VALUE BASED ORGANIZATION FOR DESIGN AND DEVELOPMENT EXPERIENCE THROUGH OPEN SOURCE PLATFORM

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT
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ABSTRACT

This thesis book describes the development of a value based organization for design and development experience through an open source platform. As regards aspects of education, profession, ways to connect and digital technologies, research related to these 4 fields indicates the current situation and demand. The objective is to explore whether there is a possibility to create an optimized environment for designers, to generate fresh and innovative ideas for graphic- and product designs and show them how those ideas can become reality.

The research findings are crafted into an online platform. This tool should improve the designer's skills, provide work according to their interests, create exposure, build a network with people that have shared interests for design and provide rewards in terms of

money. A business model demonstrates the way to implement this management tool in a design company. The prototype creates the possibility to validate the findings.

Results and growing interest from designers as well as companies proves that the online platform meets the current demand for a creative environment to generate ideas. However, the platform has several directions to improve, which would mainly enhance the valuable aspects for the designers.

Keywords : value based organization / design experience / development experience / open source platform

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CHAPTER 1 INTRODUCTION

J.K. Rowling [1]: We are only as strong as we are united, as weak as we are divided.

1.1 A real answer on demand

Modern technologies have a big impact on our life. However, many of those changes are, as Henry Ford would say, comparable to ‘‘inventing a faster horse’’.[1] It is worth thinking about how it would be to have an organization that let designers improve their skills, carry out work according to their interests (anytime at any place), create exposure, build up a network and gain money at the same time.

1.2 Development

Changes in the way that people develop skills are explored through a literature review. The important aspects for the future are described in the literature review as well to create a complete overview of this development. A closer look at the ideas of design students and young professionals shows their capabilities for fresh and innovative idea generation. Those ideas are based on the latest trends and technologies since they have just graduated. Moreover, not working for many years in a company can help enhance their possibilities to discover ideas in a very conceptual way without any restriction. To explore the current situation of education, interviews were held with design teachers as well as a survey completed by design students.

1.3 Performance

The literature review also indicates how people can be motivated, what result can be expected when they are given responsibility and what the impact is of a proper work

Source: [1] My customers would have asked for a faster horse, Henri Ford

location. These aspects refer to tasks that people daily fulfill during their job. An experiment was set up to figure this out for current designers. The research contained design projects from real design companies. By analyzing the way of working and asking the participating designers how they liked the process, it was possible to make an overview of aspects that people today find important regarding their job.

1.4 Communication

The right methods to communicate values were explored in the literature review to investigate how people get interested in an organization. By implementing these values into a presentation, it is possible to inform people about the existence of the organization. Therefore was reviewed how this presentation should be built up and how the content could engage the target group. The details of the presentation and how presented knowledge should be communicated became clearer through the presentation set up.

1.5 Information technology

The development of software and its broaden way for implementation have been sorted out in the literature review to summarize the most important options. Also the effects of open source, crowd source and web based collaborations are indicated to see how the organization can make optimal use of digital technologies. Through an online research is then explored in which way information is currently gathered with the objective to find the optimized solution regarding communication for the organization.

1.6 Problem statement

The literature review indicates changes in the development of skills and values of daily work. Also the way to communicate a message that engages people, clearly defined to distribute the information, is by different online channels explored. Current situations are indicated through the research methodologies. All information is gathered to provide a solution for the following problem statement:

With the current possibilities and demand, we need organizations that provide work according to the personal interests of designers so that they can develop experience, feel engaged in their companies, work independently from time and place, have the possibility to establish an international network and gain money.

1.7 Prototype

The organization structure was set up to get an overview of the stakeholders and the process flow. Afterwards the prototype of an online solution was created in cooperation with professional web developers. The prototype links all stakeholders to the organization. Together with product design students from all over the world, the prototype was rolled out in a test pilot. This process and the findings are described to validate the prototype and describe the improvements for the next iteration.

1.8 Summary

The establishment of a global organization is described in this thesis. During the literature review related factors are explored in detail to find out what the expectations of future organizations in design are. In the next stage this information would further be supported through different research methods and lead to the requirements and specifications of the

new organization. Based on the structure of the new organization, a prototype was created and validated after the tests. The validation of the prototype was made to make sure that improved solutions could be implemented in the future.

CHAPTER 2 LITERATURE REVIEW

T. Robbins [2]: It is not what we get. But who we become, what we contribute... that gives meaning to our lives.

2.1 Four Factors

The main objective is to establish an organization that not only contributes to the development of people's skills, but also enhances the results by providing the right work environment. Therefore the organization needs to communicate their mission in a way that convinces people to join on a global scale, bringing design and development experience together from all over the world. This means that the organization is a mixture of four different factors. The factor that relates to the development of skills is education. The factor profession is about creating an environment that motivates and stimulates people to work. The factor related to engagement that makes people eager to join the new organization is connection. To bring all those competences together and work remotely, the last factor is digital innovation.

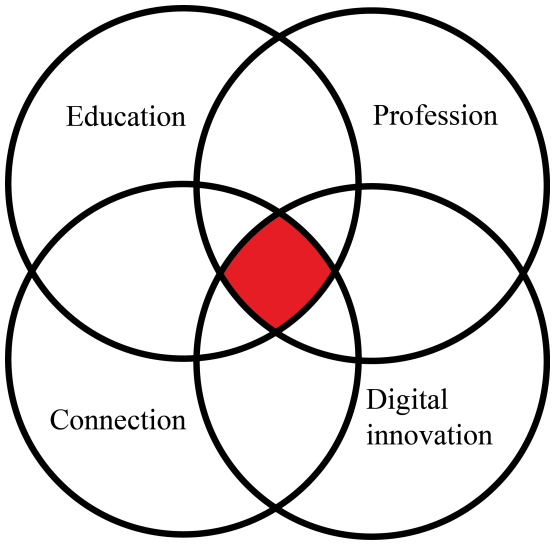

Figure 2.1 Four factors

2.2 Education

The way that people learn skills is changed due to different factors. The next section indicates those changes, but describes also difficulties for design students to get practical experiences and ways to keep them motivated about their education.

2.2.1 Evolution of knowledge sharing

In the past people individually learned certain techniques and skills. This developed in a latter stage to groups who followed courses by a lecturer. This kind of knowledge sharing has its restrictions, because learners never get more knowledge than the person who provides the knowledge (when they use that person as a only source). This is why Internet has become so important. Today people are connected to a gigantic network and information is everywhere available. In this way it is possible to develop according to any interest or talent.[2]

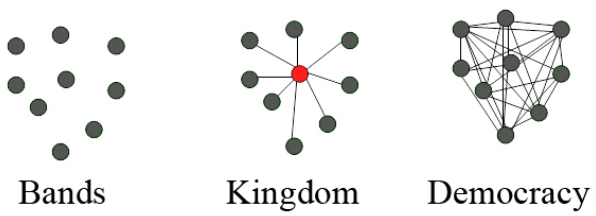

Figure 2.2 Change of knowledge sharing

Source: [2] Opportunities Keynote: A Call for Culture Innovation by Jef Staes, 2012

2.2.2 Build the future

In the coming years we need more people who are specialized in science, technology, engineering and mathematics because of the highly increasing digital innovations like software and hardware. It is important that these people have a good background since they are enablers of a successful economy. Also, cooperation with companies is potentially possible by giving students a practical learning experience.[3]

A closer look at the product development business shows a very big challenge for specifically design students. According to The Manufacturers Alliance for Productivity and Innovation (MAPI) [3], the world's fifteen largest countries for manufacturing are China, United States, Japan, Germany, Italy, Korea, Brazil, Russia, France, India, United Kingdom, Mexico, Indonesia, Spain and Canada. Twelve out of the fifteen countries do not use English as the native language. This makes it very difficult for students and young professionals (who do not speak the main language of the country) to get contact with the factories in that country. For most of the students this would be a major advantage, because of the leading role, which these countries have in production. Students can learn how to adapt their products to the production possibilities in the factories, where their designs most likely get produced. In this way they get a real overview about the whole process, from idea to finished product instead of only creating the product design. It can be said that they are the people with the ability to develop, engineer and produce products on which we rely in our daily life, to make their importance very tangible.

Source: [3] Industry must do its part to educate the workforce of the future, 2011

2.2.3 Create experience

The concept to bring students in contact with companies through internships and involve them in real projects, gives a practical working experience. During these projects the industry expects more than just a solution and relies on the students' abilities to create meaning for designs. In exchange they will provide feedback from a technical point of view. This is a valuable collaboration with professionals of different expertise, which creates a real life experience.[4] Moreover it will also create an important career reference. These days it can be seen that organizations are aware of certain relationships and their value. Examples of this are 2Shanghai and PDC. The goal of the agency 2Shanghai is to bring students from Europe through internships in connection with Chinese companies. The people from PDC (Product Design & Trade promotion center) provide support for booths for instance at the Canton fair in Guangzhou. Via matchmaking they try to set up connections between Chinese manufacturers and young professionals.

2.3 Profession

People's working life is changing significantly. The following information indicates chances to manage employees according to the latest trends.

