Statement

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STATE–MENT

Position in relation to newer technologies

Before I started my study in graphic design, I studied photography. I've always liked to capture my surroundings and I enjoyed creating and working with images. At some point during my projects I realised that designing the photography books at the end of the project fascinated me more than the photos in them. I found that I'd rather create an image, than just capture it. That's why I decided to study graphic design. I didn't really know much about it, I thought it was all about print. I saw it as a very technical and 2D craft but had no idea what it all could be. I wanted to make posters, books and logos, the things everyone thinks a graphic designer makes. Inspired by the posters of parties I used to go to, I applied to this academy.

In the first year my view completely changed. Graphic design became a bit confusing, it seemed borderless. I was exposed to different types of techniques, tools and concepts. I started to doubt if I knew the definition of graphic design. I started asking a lot of people, my classmates and teachers, but also random people in my environment. Yet no one could really explain to me what I was doing. So I decided to create my own craft.

At this point I would not consider myself a *graphic designer* as I think the term does not really apply to what I do. Or what other graphic designers do for that matter. I try to explore the boundaries of design by either mixing the analog and the digital world, or trying out new media or technologies. By doing so, I've learned new possibilities in creating a design. When working with other (or new) media you are able to let data or chance influence your work, rather then your own concept or aesthetic view. I have always been inspired by such projects, commercial, artistic or informative. I began to understand that maybe this is actually what graphic design is.

The term *graphic design* was first used by William S. Dwiggins, to define those who combined different skills. Those who used various methods to create a visual representation of ideas and messages. Making information understandable. But it's not just visual communication, it's always trying out and discovering new media, new methods to visualise those ideas. In that definition, graphic design seems more about exploring. A graphic designer might as well be a scientist. Discovering new ways to create and enjoy images.

The last biggest shift in the graphic design culture was the rise of computers. It enabled designers to instantly see the effects on a screen. Everything that once was manually executed could now be done very fast and easy. There's still some debate on whether computers enhance the creative process. The fact that it's made so easy and fast could also lead to not being able to isolate the best design or not seeing the bigger picture. But nevertheless it was a revolution. Designers then were very skeptical about it. Most of them thought it meant the end of the designer. When actually it opened up a new world with more possibilities and more jobs.

In the past ten years, the computer has thoroughly transformed the practice. The rise of new media makes people scared again. Everyone always tend to lose their minds when a new technology arises but the rise of computers didn't kill graphic design either, so won't the rise of new media. I personally rather embrace newer technologies in design, but I'll always stay wary of. History usually tells that changes in the art culture will lead to new possibilities. Only time will tell how great those changes will be.

The thing I'm a bit skeptical about is the endless range of free templates and presets for laymen to, for example, build your own website. In the last years it's made very easy for them to design something. There's a lot of tutorials, presets, open-source programs and templates, there's no creativity needed anymore. You see that people become sceptical again, can anyone design nowadays and will this be the end of the need of professional designers? I was so let down after I finished writing almost all the code for my website, spending hours on it, and then seeing the new website of a friend of mine the week after, which was made in Tumblr in not even 5

minutes. And actually looked better than mine. But then again, they'll never be able to create their own customised design.

On the other hand, you could also say that this will lead to a growing need of design of a higher quality. Because more and more people become aware of and interested in good design, clients will look for people who can exceed the sameness. Or maybe we are in a new revolution now, the second computer revolution. As some sort of reaction to this shifting design world. A revolution in which we, the designers, not only use the computer to visualise our designs. But also try to understand it, to hack it, to speak its language. We use electronics in a whole new way. This way of designing is no longer linear and 2D but flows in all directions. We use something that is not understood by the mass, maybe to save ourselves.

So, how newer technologies will influence the design culture, can have both a positive as a negative effect; either new shapes or jobs will appear, or the need for professional designers will decrease, because everyone can design. People think the future may be the end of the need of graphic designers because it's made very easy for laymen to DIY at home or give even more possibilities. I don't think the idea of the craft is realistic. Its definition, after all, is someone who combines a lot of disciplines. And those disciplines are being invented and shaped to our ideas every day.

New tools

Today, graphic design is not just associated with making posters and identities any longer. Where the computer has completely transformed the practice in the last decade, new tools have arisen these days. As I was saying in the previous chapter, we now use electronics in a whole new way. For example with Processing, an open-source programming application, we can write algorithms that can make designing easier or give us new shapes and/or methods. This can be used for easily making patterns or data visualisations for example. Or we can make dynamic identities; logos that adapt to certain circumstances or designs that change colour or shape in time. Identities that are created by data which is

not controlled by a designer, the identity of a weather company for example, can be fuelled by the ever changing weather conditions in real time. They can become more lively or personal this way. Sets of rules can form the basis of anything, from patterned textiles to data visualisations, films and lighting. Experimental typography can be created *using a logical sequence based on mathematical principles of computer code, and libraries, which are a method of extending the programming language*, as Mathew Cullen explains how Processing works. He is the co-founder of an American production company named Motion Theory and uses Processing a lot for his videos. For example a Nike One commercial where golf balls are animated like planets.

