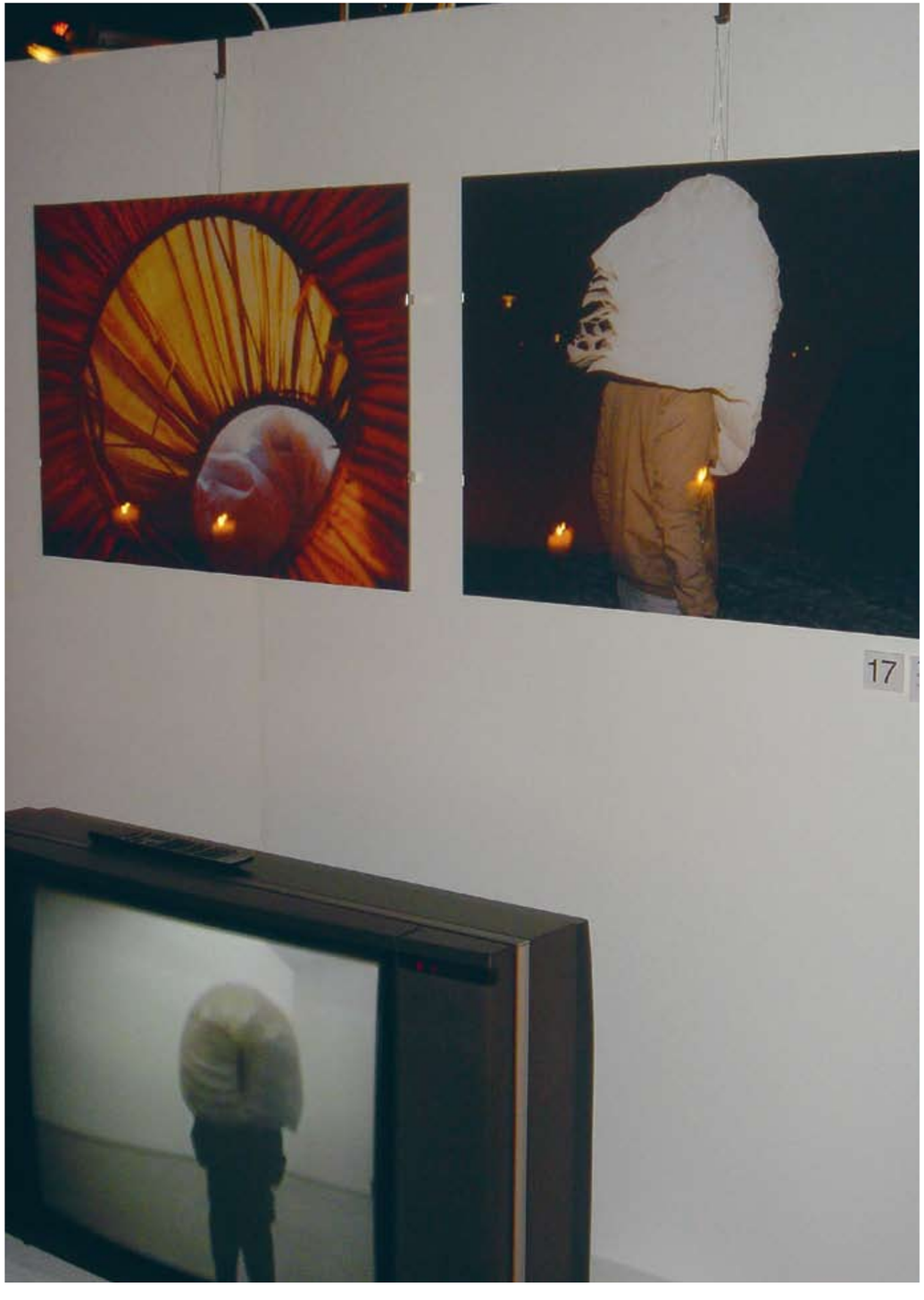
Theoretical and Applied Aesthetics, Visual Structures, part 1

Maria Udriot



This course deals with the ability of working with the effects of light in various spatial situations. The course has an experimental nature and is divided into three workshops based on the relation between light, shape and space. The last step of the process is putting together an exhibition to display the results. In previous years this has been done at Krapperups Art Gallery (outside Helsingborg), but as of 2006, the venue is Krognoshuset in central Lund.