2.3.1 Work without work

J. Ive – [4]: I discovered at an early age that all I've ever wanted to do is design.

Talented people, who know what their skills are, are aware what they personally want to develop. Projects require a tremendous variety of skills to reach the goals in a successful way. Therefore it is important to bring certain competences together and create a track that is adapted to the interests from people in a company. This is the most important factor for

Source: [4] Bridging the gap between academics and industry, 2010

motivated employees to work, because then they can learn, improve their skills and develop to a higher level with new chances to grow further in their expertise. When people can carry out jobs matching to their interests, they will be motivated with maximal effort. A well-known saying for people who are working at the moment is that they want to do what they like when they are retired.[2] At that moment people are too late. As a young person one can have the possibility to develop. The achieved success will be his or her pride and can create recognition to grow further.

2.3.2 Responsibility

Another way to create motivation is responsibility. When all related people of a project are closely involved, by making them responsible, they are more motivated. Learning and training from the feedback of employees help companies gain benefits from increased productivity and improvements in terms of the quality of employee's working lives. The ultimate situation is of course when the employee is responsible for his or her own task and gets rewarded according to the results. In this way the reward adapts to the success, which will always motivate the employee to achieve the best result. Besides learning and developing by oneself, it is also possible to learn from other people. This requires the right environment to communicate and interact.[5]

2.3.3 Working remotely

Working from home is becoming more popular. The amount of people that works not only from their desk in the office but also at home has doubled over the past 30 years from 2.3% in 1980 to 4.3% in 2010.[6]

Source: [2] Opportunities Keynote: A call for culture innovation, Jef Staes, 2012
Source: [5] Supporting workplace learning for high performance working, 2002
Source: [6] Does working from home work? Evidence from a Chinese experiment, 2013

Especially people who are involved in decision-making are staying home to do certain tasks, which is an advantage for the company and the employee. In this way employees can put their efforts in daily work instead of daily commuting, which saves time and money. Moreover it creates a better work-life balance. When the organization tries to reward people based on their results, employees will be more focused on the tasks instead of the working time. It is also more environmentally friendly because it reduces the footprint. Organizations try to promote their employees more often to consider this opportunity, in particular employees who need to fulfill certain tasks without a strict time limit. For instance designers because they carry out their tasks already in a way with great latitude.[7] In the creative field a big part of the result is based on subjective decisions. Moreover it takes a non-definable amount of time to create the right solution.

2.4 Connection

Since there are a lot of different organizations that work in a remote way, it is important to distinguish. Being different as an organization is the first step, but it should be also very well communicated to engage people.

2.4.1 Value

Through the uniqueness of an organization, it is possible to avoid high competition. It is important to communicate these unique values, which can result in bigger margins, more interesting work and exclusive results. Values can be created when skills are applied for cases that vary in different situations. This is for instance when an organization will focus on analyzing, organizing, creating and influence because these four activities are unique in every case.[8]

Source: [7] Opportunities to work at home in the context of work-life balance, 2002
Source: [8] Onbeperkt houdbaar, Jeroen Busscher, 2012

2.4.2 Authentic presentation

Presentations are effective to create awareness for the organization. To be open, connect, talk passionately and listen to the audience are aspects that a speaker can practice and prepare. By having the right attitude in front of the audience, the presentation will come through naturally. Playing with the speed and volume can enhance this as well to result in a better connection with the audience. Also the amount of passion that a speaker has for the subject will enhance the connection. When the speaker gives the impression to believe in a concept, the audience will notice that. The last aspect of connecting is the way to listen to the audience. When people enter the presentation room they will have a certain feeling about the subject. The presentation can be adapted according to this feeling during the presentation. Moreover the speaker can ask questions to the audience, which will enhance them to think about the subjects by themselves instead of only receiving the information.[9]

2.4.3 Future visualization

In many cases it can be seen that successful designers start from the workplace. Work experience visualizes why people study, creates a higher rate of employment and the possibility to have a higher income. There are reasons that can motivate students, because they visualize their future.[10] Unfortunately it is still very difficult to create this practical experience. Below are the causes of each continent described for these difficulties.

In Europe, there seems to be a gap between high scientific performance on the one hand and industrial competitiveness on the other hand. This gap is known as the “European paradox".

Source: [9] How to become an authentic speaker, 2008
Source: [10] Transforming work experience in higher education, 2000

The evidence from the Community Innovation Survey in the EU shows that only 10% of the innovative firms have cooperative agreements with universities and using science, i.e. universities and public research labs, as an important information source in their innovation projects.[11]

Managing industry collaboration is the way to involve companies during a study at universities in America. Organizations like the Science Business Innovation Board is aware of the importance for students to get practical experience, but most of the teachers have no idea what is going on in the business world and have an academic focus. This is because they are judged by publications and it is difficult to publish while they are working on these business collaborations.[12]

Most of the countries in Asia had not been involved in global cooperation, until three decades ago. This was because of undeveloped economies and regimes that refused global activities. However over the last twenty years, Asian governments increased the attention to build relationships between universities and the industry. Compared to Europe and America there is still a long way to go, but the amount of patents from universities in cooperation with the industry is increasing.[13]

2.5 Digital innovation

A big effect on education, profession as well as connecting is the fast development of digital innovation. Companies have implemented systems to work more effectively, but it goes even further when certain tasks are outsourced via open innovation. In the next

Source: [11] R&D cooperation between firms and universities, 2004
Source: [12] Making industry-university partnerships work, 2012
Source: [13] Technology transfer, intellectual property and effective university industry, 2005

section these possibilities will be described.

2.5.1 Software as an engine

Computers and mobile phones are fully integrated in our daily life and these technologies are still improving. Especially on software level there is a fast improvement. The advanced technologies have leveled the global playing fields and made the world 'flat'.[14] Everyone is connected all over the world.

A decade ago, mobile devices and wireless networks made a big change. Normally applications were bound to the desktop, but today everything is mobile. This makes it possible to work everywhere at any time.

Deloitte [5] describes the improvement in three steps. The first is business process management software tools for designing, orchestrating and monitoring business processes among applications and users. A development company can use software in this way to receive an order, produce the product and directly transport it to the right destination. The second is business rule management that defines, maintains and executes business rules in a separate system, called business application. This means for product development companies that they not only produce the product, but also have the possibility to take variables into account such as changing material prices and discounts. The last is complex event processing that combines data about events into higher levels that trigger real-time actions and decisions. This is a way to let software support complete processes in an organization to produce, add variables and work on the complete design process.

Source: [14] Hot, flat and crowded, 2008

2.5.2 Open source

In the last few years open source has become an important method to share information and collaborate online. Open source allows companies to work remotely with an unlimited amount of people at the same time. The participants have the freedom to use, study, modify and distribute information over the Internet.[15]

Because of its global base through Internet, a platform like this can expand very quickly. One reason according to the Internet world stats [6] is that ‘‘an estimated 444.8% growth in Internet usage across the globe, with 141.6% in the United States only’’.

Doyle, Frode, Siant John, Devon and the Pennsylvania State University et al [7], described the future of open source, ‘‘Bottom up innovation and production: Innovation may not come only from ‘‘A’’ students, but also from ‘‘F’’ students like Linus Torvalds.’’ This suggests the very least that undergraduate students can be an important recourse during the idea generation phase.

The open source method of sharing information has advantages for the company as well as the participants. The main reason for that is the flow of the information, which is in both directions. Participants share their knowledge, but learn also from others and anticipate on feedback that they receive.

Source: [15] Crowd source is not open source, 2010

2.5.3 Crowd source

Another way to share information and collaborate via the internet is the crowdsourcing method. With crowdsourcing it is possible to outsource a function to a network of people, which was done before by regular employees. The success is based on a large amount of people that offer a small part of their free time to complete a certain task. Speed, reach, anonymity, and the opportunity to join at a self decided moment make it very interesting for people to participate. The reason that it is applied by many companies comes from the fact that this way of gathering information can be applied for many different media content.[16]

Compared to open source, this is the direction of different information. The initiator of a crowd source track has basically all the benefits. Most of the time the participants do not even get compensated, while a open source track is rewarded (as earlier described) by the four aspects; freedom to use, study, modify and distribution of information over the internet.[15]

2.5.4 Other web based collaborations

Another way to make use of the crowd is called crowd funding. The main purpose of this collaboration is to raise funding for a certain project. Because of the help from many different people (the crowd), the investments are significant lower. Rewards for investors can be experience or recognition related, an interest rate or profit/revenue share.[17]

Source: [16] Crowdsourcing, a model for leveraging communities, 2011
Source: [15] Crowd source is not open source, 2010
Source: [17] An introduction to crowd funding, 2012

When many people like to do a small investment, it gives directly an indication regarding the interest for a certain product. This can also be achieved via a community. A community is a group of people who can be connected via an online system. The group is connected because of their shared interests about a certain topic.[18]

2.6 The hypothesis

The amount of information created and also replicated doubled in the last 5 years 9 times.[19] The world is changing in such a fast speed that numerous possibilities are emerging daily in every sector. By approaching these possibilities and opportunities from the perspective of designers, the hypothesis can be formulated in the following way:

If students and young professionals would be involved during design projects from real companies then they would get a valuable experience by seeing how their idea becomes reality.

2.7 Summary

Sharing knowledge is already very popular and will develop further in the future. Easy ways to travel around the world as well as the improvement of modern technologies are enhancing the spread knowledge.

For designers it is important to get practical experiences. To see how a product becomes reality, they have to connect with manufacturing companies. Since the production of designs is handled mainly in countries where the native language is not English, there is a big challenge for students because it is difficult to get connected to the factories.

