5. Technology, design and gender

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This text is part of a series of publications on gender research and gender equality that has been produced by researchers at KTH as part of the efforts at KTH to integrate knowledge about gender equality, diversity and equal conditions in education. The purpose of the series is to disseminate, in an accessible way, knowledge from gender research in various subject areas that are relevant to students, doctoral students and teachers at KTH.

The relationship between technology and design is intimate and has gone hand in hand ever since people started making objects. Design can have many purposes – it may have to do with providing visual and tactile experiences, but it may also concern the ability to understand and handle something. Good design is design that helps us to understand the technology we encounter in our everyday lives, that makes things easier for us and that promotes development with regard to both people and the environment. One challenge in this context is that human beings are not a homogeneous group. Our societies contain a rich variety of individuals with different characteristics that make us unique.

The technology-related design process weaves together assumptions about the body that will use the technology, in other words, assumptions about the body's gender, age, functionality, social affiliation and cultural preferences. Parallel to this process is the exclusion of bodies that don't meet these assumptions. In this way, technology and design co-create norms regarding what the world is supposed to look like and how it is supposed to work, norms which we learn to adapt to from birth. Usually, we do not notice or think about norms. It is therefore important to find strategies to make them visible and consider, question and renegotiate them. Design can be an effective tool in this context. In the same way that design can contribute to creating and maintaining norms, we can also use design to go against these norms and offer alternatives.

Co-creation

The co-creation of technology, design and gender (i.e. meanings of gender) is based on the actual definition of technology. According to most reference books, technology is the application of all human methods to meet the practical aims of human life through the use of physical objects. According to this understanding of technology, it includes everything from activities that we associate with women, such as cooking, cleaning and sewing, to activities that we associate with men, such as car mechanics, building and programming. Even so, there is often a tendency to define technology based on technical skills and competence areas that have masculine characteristics. Consequently, not only does this definition of technology shape perceptions of what is masculine and feminine, it also creates view of male-coded technology as ”real” technology and as superior, which makes female-coded technology subordinate to the actual definition of technology.

In this shaping of gender, physical objects play an important role. Saucepans, mops, sewing machines, cars, computers and building materials are all examples of technical artefacts but, due to gender coding, the technical level of these items is evaluated on the basis of whether the user is associated with a man or a woman. In other words, our perception of gender shapes our view of technology at the same time that our perception of technology reproduces our view of gender. But what do we really mean by ”masculine” and ”feminine” when it comes to how we view, evaluate and use technology? What, exactly, does this perception look like? And what role does design play in this context?

This is related to how a society in general sorts things into certain areas and activities that are viewed as typically masculine or feminine. In order to gain a deeper understanding of this, we must study exactly what is deemed to be typically masculine and typically feminine within a certain context, and what consequences this produces. One area that is interesting to look at more closely is that of household technology, as through history this is an area that has clearly reflected the gender norms that have governed what a home is, what a family looks like and who is expected to perform various duties in the home, as well as how these duties are valued. A clear example of this is described in Cockburn and Ormrod’s study of how household technology developed in England during the 1980s and 1990s. This study shows that, from the very beginning, product developers gender-coded the technology by thinking of the end user as a woman or a man. Household products such as the washing machine, oven and fridge/freezer were coded as typically female products, which led to an attitude towards this technology as being ”simple” and ”uninteresting”. On the other hand, household products such as the TV and video and audio equipment were coded as typically male products, and the technology was described as being ”ultramodern” and ”challenging”. The ”female” household products eventually became more widely known as ”white goods”, while the ”male” household products were referred to as ”brown goods”. The names given to these two consumption categories had their origin

in the colour of the product design, but it was not just a case of the colour brown being viewed as a masculine colour and white as a feminine colour; behind the colour coding there was a carefully conceived plan as to where the product was intended to be located and how it should function and be managed. White goods were often designed as large, stationary appliances, with the idea being that they should primarily be viewed as part of the home's furnishings, and not as technology. The view of women as ignorant about and uninterested in technology supported a discrete form of design without too many buttons and controls, and with smooth and shiny surfaces (which meant that dirt would be more visible and thus increase the need for cleaning). On the other hand, brown goods were designed to instead emphasise the expression of a complex and high-tech product. These products were equipped with buttons, controls, lights and graphics. As opposed to white goods, these brown goods were intended to stand out from the home's furnishings and be easy to position and move based on the man's needs.