Theoretical and Applied Aesthetics, Visual Structures, part 2

Mats Hultman
Nilklas Nihlén

Visual Structures, part 2 continues the training of aesthetic abilities begun in previous courses in Applied Aesthetics. This course, however, also introduces theoretical reflection on aesthetic subjects. Through a series of lectures and exercises, aesthetic concepts and problems like taste, aesthetic evaluation/judgement, perception, cognition, interpretation, etc. are introduced, discussed and reflected upon. Each student collects a personal repertoire of the beautiful and the ugly, and makes reflections on preferences that govern their choice. The final stage of this work is the design of a personal aesthetic manifesto, in which both the verbal style and the graphic form should reflect the aesthetic preferences stated therein. The course is concluded by a workshop where the manifestos are illustrated or commented by a three-dimensional object cast in concrete. In groups of two, and using the manifestos as a starting point, the students design, build forms and cast an art object or a piece of furniture in concrete.

Universal Design
Håkan Neveryd

The aim of the course is for students to:

- gain a positive attitude towards taking an individual's needs and abilities into consideration in product development.

- be able to start analysing everyday situations in order to see the problems they can create for people with different disabilities.

- gain increased knowledge and understanding of different disabilities and technical aids.

- gain increased knowledge and understanding of the concept "universal design".

- gain increased knowledge and understanding of the theory and methodology in the field.

- gain a positive attitude to and skills in cooperating with engineers in development projects.

Lectures are, to a large extent, internet based and have been made accessible for students with disabilities.

The lectures deal with the following disabilities: physical, visual and hearing impairments, cognitive disorders, brain injury, autism and dyslexia.

The required project work involves the design and development of a product prototype. The project is carried out in groups including engineering students who are participating in the Rehabilitation Engineering and Design course. The project will result in a prototype of either a technical aid for persons with a specific disability or a "design-for-all" product.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1/ 2/ 3/ Sticky Sack, 2002. Many users are excluded from joining many games due to the simple fact that catching a ball requires a lot of timing and coordination, "Sticky Sack" effectively addresses these issues. By using a combination of velcro on sack (slower than a ball) and glove, contrasting colours and flexible rules it enables everyone to play.

Between Gadgets and Driving Forces

Bodil Jönsson
Professor of Rehabilitation Engineering

Certec is the Division of Rehabilitation Engineering Research at the Department of Design Sciences. Our research and education involving technology, design, and pedagogy, concerns the lived ability and the lived disability. It is the doing rather than the diagnosis that is emphasised. The process starts with the person, her needs, wishes and dreams. In our experience, you seldom come very close to relevant requirements specification through questionnaires and interviews. Instead, there is a need for situated insights into the driving forces and the actions. Certec's fundamental basis, theoretically as well as methodologically, is introduced in the book "Design Side by Side" (Studentlitteratur, Lund, Sweden, 2006)

Methodologically, technology can function as a language both when used as a questioning probe ("Is this what you want to be able to do? In this way?"), and when it functions as an answering probe ("Oh, is it six o'clock already? Then it's time for me to …"). As Bruno Latour states it, "technology is society made durable". If adding Steve Woolgar's "technology is frozen relationships", it becomes obvious that artefacts in reality are nothing more and nothing less than thoughts realised.