Source: [18] Design for network communities, 1997
Source: [19] Extracting value from chaos, 2011

Fortunately some companies have based their business on establishing these connections, which shows again how popular and important these relationships are.

The value of work from current employees is changing towards more interests in developing skills rather than making only money. Another change is the demand for a flexible work environment and time frames.

Therefore projects should be provided according to people's interests, with a learning aspect and availability anywhere at any time. Crafting this information into the unique organization is the first step, but more importantly people within the organization must clearly understand and communicate the value of their work.

Also a visualization of the future by implementing gathered information in real projects seems to be difficult. In Europe a very small percentage of this knowledge is used in real companies. For America the problems are caused by the expectations of universities, which do not relate to any business aspects. Asia has its barriers because of political reasons, but fortunately all continents are working on the improvement of this situation.

Development in terms of technology is rising quickly. While software started as a support for the business, these days specific functions can be fulfilled with online possibilities.
Still, none of these online possibilities is able to provide work according to the interest of students and young professionals so that they can gain experience and create a network for their future.

CHAPTER 3 RESEARCH METHODOLOGY

Casey Stengel [8]: Gettin' good players is easy. Gettin' 'em to play together is the hard part.

3.1 Interviews

The way that people get educated is evolving. In the past people learned each technique individually. This changed later into group courses from a lecturer. Today people are connected to one big network. Interviews (appendix 1) were held to ask teachers about their opinion of the current education at universities in Europe, America and Asia. In total 7 teachers joined. All of them have experiences in educating students about different aspects of design.

The interview was built up in a way to enhance the conversation. Goal was not to ask questions and receive an answer, but to find out the real opinion of these teachers. Therefore it started with a short introduction. The first three questions focused on the interviewees by asking their name, study background as well as occupation and organization where they worked or had been working for. The teachers all had a background in design, but with various majors like fine art, industrial design, graphic design, architecture, design management and mechanical design. The courses that they provided were in industrial design, product design, architecture and mechanical engineering.

3.1.1 Changes in education

It is highly valuable that today's education provides practical experiences for students. The importance of their education becomes clearer in this way and those experiences are as

close as possible to the real business world. Therefore, the first question focused on differences between the teachers' own education and ways that students get educated today. This explained how education has been changed in the last few years. The next question tried to indicate the influence of new technologies in education, by asking what the biggest advantage of those technologies is. To get an idea how teachers currently inspire their students was asked in which way teachers motivate their students to work on assignments and engage them with the information.

Every teacher mentioned that technologies were tremendously improved. This has changed the focus from handcraft skills to the importance for skills in digital technologies. Since software and hardware are available greatly, students are required to have knowledge of many different programs. Every teacher also described that there were more companies involved in projects at the universities. The European teachers added that it led to more exposure for students when a company used their knowledge. Moreover, it has become clear that the trend of design thinking, which means problem solving through creative solutions, is very important in the western countries. The biggest advantage of the new technologies is the decentralization of information. This means information is easy to access, more widespread and more diversified. To motivate and engage students, teachers must be aware of changes in their role. They all said that the classroom was completely dissolved. As a teacher, he or she has to coach students. They will come with the information and the teacher has to help them with the development of their ideas. Furthermore they all described collaboration as one of the most important factors to motivate students. The teachers in Europe and America even let their courses depend on the students. They achieved this by adapting the content to the interests of the students.

Findings:

- Technologies are improved, which lead to decentralization of information.
- Students need broader knowledge, since the use of different kind of software and hardware is required.
- More companies are involved in the university projects.
- Design goes towards problem solving cases, which today is named design thinking.
- The role of the teacher is changed to a coach for students who need guidance and information according to their project.
- Collaboration is a very important factor; the majority of students have on one specialization.

3.1.2 Development for profession

With the focus on development is asked what happens with the result of assignments. In this way is tried to indicate the amount of work from students that became reality through cooperation with real companies. For design students it is valuable to exhibit work besides receiving credits, to show their capabilities. Another way to show capabilities and be distinguished as a designer is developing particular skills in which they are highly interested. Therefore, the next question is whether universities provide any additional possibility to develop specific skills for students.

Although every university focuses on collaboration with companies, there is a big difference in terms of the way that these companies use the results. Students present their final work to the companies where the assignment comes from. The companies in Asia barely use the outcome. At most they use the work from students as inspiration to create

new products. Meanwhile companies in Europe really try to implement the work, if the right quality is reached. In America there are teachers who set up an on-campus design studio to let students and companies work together. In most universities, students get the possibility to display the results and record it for their future or publish it as an article. Offering not only elective courses, but also events (music, scientific symposia, etc.) makes it possible for students at all universities to develop certain skills. This they do either by offering elective courses or reserving space in their curriculum, which makes it possible for students to follow a minor that focuses on a specific subject.

Findings:

- Results of projects in the university are barely used by Asian companies (only as inspiration), in Europe they try to implement the work and in America there are on-campus design studios to bring students and companies together for cooperation.
- Students get in most universities the opportunity to display their results, which gives exposure and the possibility to talk about their work.
- Elective courses, minors and events are in every university available and make it possible for students to develop in specific skills.

3.1.3 Connection with real businesses

Through internship periods, students get the possibility to join a company for a certain period and increase their practical experience. To investigate the value of internships, teachers are asked what their opinion is about this period. All those experiences need to be properly communicated during the application of a job, to connect with potential work providers. Therefore in the next question is asked whether universities also provide courses

that prepare them for job applications.

All interviewed teachers think that an internship can be highly valuable, but only when a company deeply involves their intern. If they get design work, it often happens that there is no time for any research. In this way students are only allowed to do styling work. In Europe there are countries where a long-term internship is compulsory to get a degree. Teachers there see the internship as a possibility to discover students' interests, build a network and work towards the future. American universities firstly build the connection with the companies and afterwards introduce their students. In this way the students must be ensured that the company matches the objectives of their study. Every university is somehow training their students for application interviews. Some universities have a communication professional and provide special courses. Other universities work on office management or teach their students how to speak about their work.

Findings:

- Teachers at every university see the internship period as highly valuable, but the difference is that Asian students do not always get design related assignments, while in Europe this period is sometimes compulsory and in America the university firstly get contact with the companies and afterwards involve their students.
- Every university provides courses to prepare for job interviews. Although the courses are different, the goal is always to help connecting to companies.

3.1.4 Improvement by digital technologies

The last question of the interview is based on digital technologies. These technologies are providing a lot of possibilities to inspire, share and collaborate. Therefore the question is how education can be improved with help of new digital technologies.

Teachers bring their courses differently and more open, compared to a few decades ago. It is already mentioned that classrooms in general are almost gone. Students only visit the university for feedback and work remotely, especially with tools like Facebook where everybody is up to date about the latest course information. According to the teachers in Europe, education is more remotely as well. They record courses and make them available for their students online. It would be very interesting for teachers to share digital courses and get an idea how cases get solved on the other side of the world. American universities foresee big problems regarding tuition fees and try to solve this with digital technologies. They suggest that some design studios can be supplemented with classes that are only as digital version available.

Findings:

- Digital technologies can improve education according to teachers of every continent, the difference is that Asian students learn to work more remotely, while European want to exchange knowledge and American try to set up complete digital courses to reduce the tuition fees.

3.2 Surveys

A survey (appendix 2) was conducted among students in Europe, America and Asia. The general objective is to gauge the opinion of these students that are currently studying in the design field. With this information, a new organization is able to distinguish themselves according to the opinion of current students, by responding on the shortages in education. All students who participated in the survey were active in the design field. To get a detailed overview of those students, they were firstly asked where they study and what their age is. By asking the field and level of study is tried to get more details about their current education.

The 294 participants who joined this survey were divided into 3 groups: 99 students from Europe, 99 from Asia and 96 from America. Their average age was between 18 and 23 year. Most (69%) is studying product design, but people who study graphic design (13%), engineering (5%) and other majors in the design field (13%) participated as well. More than half of the students were doing a bachelor study (85%) and 13% followed a vocational education.

3.2.1 Quality of education

To get an idea about the quality of the courses is asked whether the university provides enough content for the students' intended career. Moreover is the amount of compulsory courses explored to see if universities base the curriculum on the interests of students. If they can (partly) compose their own curriculum, the university is aware of the importance to motivate the students by focusing on their personal interests. Motivation and inspiration

can emerge as well by collaboration with fellow students. Therefore, students were asked if they have group assignments and how they like that.

In total 68% of the students confirmed that the universities provided enough information. 53% of the students indicated that the content was fine and 15% defined it really good. Unfortunately 32% (94 students) described the content average. Out of 94 students, 45 were from Europe, which were half of the amount. Furthermore, 22% of the unsatisfied students were from Asia and 30% from America. 81% of the students could choose electives in their program, which motivates them. The majority of the people who were not allowed to choose electives came from Europe (70%). Another positive aspect is that 97% did assignments in groups and 65% liked this. 22% were fairly satisfied to group collaboration and 11% did not like it at all. The group that was enthusiastic about collaborative working (33%) could be equally divided over the 3 continents.