"In the hands of the right artist, Processing can be an important part of an overall look because it helps to manipulate images in very specific ways that relate to the underlying concepts," Cullen says, "We like to make sure that design is an intentional process that not only communicates a message, but the nature of the design itself echoes the communication. Processing can sometimes achieve this—and even if it doesn't, it can just help us to develop great visuals that we couldn't otherwise create."

Sound and film are disciplines already picked up by graphic designers in the past. But in the last ten years they also embrace interface and interactive design. Processing allows designers to push the boundaries of design, expanding its borders. It helps designers understand codes which eventually helps them better understand design itself as a computational process. The possibilities of generative design change the importance of the designer, we become the creator of our own tools.

Generative design is used by architects for quite some time now but is now also discovered by designers. First only to create beautiful aesthetic patterns and images but lately it's a trend to use chance or animals for your designs. Martijn Koomen for example makes porcelain in collaboration with an ant, the journey of an ant forms a unique drawing on each plate by following its path with a pencil. Visuals are generated with the data collected from the movements of insects

by Edhv. And posters are made by covering two chickens in paint and let them fight in the videoclip of Zzz. Generative design is as old as art itself. Even Mozart developed a "musical game of dice; composing waltzes with two dices without knowing music or understanding anything about composing." For this, Mozart composed 176 bars of music from which sixteen were chosen from a list using dice, which then produced a new piece when performed on a piano. John Cage did something similar, his music was produced using chance and variation.

"Through the performance process, the individual's freedom to modify the structure results in a social interaction in the group of musicians." Says Dieter Daniels, a media artist, in his 2000 publication. *"This non-hierarchic form of creativity can be compared with the 'bottom- up' structure by which an open source software such as Linux is constantly further developed by its users. In either case, it is possible to vary and re-interpret a specified code with the result that the boundary between author and user become fluid."*

Another big shift in design is the possibility of using Arduinos in your work. With the Arduino complete robots can be made. But this open-source, flexible electronics platform can also be used to add sensors to your project for all kinds of effects or for interactive poster design. Posters that react to sound or movement, or make sound or light up are not unthinkable anymore. This can also be used in marketing for targeting, for example at the bus stop, a poster can react to one's smartphone or just the presence of someone.

Even as with Microsoft's Kinect, a powerful camera used for the Xbox 360. Which can also be used as a useful tool for programmers. Within a week of its release the Kinect had become a fantastic high tech do-it-yourself tool with a life of its own. All thanks to a worldwide network of hackers and the open-source culture we're currently in. Things that were not available before are made public and accessible for everyone. The reason for this development was the need to improve the quality and speed of computer software. Today crowdsourcing is used to find the answers companies are looking for, it combines the intelligence of a broad number of people. This way, each step of the design process is examined by the public, which is not only good for development but also allows the product to be known before it hits the markets. Open-source establishes a collaboration between people from different backgrounds by combining their skills. By simply uploading a project it can be examined by thousands of people. This way you can contribute ideas and provide feedback. It connects the user to the designer and the designer to the professionals for a better platform of communication.

Tools of the trade

I started this project focussing on the incomprehensible amount of data we created. Big data is something that fascinates me a lot, yet I'm rather scared by it. The idea that we, human beings, created something that we cannot understand anymore is inconceivably. I saw a documentary once on wall street that I will never forget, it completely changed my view on our society and technology. It tells the story of the so called flash crash in 2008 on Wall Street, a financial meltdown from which markets amazingly recovered in only twenty minutes time. It investigates the relation between man and machine, how we humans wrote algorithms to replace people, how those algorithms rewrite themselves and what effects that has.

Thus, big data fascinates me a lot, I want this to be the starting point of my project and I want to explore this. Can I maybe discover new data? Do plants cary data for example? Can I detect this to make them say or do something? To determine what kind of data I'd like to collect, I immediately thought of the nature-nurture debate; *the discussion on the origin of the characteristics of an individual*.

There are several viewpoints on this topic, ranging between two extremes:
   <u>nature:</u> all the characteristics of an individual have been determined by genetics or;
   <u>nurture:</u> all the characteristics of an individual are determined by its environment.
I'm going to proof my personal viewpoint, which is: <u>nurture</u>.