The ability of artefacts to make thoughts (or the lack of them) visible and robust is a characteristic of special value for people with disabilities. Artefacts can act as liberating pedagogy if they liberate you from the difficulties that otherwise dominate your life (e.g. problems planning or remembering). Sometimes artefacts "only" facilitate, sometimes they provide true first-time opportunities, such as computers and internet have done and continue to do for large groups of people with different kinds of disabilities. The opposite can also occur: lack of thought resulting in artefacts that exclude. This occurs in physical planning that prevents access to people in wheelchairs, text that because of size or contrast is invisible for a person with low vision, or cognitive oversights that reduce intelligibility, particularly for those who cannot read.

It is fruitful to consider humans and their technology as actants and to focus on the interplay between the two and how it builds up everyday life. Just consider how the introduction of the internet has accentuated the searching, inquiring nature of people and made it impossible to call it into question any longer, even for those with a more authoritarian point of view.

Not just gadgets

For sure, rehabilitation engineering and design are about gadgets – but not only and mostly not as the dominant part of Certec's work. There is a subtle balance to be regained, over and over again, between quick-fix efforts for particular aids that can be ready now, and greater research efforts that can pave the way for an entire arsenal of aids, sometimes built into the culture and thus so ubiquitous that they are almost invisible. The methods and to some extent the language is that of technology and design – the technical solutions and their design demonstrate how problems have been interpreted and how technical and educational possibilities can be implemented.

Much of the Certec research and education is initiated and implemented in the human sector, the sector where people work with and for other people. Since people are people with a human logic and an everlasting search for meaning (i.e. not mechanistic machines) designing for human sector processes and products has its own distinctive features, including human capital to be valued, nurtured, utilised and treated on its own terms. Bold design efforts in the human sector have been in such short supply that there is an almost unlimited potential for growth and renewal. We at Certec are both inspired and challenged by our colleagues at the Division of Industrial Design and the students at the Industrial Design Programme. Let me illustrate our connections and cooperation by introducing two diploma projects that I have supervised with Per Liljeqvist at the Department of Industrial Design.

Kärlek and Industrial Design, Anna Persson, 2006

Anna writes in the introduction: "By questioning the foundational driving force of ID (that being traditional market thinking – supply versus demand) and replacing it with Kärlek, one accesses a whole new world of possibilities, exceedingly full of potential…

K&ID is about all the intangible stuff in life that gets rationalised away because it can't be directly translated into numbers, but when left without makes our lives seem empty and leave us feeling unhappy. If that's how you feel, no product, no matter how well designed it may be, can make you feel any better…"

The complete work is visualised through a lot of sketches and the key elements: the Emotional String Harp, the Alternative Shape Sorter and the Balance Stool.

It was a real pleasure supervising there out of the core "not just gadgets". The connection to the project at Industrial Design "It´s all in your head", is obvious: a project that focuses on all those "odd behaviours and feelings that are part of all our daily lives".

"To bring" – a diploma project on elderly and design, Ulrika Carlberg and Kristina Gullberg, 2004

– Ulrika and Kristina write: "Our diploma work has had the elderly as user group. We wanted to focus on a positive activity/action and try to facilitate that motion. Getting old often involves a number of simultaneous disabilities such as reduced hearing, eyesight, fine motor skills and cognitive disabilities. One of the difficulties in everyday life of the elderly is carrying things around inside and outside the home as they often need to support themselves against something whilst walking….

"Our work culminated in the question: 'How do you bring coffee from the kitchen to the table?'. By 'coffee' we meant a coffee-set, cake and coffee. An important aspect was that we wanted the person to be able to set the table themselves before their guests arrived."

Concluding remarks

Both diploma projects are human-oriented. While the first does not seem to concern gadgets at all, it surely does so in its prolongation: a designer aiming for "kärlek" as her driving force in industrial design will never design the same gadgets as those more market oriented. And although the work "To bring" does not seem to concern design and mankind but rather minor problems of bringing the coffee to the table, it surely influences their future thinking and carriers to include universal design or special design for enabling functions and empowering human will.