Findings:

- Only 68% of the students were satisfied about the content of courses and the majority of the unsatisfied students came from Europe (48%).
- 81% of the students could choose electives. The majority of students that were not allowed to choose electives came from Europe (70%).
- 97% of the students were working in groups.
- In total 33% were not satisfied about collaborative working and this percentage of unsatisfied students was equally divided over all continents.

3.2.2 Preparation for profession

Visualizing the future is important for current students to show possibilities for their career. Therefore, the question is if the universities can work with outside parties and whether students like this or not. Another question, which is related to collaboration with these parties, is whether these projects enhance their motivation. The last question, with the focus on profession, is whether students have a job besides their study and if this is related to their major (to gather experience through their the job as well).

Out of all students, 76% had projects where third parties were involved. The majority of universities that did not involve third parties during school projects located in Asia (89%). From the amount of universities that involved third parties, 46% of the students were fairly satisfied about these projects. The majority of those students were as well located in Asia (93%). In total only 44% were really eager to work on projects with third parties. A positive aspect of projects with third parties is that 76% of the students became more motivated. Students that did not get motivated through those projects were equally divided over the 3 continents. The question, which referred to the job of students, showed that most of them worked besides their study (65%). From the 65%, only 15% had a job related to their major. The majority of this 15% came from America (87%).

Findings:

- 76% of the universities involved third parties for projects. Out of the universities that not involved third parties, 89% were located in Asia.

- Only 46% of the students were satisfied about this collaboration and also the majority of unsatisfied students were located in Asia (93%).
- 76% of the students became more motivated from projects where third parties were involved. The students that did not get more motivated were equally divided over the 3 continents.
- 65% of the students worked besides their study and the 15% had a job related to their major. The majority of these people were American (87%)

3.2.3 Business connection for future career

By indicating the status of the students' portfolio, the question whether they record their work and prepare for job applications is explored. How the students plan their future is sorted out by asking what they would do when their current study is finished. Whether students think that it would be difficult to finally get a job is explored by the last question. This is to get an idea about their confidence for the future, based on what students have achieved so far.

Answers on the question about the status of students' portfolio were diverse. Only 15% had an up-to-date portfolio. The majority of this 15% came from Europe (60%). Other students did not have an up-to-date portfolio (31%); some were developing one (28%); some did not even have a portfolio (27%). This information is surprising, since all the students were having an education related to design and 55% wanted to get a job in the related field of their major. Out of 55% the majority came from America (70%). Furthermore 36% of the students wanted to continue with studying in a related field of their current major. This percentage was equally divided over to the 3 continents. Another interesting result is that 50% of the students expected that it would be difficult to get a job in the field of their

study. This group was mainly from America (72%). 39% was doubtful of the difficulty and only 10% expected that it would be easy.

Findings:

- Only 15% had an up-to-date portfolio (60% of this group were from Europe), other students did not have an up-to-date portfolio (31%), while some were developing one (28%) or did not have a portfolio at all (27%).
- 55% of the students wanted to find a job after their current study, related to their major and 70% of these students came from America.
- 36% wanted to continue with a study related to their current major and this group was equally divided over the 3 continents.
- 50% of the students expected that it would be difficult to get a job and the majority of those students (72%) came from America as well.

3.3 Experiment on remotely working

Working remotely is one of the factors that can enhance the workflow. More and more companies today promote working remotely. This means that employees get stimulated to work a few days per week from home or join meetings via online videoconferences. By doing an experiment with designers at different places in the world on real customer-based projects, was tried to gather insight information about responsibilities and motivation.

3.3.1 Experiment set up

This whole experiment started with finding a suitable design project that could be repeated in a similar way to compare results equally. Therefore, different companies were

approached. The advantage for the companies is that designers from different locations in the world would create graphic designs in exchange for a small compensation. For the designers it would be a nice experience to see their design on the market. Eventually, one big European company placed the order of 10 graphic designs on different garments. They planned to produce them in Bangladesh and sell the goods in Germany.

Since the designs would be created from different locations, it was necessary to have an online shared folder where the designers could save their work. This shared folder was set up in a way that every designer should save his or her in the same way. Client brief, design development and final result were separated to avoid confusion. An inspiration folder was made as well to let designers share images and interesting websites among each other.
Although different people worked on these jobs, the outcome needed to have the same style. Therefore, formats of the garments were provided, so that the designer could concentrate on the graphic design for the prints.

3.3.2 Preparation designers

The next step was to find suitable graphic designers who wanted to participate in these projects. Therefore an application round was set up and graphic designers showed their skills. Finally three people got selected for the realization of the graphic designs and were prepared via a short meeting to explain the working way.

During the meeting, the participants were shown where they could find the brief, what the expectations of the client were, how the design needed to be delivered and how the work should be saved. The briefing was always composed by the company and contained for

instance the style, target group, season and preferred colors.

3.3.3 Graphic design creation

When the company sent the orders, every designer only needed to get notified via email. All the information was saved on the shared folder, so that they directly could start to work out different ideas. Mutually the designers could share images and websites. The results were collected in the shared folder to keep track on the designs and to make sure that the outcome agreed with the requirements of the company.

The final results were sent to the client. Internally, they had a meeting for the final idea selection. Sometimes the designs needed to be slightly revised, but in the end all the designs were confirmed and finally produced (appendix 3).

The designers liked to work on the projects, because the work was according to their interests. Some even called it ‘‘work that relaxes.’’ They only needed to concentrate on the design because formats and folders were prepared in advance. In this way there emerged a working environment where people worked according to their interests and had the possibility to design it anywhere at any moment of the day.

The company, which placed the orders, was very satisfied because the flexibility in terms of time was high and work got improved until they gave their confirmation. Besides, the flexible way in which this project was fulfilled, it contributed to the exposure of the designers. They received, after the project production, samples with the designs that they have been made.

3.4 Presentation approach

To involve a big amount of students and young professionals in design projects from real companies, these people needed to be aware of the organization. Therefore, presentations were created and held for students at different universities. The goal of the presentations was to make as many students as possible eager to join different design cases. Feedback and questions about the presentation gave valuable information for the establishment of the new organization. When potential designers clearly understood how difficult it was to make an idea reality, they would understand the value of the organization. This increases the chance that they would participate in a design project. Therefore, the presentation sequence was based on the golden circle theory of Simon Sinek.

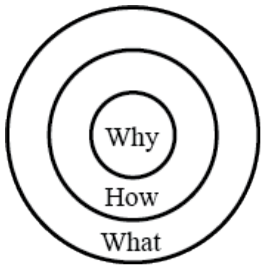

Figure 3.1 The golden circle

3.4.1 Why designers would join the organization

In his book, Start with why, it is described that people always want to know why an organization exists. This is important because it explains the motivation of people who work there and can show how the organization distinguishes from its competitors.[20] The goal during the case studies was to provide students and young professionals a real practical experience by showing them how an idea got crafted into a marketable product. It

Source: [20] Start with why, Simon Sinek

was important to clearly define why this gave a valuable experience and why this enhanced their current knowledge.

The presentations were held at 8 different universities in Asia and Europe (appendix 4) and proposed the opportunity to get design and development experience by joining design projects from real companies. Normally as a product designer, a task ends when the design is finished. This is not only for a project at the university, but also in a real business environment. Therefore, the organization would share the complete development track, which showed all the development steps after the design phase was finished. Another valuable aspect was publicity. At that moment there were a lot of great designers, but very often they did not have the possibility to get their name out. The organization wanted to make sure that the designer (who created the idea) would get exposure by showing their contributions for instance online and in different design related magazines. If it fitted to the marketing concept of the company that sells the product, the designer would be mentioned on the packaging of the product as well.

3.4.2 How designers could join the organization

The next part of the presentation explained the way of working to elaborate design projects. Therefore it was important to introduce every stakeholder in combination with its capabilities and objectives. By using examples, designers recognized how they could participate and how their work would be implemented.

The projects always came from a company interested in fresh and innovative designs. Based on their requirements, the brief would be set up. In this way it came clear for the designers what the projects were in which they could participate. After they created their

ideas, it was possible to ask other designers for their opinion. This brought the idea to an even higher level and enhanced the relationship between designers with a shared passion. When the deadline was reached, the organization would pitch the ideas to the company that launched the project. The ideas that the company selected would be crafted into producible product designs by a professional development team.

3.4.3 What designers can expect from the organization

The last part of the presentation was about what the organization exactly offered. It is important is to carry out this message in a consistent way. Consistence means that everyone recognizes where the organization stands for. The potential designers should understand, after this part of the presentation, what the reward would be and what the final deliverables were (when they participated in a design project).

This part was presented with references to the products, which the organization tried to realize. All the product designs should have certain uniqueness. This would make sure that the result was distinguished from competitors and enhanced success on the market. More and more product realization companies were aware of these benefits, compared to just copying products. When a product was copied, it needed to be produced as cheap as possible. This resulted in a price war and did not distinguish the business. Those kinds of situations were what the organization should try to avoid.

After every presentation there was the possibility for the audience to ask questions. Some questions were repetitively asked after almost every presentation. These questions are listed below:

1. What is the difference between this organization and other organizations that gather ideas and try to bring those ideas to the market?
2. Where are the design projects coming from?
3. Will I be involved when my design is selected for further development?
4. If I share my idea with the organization, who is then the owner?

It was important to cover these questions during the development track. This created trust and loyalty, which in the end would lead to a better growth regarding the number of designers for future projects. With the number of designers that became interested in the organization after this round of presentations, three case studies were carried out.