The history of the design of household technology also reveals the interaction that exists between class, gender and technology. Before World War II, the design of various household appliances, such as electric mixers, irons and vacuum cleaners, was strongly inspired by the industrial and factory machinery with which men had started working as a result of industrialism. They were made from durable materials such as cast iron, stainless steel and aluminium. The construction was visibly held together by nuts and bolts, and the colour scale was sombre. The aim was to create associations with the efficiency of machinery and the saving of labour, and it was primarily domestic workers who were seen as the end user. After the war, when men returned to the factories and women (who had replaced the men in the factories during the war) once again took their ”rightful” place in the home, it was the housewife who became the target group for the household appliances. Suddenly, the household appliances were felt to have a disturbing similarity to the machines that men used in their ”real” work. This resulted in a change in design towards what we now perceive to be the classic design of the time: pastel-coloured, rounded shapes in Bakelite that concealed the product's construction and gave an impression of playfulness rather than efficiency.

The above example shows how design has been used to intentionally influence how we view, evaluate and use technology, and how this has contributed to the reproduction of gender perceptions. But there are also examples of how this process can result in unexpected consequences. One example of product development that clearly exemplifies this is the microwave oven. It was originally developed as a ”high-tech product of the future” and was designed and sold as brown goods. The intended end user was the single man who had neither the time nor the inclination to cook food. It turned out that the product developers' surveys of the needs and wishes of men and women had major shortcomings, as those who actually went to the shop shelf for brown goods and bought microwave ovens were primarily women, due to the fact that

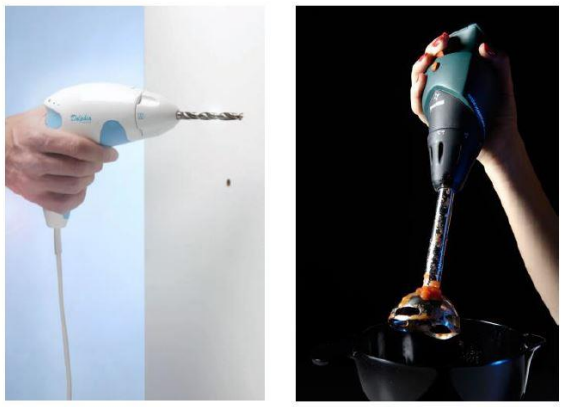
women saw the microwave oven as an opportunity to save time and work, and as a source of possibilities for development with regard to cooking. This led to a redesign of the microwave oven so that it would be more suited to the kitchen environment, and as a result it was classified as belonging to white goods and thus received lower status. Shops also began selling microwave ovens with cookbooks aimed at women. In the time that followed, the microwave oven turned out to entail local changes whereby different family constellations determined its role. In some families, the head of the family (i.e. the father) began cooking food because the microwave oven was perceived to be more ”technical” and thus more masculine than the ordinary oven, while in other families it was primarily the woman of the house who used the microwave oven, although with less time spent on cooking, whereas in certain families the total cooking time was extended but the family’s cooking routines changed as it was easier to adapt the new technology to the specific food preferences and schedules of the various family members. This is a clear example of how local solutions and understandings can arise among end users who are sometimes radically different to the end user envisaged and intended by the designer.