Somewhere between an inanimate object and an animal exists the plant. Plants live in a space beyond our consciousness. Plants are essential for our existence, they can feel pain and communicate with each other. They adjust to changes in their environment (acclimatisation). They behave in mysterious ways, can we think of them as having a form of intelligence of their own? I remember the writings of Roman poet Ovidius I had to read in high school:

"The god of light no longer visited Clytie, nor found anything to love in her, even though love might have been an excuse for her pain, and her pain for her betrayal. She wasted away, deranged by her experience of love. Impatient of the nymphs, night and day, under the open sky, she sat dishevelled, bareheaded, on the bare earth. Without food or water, fasting, for nine days, she lived only on dew and tears, and did not stir from the ground. She only gazed at the god's aspect as he passed, and turned her face towards him. They say that her limbs clung to the soil, and that her ghastly pallor changed part of her appearance to that of a bloodless plant: but part was reddened, and a flower like a violet hid her face. She turns, always, towards the sun, though her roots hold her fast, and, altered, loves unaltered."

Clytie was a water nymph in Greek mythology that had her heart broken and stripped naked to sit on a rock for nine days without food or water. She stared into the sun and eventually transformed into a sunflower. According to folk wisdom the sunflower turns its head towards the sun. Of course this is a myth but I think it can be used as a beautiful source of inspiration.

There are actually plants that do grow into the direction of the sun. The idea of planting having senses is not something we discovered recently. Darwin was already talking about it in his book 'The power of movement in plants', he says there are not many plants that do not bend towards light. Around World War II, scientist discovered that they could manipulate when plants flowered simply by turning the lights on and off. Which proved that plants do not measure the length of day but the length of light exposure. This technique is used by farmers for example to have enough chrysanthemums for mother's day.

I've found a lot of experiments done in the last ten years that explore plants potentials. Myth busters for example, set up seven small green houses. Four of them were set up with speakers playing endlessly looping recordings. Two of negative and two of positive speech. A fifth with classical music, a sixth with heavy metal and one for control. The two with speech grew better than the control (regardless of whether it was positive or negative). The plants with classical music grew even better but the ones with heavy metal grew the best of all. And in a Duke university laboratory, they discovered that plants actually communicate with each other through vibrations. Though they are too low or high for the human ear to hear, they send root-to-root signals. They can also 'hear' a bee's buzzing to release a pollen at the right moment. Also the environment in which a plant is raised, affects how well it copes when it's transplanted into another area. You could say that they have a memory.

In Botanicus Interacticus, the people behind Disney Research created an interactive plant. It treats plants as an electrical circuit using only one single wire in the soil. It can be modeled and replicated with standard electrical components, developing new forms of organic, living interaction devices as well as organic ambient interfaces. I's also made possible to have your own controlled weather station with Garduino, an open source interface using Arduino and sensors. It waters your plants when they're thirsty, turns on supplemental lights when the sun is not out long enough or bright enough and it alerts you when temperatures are botanically uncomfortably chilly. Ivan Henriques is a Brazilian artist living in the Hague who works with plants a lot. In Organic Cinema he explores, together with various artists, how flora and fauna react to various outputs from their immediate environment. What if we could hear what plants talk about? Through visuals generated from real time data of their reaction, they give them a voice.

With our constant urge to design the world around us, we achieved to combine the impossible. Two opposites: nature and technology. The human impact can not be missed; the climate is changing, we can manipulate genetics and even control some parts of the weather. We already 3D print our Nutella and I don't think it will be long until we can print organs from living cells for organ transplantation. With inbuilt GPS systems in cars, reading maps becomes irrelevant. We are more connected to our machines then we are to each other, or nature. Millions of people need pills to fall asleep, to have sex or are kept alive artificially. Where nature used to be an unpredictable phenomenon, we tend to think we are more and more in control. We change, and nature changes with us. That does not necessarily mean we are the ones in control, but then, who is?

Our technology on the other hand, is something we used to understand but is now having a nature of its own. It's unpredictable and complex. Did nature and technology trade places? Or did they merge? Nevertheless, our relationship has changed. We tend to think technology is something invented by humans. That evolution is as far as we can go. But maybe technology was the next step in nature and we're just a part of it. Maybe nature intended it to be like this.

Biology used to be something for biologists but is now turned into a design discipline. Biotechnology allows us to grow our own foods, fuel, ink and more at home. Designs are made with bacteria and plants or other living organisms. Slime molds are used to control robots. Ants are tracked to create a pattern for a poster. Synthetic biology even created glowing plants by DNA printing a special DNA that was then inserted into a plant. This inspires hope into a more sustainable future.

Fascinated by the idea of plants having senses, of them knowing what's going on around them and even adapting to that, I want to see how a plant reacts to its environment and give it the opportunity to communicate this. Looking at synthetic biology, plants become custom made organisms to which all sorts of characteristics can be added. I want to give plants extra senses to be able to digitalise their findings. I looked at two contradicting places that were of importance for me. One very quiet, the other extremely loud. I wanted to see how the plants I found there react to their environment. Therefore I recorded the sound of these places and played them to the plants, which I gave sensors to see how it experiences these sounds. These values become the input and source of my design. These plants draw what they experience.

Sources are coming