3.5 Product design case studies

Three case studies were prepared to indicate what the organization could expect in terms of results from students and young professionals. The first case study was based on a design project with 9 third year bachelor students from King Mongkut's University of Technology Thonburi in Bangkok (Thailand). The complete project was integrated in their curriculum. The second case study was a design project where 6 design students from the Technical University in Eindhoven (the Netherlands) got the choice to join the project that was rewarded with credits for their study. In the last case students were free to join the design project, which was not related to their study at all. This resulted in 7 designers who created different ideas.

3.5.1 Project sequence

All the projects were focused on a result in terms of product ideas. The project brief contained background information, actual task, deliverable, research, target group, target market, motivation, requirements and limitations. Students who joined the assignment had to hand in their ideas according to the project brief. After the deadline, one idea would be selected for further development, which was done by a professional development team. In this way the students and young professionals could see how an idea was crafted into a product and parts were engineered according to manufacturing technologies. The designer of the selected idea would receive during the development track a prototype and production sample as well as a cash reward.

3.5.2 Project in the university

Since this project was integrated in the curriculum, there was every week a possibility to provide information and reflect the results. The first two courses started with defining the target group. Afterwards the students created different ideas. From all the ideas that the students had created, they did a down selection to choose their best idea. Based on that idea, they made a user scenario to see whether their idea was according to the interests of the target group and met the requirements that were described in the brief. Finally they made a prototype from their best idea and tested this with the target group. With the information they gathered from this test, they finalized their idea and handed this in for the selection.

What became clear during this case study was the importance of providing different

methods to create an optimized idea. There were always possibilities to create an idea without these methods, but by guiding the students through this process they became more aware of the requirements from the brief. It also helped to elaborate the ideas to a higher level. The ideas (appendix 5) were all focused on the same target group because this was defined within the group. Also the different design steps and methods were the same, which in the end resulted in similar ideas. The advantage of ideas that were worked out in a similar way was that the presentation, for the company who provided the project, would have one style. Every student also got the possibility to make a prototype. This made the idea way more clear in terms of communication and provided lots of details.

3.5.3 Project in cooperation with an university

Students from this case study could decide whether they wanted to join the project and receive credits from their study; besides the chance to see how their idea would become reality and receive the cash reward. Guidance came only from the teachers and was based on the ideas from the students. During the consulting hours, they could show their work and ask for feedback. The students used their own gathered methods to create the ideas and finally delivered them for the selection.

Designers used their own methods to generate the ideas (appendix 6). These ideas were not so much elaborated in terms of prototypes and engineering because the university, where this case study was held, focused on the concept. The advantage is that the level of innovation was way higher, which was good for the organization since they needed to make sure that designers worked with pleasure on the idea generation and not concerned too much about the feasibility. In this way, the outcome would be much more innovative.

3.5.4 Independent project

The last design project was held online. Via a website, the requirements of the project were described in a brief. Design students received the information about the website location via email. Students could join the project based on their own interests and the case was not in collaboration with any university. Therefore, students did not receive feedback from teachers, but it was possible to receive feedback from other participants who worked on the case. Also for this project, one idea got selected in the end.

After the presentation, students could work remotely because the idea generation process ran online. The website gave designers the possibility to quickly ask a question about their design. Feedback came from other participating designers. In this way, the designers inspired each other, without being in the same space. The ideas (appendix 7) were elaborated in various ways because every participant used his or her own methods. The different methods to create ideas led to a diverse outcome with highly innovative solutions. This outcome required (from the company launching the project) a better understanding of the organizations' way of working. Only then they knew what they could expect in terms of results. Generating ideas through the online platform resulted in a variable outcome, which influenced the style of the final presentation.

3.6 Existing online collaboration platform analysis

Through an online analysis was sorted out the kinds of organizations that are focused on working with designers online. Therefore, was started with joining different platforms and trying the features in detail. The objective was to find out which approach enhanced a valuable based experience the most. Furthermore a new way of working was concerned.

Many different open source approaches like Linux (software), Open source colas (beverages) and Arduino (electronics) tried to gather information from a large number of people to achieve a certain goal. The advantage of this working way was that an organization has the possibility to receive a big amount of solutions and select useful information for further development. Communication within such an organization is very transparent so that participants knew the exact details of a project.

Some organizations made use of crowd sourcing by creating a collection of certain media files with a large number of people like Wikipedia (information), Flickr (pictures), YouTube (videos) and 99designs (designs). This gave the possibility to build up a database and was accessible for everyone. When a user wanted to earn an item, often they had to give something in return (like money or feedback).

Organizations like for instance Quirky gave people the opportunity to upload inventions on their website. Other designers had the possibility to vote on these inventions. Once a week the organization decided which inventions they wanted to develop further, based on votes of the designers. In this way Quirky made use of the crowd for decision-making. By doing

this via the crowd, it gave directly an overview about the popularity of a certain product design; the more people were interested in the concept, the more popular a product was. In this way, it can be measured whether a product could become a success on the consumer market.

3.7 Summary

The different methods and results that are described in this chapter should indicate the current status of the most important factors for the organization. The interviews as well as surveys contained detailed questions regarding the education. The goal of this experiment was to set up a test with people who worked at different places in the world and reached the right outcome. The creation of different presentations optimized the connection with potential design students and young professionals. As a result of the presentations, designers joined the product design case studies. These studies gave an idea about what the new organization could expect for kind of outcome when they launched a design project.

The last methodology is an analysis on the different existing organizations that worked online with designers. The goal was to see how other organizations generated ideas so that the new organization could build further on the existing knowledge and made sure that they distinguished from exiting businesses.

CHAPTER 4 RESULTS

Ryunosuke Satoro [9]: Individually, we are one drop. Together, we are an ocean.

4.1 Prototype requirements

The requirements for the prototype were based on the gathered information from the literature review and research methodologies. These requirements were mainly focused on the designers, to create an optimized environment that stimulates idea generation and provides valuable experiences, no matter from which countries the designers were.

4.1.1 Aspects related to education

The interviews in paragraph 3.1 indicate that information is decentralized. Students can access information not only through teachers but have the possibility to master themselves any skills according to their interests. Universities are becoming a place to get feedback, which is focused on the work from the students. Most of the universities try to reach the interests of the students to motivate them. That is why 81% of the students had the possibility to select their own courses. Since the target group of the organization is students and young professionals, the design projects should be possible to be select according to their interests.

When the designers start to create the ideas, it is important that they have an option to receive feedback and ask questions to other designers. This makes it possible to work individually, but if preferred they could collaborate. A balanced solution to improve the opinion of students that experienced groups work since 33% of them were not convinced about this situation.

The outcome will be variable because of the differences in background. In general, this is not a problem since the goal is to create ideas. If they are communicated in the right way, it will be possible to present them to the company that provides the design case. A professional development team crafts (after selection) the idea into a producible product. This improves the content of the projects as well because 27% of the students were not satisfied about the content.

Companies that set up a design project will finally do the production to make the ideas reality. This gives a valuable experience for the designers, which motivates a lot as 76% of the students indicated in the survey. By deeply involving students with the development of ideas will be shown how the product gets into production and finally makes it to the market. In this way the quality of the projects will highly increase. The goal of this improvement is changing the opinion of the current students (46%) that were not satisfied about the quality of the projects.

4.1.2 Aspects related to profession

As an organization, it is important to make sure that the designers can concentrate on work that meets their expertise. Therefore, they only concentrate on the idea generation. The organization needs to find clients, create the design brief and afterwards present the ideas to the company that will produce the ideas after development. The design brief needs to be based on the requirements from the company that is interested in the ideas. After the idea generation they need to select one idea for further development.

Only 15% of the students had an additional job, which related to their major. If they work on study-related jobs, students would gain more experience in the design field. Online references need to be available to show the contributions of the designers. If it fits the marketing concept of the company who sales the products, the designer could be mentioned on the packaging as well. Moreover, the designers will be mentioned as the creative brains behind a design during the development track online and get publicity through magazines.

4.1.3 Aspects related to connection

According to the survey, only 15% of the students had an updated portfolio. 55% of the students wanted to find a job that is related to their major when their study is finished. 36% planned to continue with a study that built further on their current major. For both options, it is necessary to have a portfolio, because it proves each designer's skills. The organization can make sure that students and young professionals create content for their portfolio through the design projects. It will also enhance students' confidence as at the survey only 10% expected to get easily a job.

When people work on any idea, it should always be possible to share thoughts and ask for feedback. In this way they can share their passion for design and create a network. When they would like to share useful information for the organization, but do not want to share it with all the other designers, it should be easy for them to reach the organization in a personal way.

It is important to clearly mention that every proposed idea will be owned by the organization. The reason that the organization needs to have the ownership relates to the development. Since ideas are most probably still in an early stage and the development team needs to craft the idea into a product design, it should be possible for them to make modifications on the original idea. Another subject that needs to be openly communicated is patents.