Renegotiations

At the Geneva International Motor Show in 2004, Volvo launched YCC (Your Concept Car), a concept car developed by a group of women at Volvo Trucks. Cars have at all times primarily been designed by men for men. It is predominantly men who have steered the product development, and it is predominantly the needs and interests of men that have been identified. But now, Volvo’s idea was to do the opposite. A car was to be designed by women based on the needs and interests of women. The car was immediately assigned the status of a ”woman’s car”, and the design solutions were described as typically ”feminine”, despite the fact that cars that had been developed by and for men had never been gender-coded as a ”man’s car”. Even though many of the Volvo YCC’s design solutions were revolutionary for the industry, many of them were described as superficial and disparaging. One example was the headrest, which had an open groove in the middle so that a user with her hair up would be able to rest her head against the headrest, something which was crucial for safety and the prevention of whiplash injuries. Instead of highlighting the safety aspect of this solution, it was described as vain and unnecessary. Another example was the parallel parking aid, which was discussed on the basis of preconceptions that women weren’t as good as men at parallel parking, even though studies have shown that many men find parallel parking difficult. Today, almost 20 years later, half of all of the Volvo YCC’s design solutions have been applied to new models, including the parallel parking aid, which has become a standard function for many car brands. This shows how the relationship between technology, design and gender changes over time and place, and above all, perhaps, the fact that this relationship is renegotiable.

In the case of the Volvo YCC, a vision was created of what the result could be if we are

able to think in opposite ways, although design can also be used to help us see and question the prevailing status quo. One example of this is the Drill Dolphia and the Mega Hurricane Mixer, which I developed. These are two conceptual handheld machines – a drill and a mixer – that have swapped designs with each other. The aim of making this change was not to create new design ideas, but rather to draw attention to normative ways of thinking regarding gender and technology. When the prototypes were presented in various contexts, the drill was immediately gender-coded, just like the Volvo YCC, as a ”woman’s drill”, while the mixer was perceived to be neutral. One explanation for this is that, due to the design change, the drill became more norm-breaking than the mixer, as it is more accepted for a female-coded product to be designed with male aesthetics than for a male-coded product to be designed with female aesthetics. The drill was also described as ”ridiculous” and ”comical”, while the mixer was described as ”professional”, which can be explained by the fact that the male-coded product receives a lower status as a result of the design change, whereas the female-coded product is assigned a higher status due to the change. This valuation system, in which the masculine aesthetic is deemed to be superior to the feminine aesthetic, is something which, consciously or unconsciously, is used by designers as a strategy for communicating a product’s qualities. A male-coded design is deemed to be most suitable for expressing superior characteristics such as performance, durability and flexibility, while a female-coded design is associated with the less powerful, simpler and cheaper models.



Borren Dolphia och stavmixern Mega Hurricane

The change of design for the drill and mixer created a forum for discussion about the unsatisfied needs of users of both artefacts. For example, similar to the drill’s exchangeable drill bits, it was deemed desirable to be able to replace worn-out mixer blades, and also to be able to vary between different accessories for different purposes. The Drill Dolphia’s lightness and simplicity was appreciated, with the explanation that other drills available on the market are perceived to be heavy and awkward to use. As in the case of the Volvo YCC, we can now see that today’s drills and mixers offer many of the functions and characteristics expressed as desirable in

the above example. Not least, the level of interest in food and cooking has increased enormously among both men and women, which has hastened the development and increased status of kitchen products. As a result of this, the product aesthetic is becoming more and more removed from that which once characterised white goods, as the rounded design with light, shiny surfaces is replaced by a more masculine form of expression with dark surfaces and stainless details, generously decorated with buttons, controls and flashing lights.

Reversing the existing conditions is an effective way of opening the path to renegotiation, but achieving real change seems to be more difficult. However, as society changes, we are also starting to see more innovations that include more people, even regardless of gender. Examples can include anything from make-up for different tones of skin and work clothing for different body shapes to water purifiers and temporary forms of housing for people in need. These are changes that contribute to less discrimination and a better world, but they also challenge the image of what technology is and could be. Design has played a key role in these developments by making visible that which was previously invisible. Thanks to the fact that design primarily involves examining and trying to understand a problem based on the user's needs and the conditions that exist in a society, new knowledge is created as well as a greater understanding that the world can appear in many different ways and is constantly changing.

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