4.1.4 Aspects of digital technologies

Students and young professionals liked to work remotely, according to the experiment. Furthermore, the organization tries to reach creative people on a global scale. This is possible through an open source design platform, according to the online analysis. Potential designers can get an idea about the organization via the website. The registration option should make it possible to become a member. As a member each designer can see the available design projects. The designers are free to join any project and nothing is required. The content should be secure so that people will not use it for other purposes. Moreover, the organization should have an overview per project with the amount of designers who will participate the idea generation track. In this way, they can manage the outcome through online communication. A big difference compared to other platforms is that this organization is focusing on a valuable experience for students and young professionals, whereas other platforms just want to get good ideas for production. Sharing the complete development track, which gives practical experiences by showing how the designer's idea becomes reality, does this.

4.2 Business integration

The new organization is aware of the high potential in students and young professionals to generate fresh and innovative ideas. The demand for practical information from students and young professionals, together with the solid background of a development team will establish a valuable connection between designers and manufacturing companies, as shown in Figure 4.1.

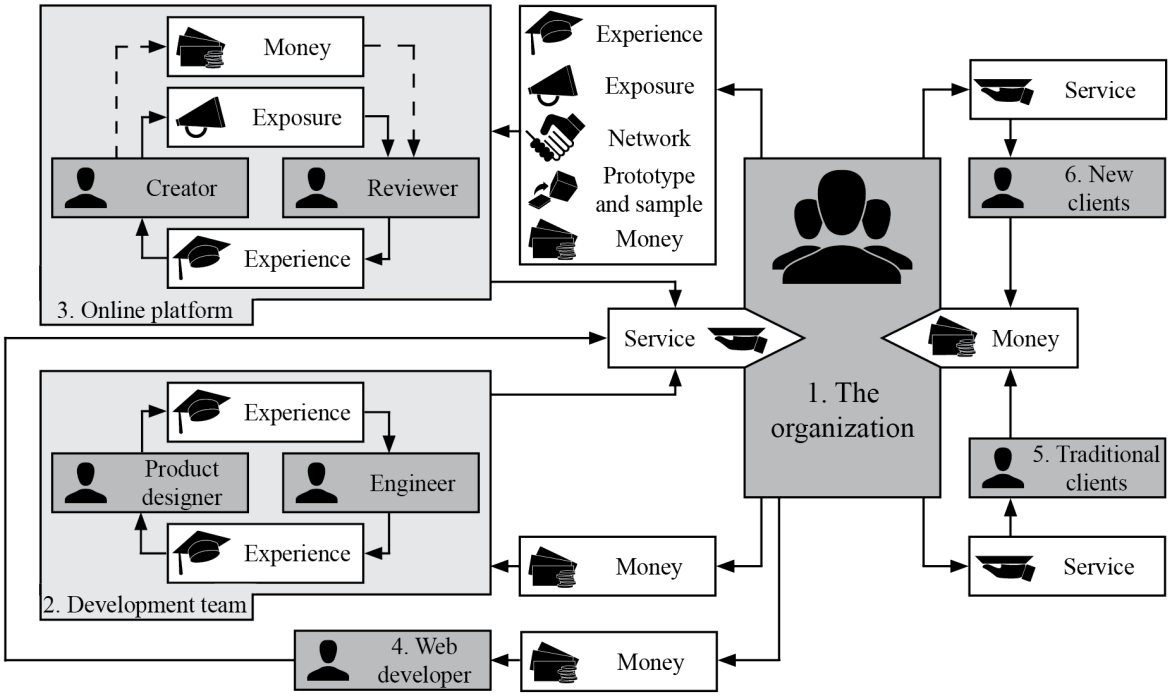

Figure 4.1 Organization overview

4.2.1 Product development

The traditional way of creating designs is normally handled by a design team. This kind work is related to standard and technical solutions to make an idea producible for the factories. As long as the idea is clear and the developers have the right skills, it will be possible create those solutions. That is why work like this is close to a commodity.

Since the organization (1) wants to provide a practical experience by crafting the gathered ideas from the platform into real product designs, it is necessary to have an in-house development team (2). This requires money as input from the organization and results in the product development service that can be provided to manufacturing companies. Within the development team, there are two kinds of people. The idea goes firstly to product designers who craft the idea into a product by applying technical solutions, sizes and materials. Secondly, engineers make the 3D drawings and calculate strengths. Those two recourses will work closely together and share their experiences.

4.2.2 Idea generation

Idea generation requires analysis, creativity and influence. These requirements are different for every design case and make that idea generation never becomes a commodity. The objective to deliver fresh and innovative ideas for every design case will be feasible when students and young professionals from all over the world can be involved to create those ideas. Therefore, the organization (1) needs to give input by providing valuable experience, exposure, possibilities to network, prototypes, production samples and cash rewards for the designers of the online platform (3). The designers can be divided in creators and reviewers. Creators will make the new ideas and upload them on the platform. Reviewers can see those ideas and give feedback based on their experience, to make the idea even better. When an idea is selected, the reviewers will also be mentioned as creative brains behind the product. Moreover the creator has a possibility to share the cash reward with reviewers of his or her idea when it is selected.

4.2.3 The unique combination

The organization offers basically two services. First of all they have a development team to translate ideas into producible products for traditional clients that have already an idea (5). Creating ideas involves the online platform. This is for new clients (6) who would like to have fresh and innovative ideas. Afterwards, they can be crafted into producible product designs. The organization provides the services separated as well as combined. In this way, a company can decide to start with the development of an existing idea or generating ideas via the platform to see whether the outcome reaches their requirements. Afterwards, it is possible to do a complete track or work out the gathered ideas from the platform.

4.2.4 Web development

To offer the idea generation service, the organization (1) needs to have a web develop party (4) that builds the online platform. Besides building the platform, it needs to be retained as well. When the organization gets more participants, aspects regarding the data will require modifications. Moreover, it is important to keep innovating as an organization, to make sure that participants will be motivated to regularly keep participating at the design projects. By investing money, the web development service can be provided.

4.3 System flow

The requirements that are described in paragraph 4.1 define what the features on the platform should achieve. The platform is divided into two parts. The first part is the website, which is accessible for every online user and gives a general impression about the organization. The second part is the application, which is only accessible for registered designers. The system flow of the online platform is visualized on pages 47 and 48.

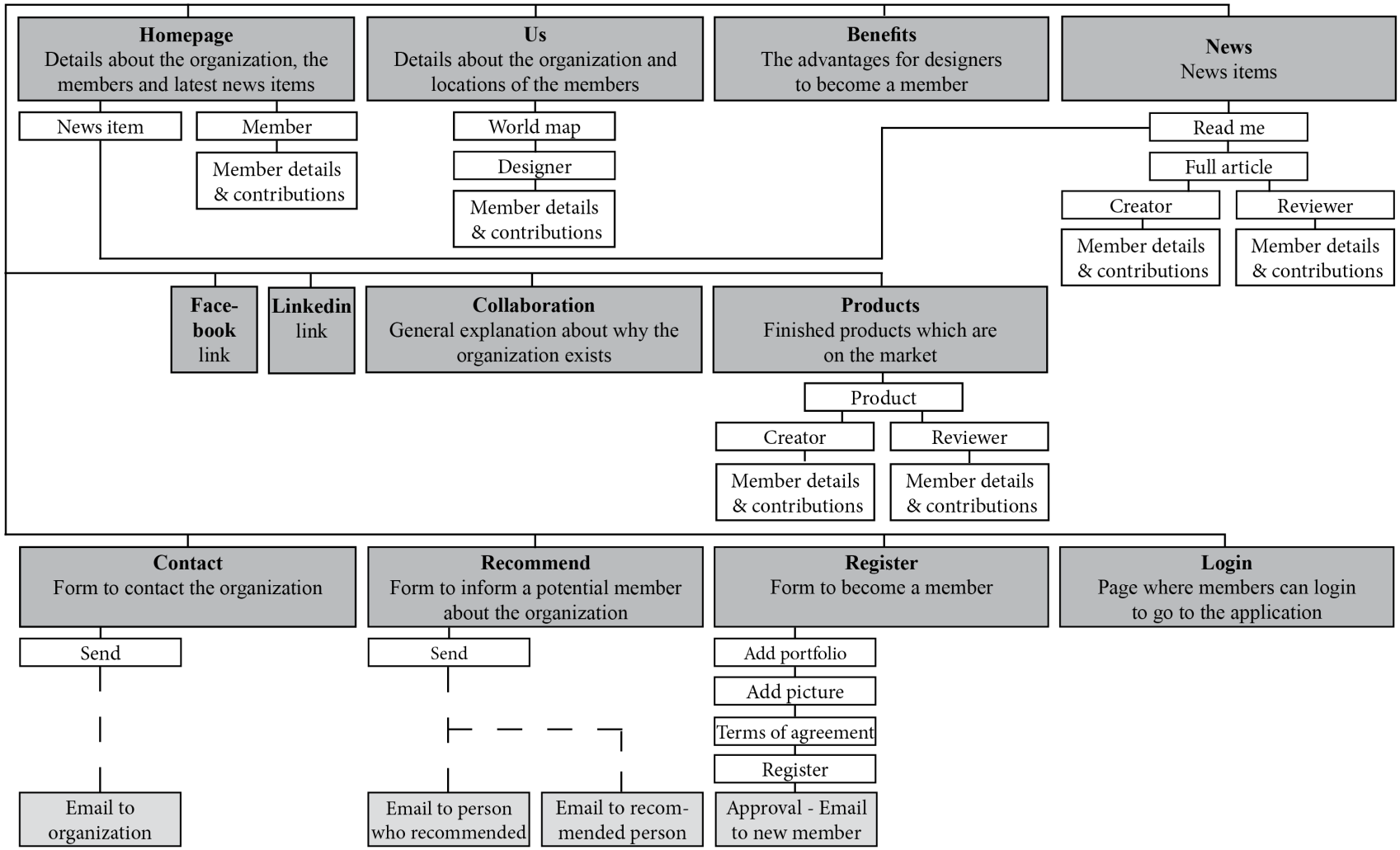

Figure 4.2 System flow website

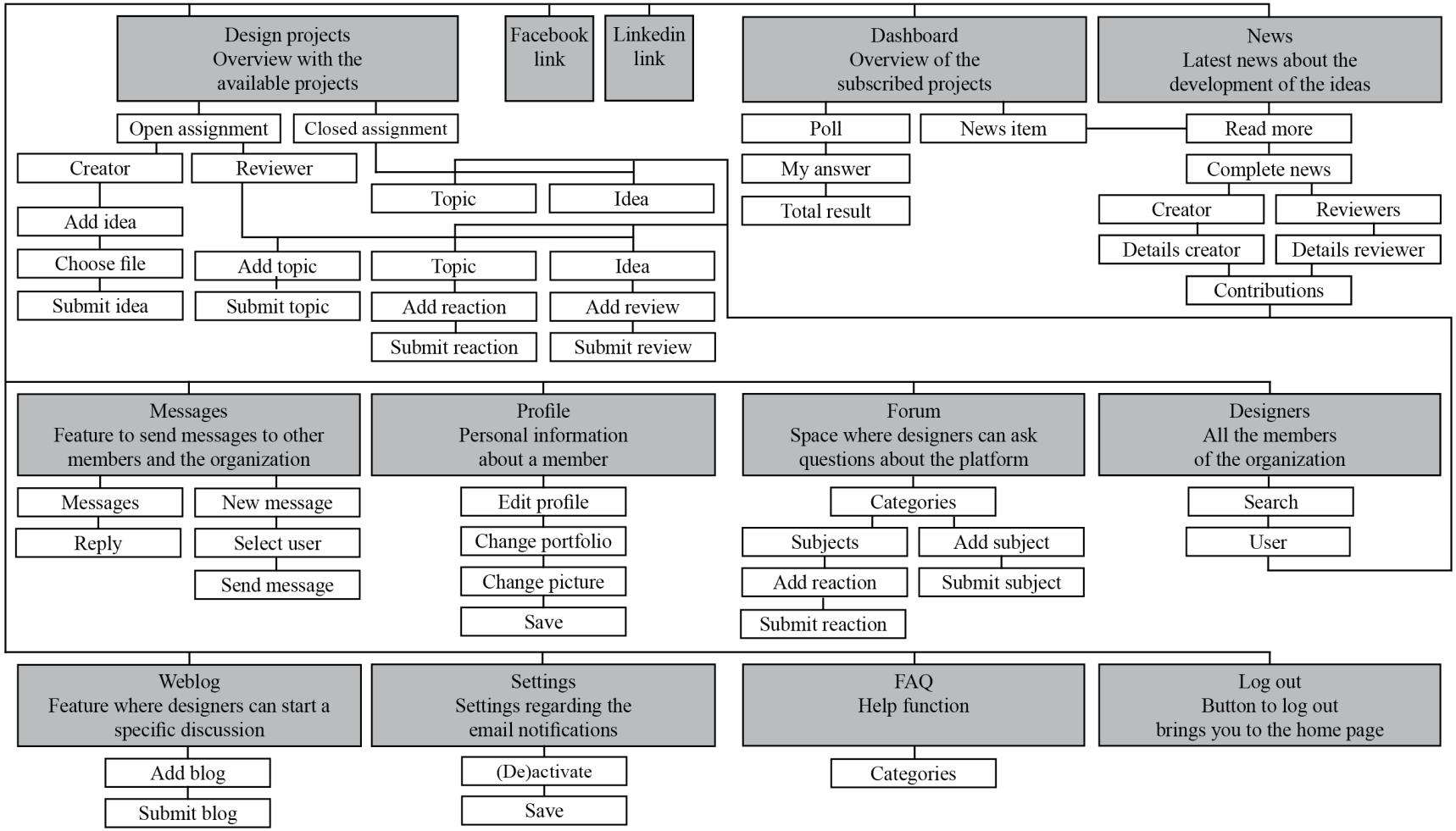

Figure 4.3 System flow application

4.4 The platform prototype

The website is focused on two target groups. Clients should get an idea about the organization's activities and recourses, but at the same time is the goal to enthuse designers for the possibility to participate in different design projects.

4.4.1 Homepage – website

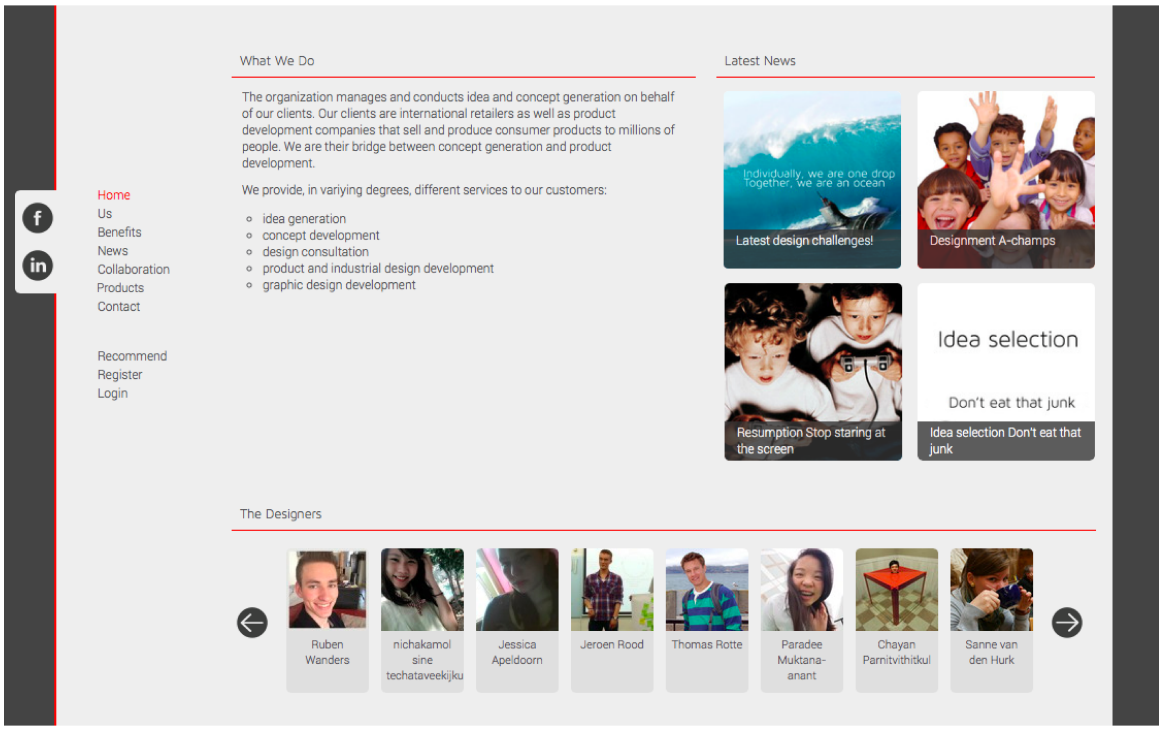

Figure 4.4 Homepage

The homepage is divided in four areas. The area on the left is the navigation bar, which includes the Facebook- and LinkedIn buttons. These buttons are available on every page. With the features on the navigation bar is the online user able to visit every page of the website. In the middle, there is a text with the description of the organization.

Below are the designers mentioned that are registered on the application (the closed part of the platform). On the right side are the news items. They are constantly changing by a

slider to present the 8 latest news items. When the user clicks on any of the news items, the link will lead to the specific item with its details.

Clients:

- Get an impression about the capabilities of the organization.
- Have an overview of the registered designers.

Designers:

- Get an impression about the possibility to join the design projects.
- Receive exposure through the contribution list (which online users can see when they click on the profile picture of a registered designer).

4.4.2 News items – website

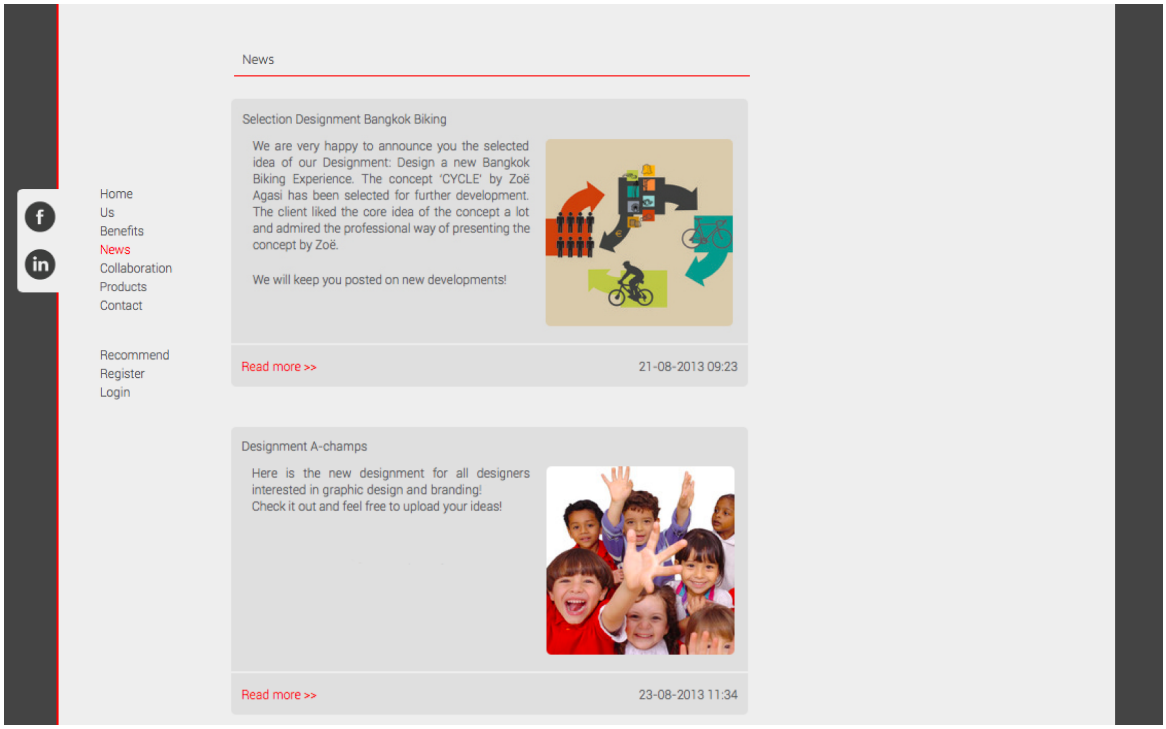

Figure 4.5 News items (website)

This feature informs online users about available projects on the application, finished projects and any other public news. The news items are listed in a chronologic sequence. Title and first part of the content is visible per item. Users can click on 'read more' to see the complete news item.

Clients:

- Read the latest progressions (achieved goals with a design project).
- Can check whether their project is online available.

Designers:

- See the latest progressions (new available design projects).
- Receive exposure because development steps of projects and finished projects are always linked to the designers of the idea (name, nationality and contributions will be mentioned).

4.4.3 Us – website

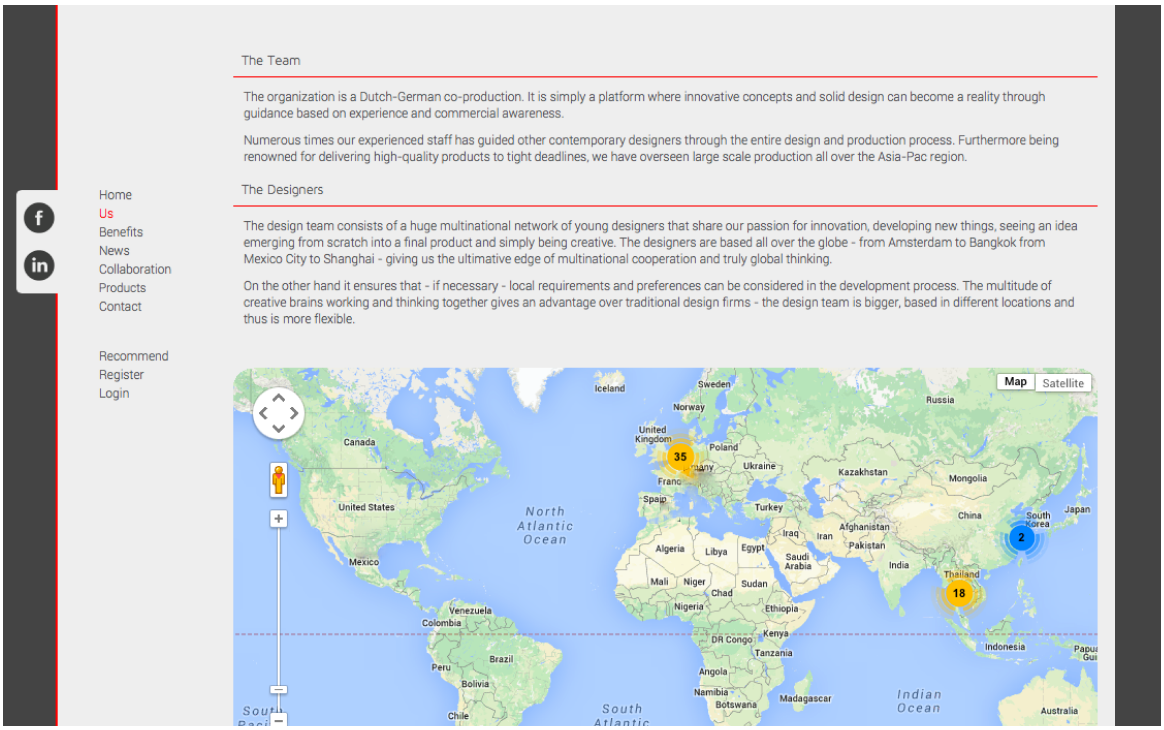

Figure 4.6 Us

This page describes the founders of the organization. Furthermore it shows where all the registered designers are located in the world. The location of the designers will be more specific shown when a user is zooming in.

Clients:

- Get trust through introduction of the founders and their background (this shows that there are real persons behind the organization).
- Have a better sense of the international set up by showing the locations of all the designers.

Designers:

- Get trust through introduction of the founders and their background (to register and become a part the organization).
- Receive exposure when a user clicks on their picture in the map (this will show the contributions of a registered designer).

4.4.4 Benefits – website

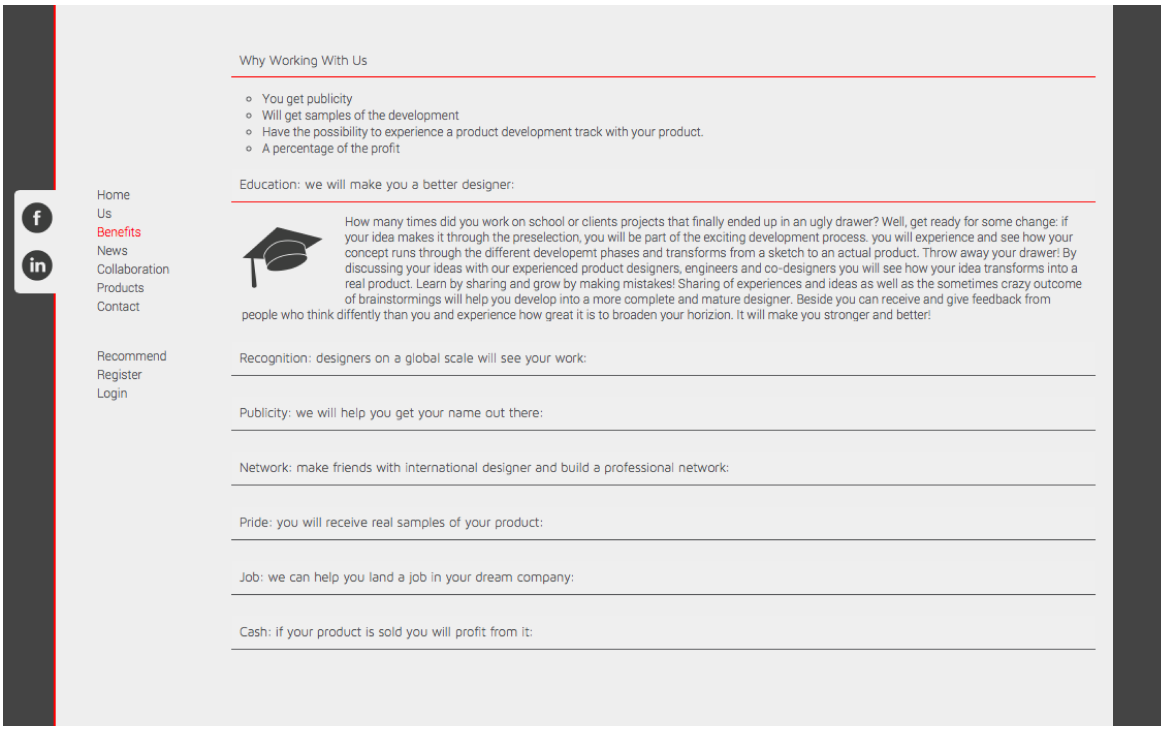

Figure 4.7 Benefits

Benefits for the designer are described to define the advantages of registering as a designer and joining the design projects. It firstly refers to the valuable experiences because this is the biggest and most important advantage. Designers see how selected ideas become reality when they register. By joining the design projects, there is a chance that their idea that got selected for realization. Through the platform, designers will meet other designers that are registered. This gives the possibility to build a network. When an idea finally reaches the production, the organization will also provide prototypes and production samples, as well as an official certificate for the designer of the selected idea. Furthermore, there is a cash reward granted for each selected idea.

Clients:

- Get a better sense about the maintenance of the organization's most important resource for idea generation (which proves that the organization is well established).

Designers

- Will understand the possibility to get a valuable experience (because of the shared development track and provided prototypes and production samples).
- See the possibility to build a network (with other designers who are registered).
- Appreciate the exposure (through the contribution list, news items and certificates combined with the cash reward).

4.4.5 Collaboration – website

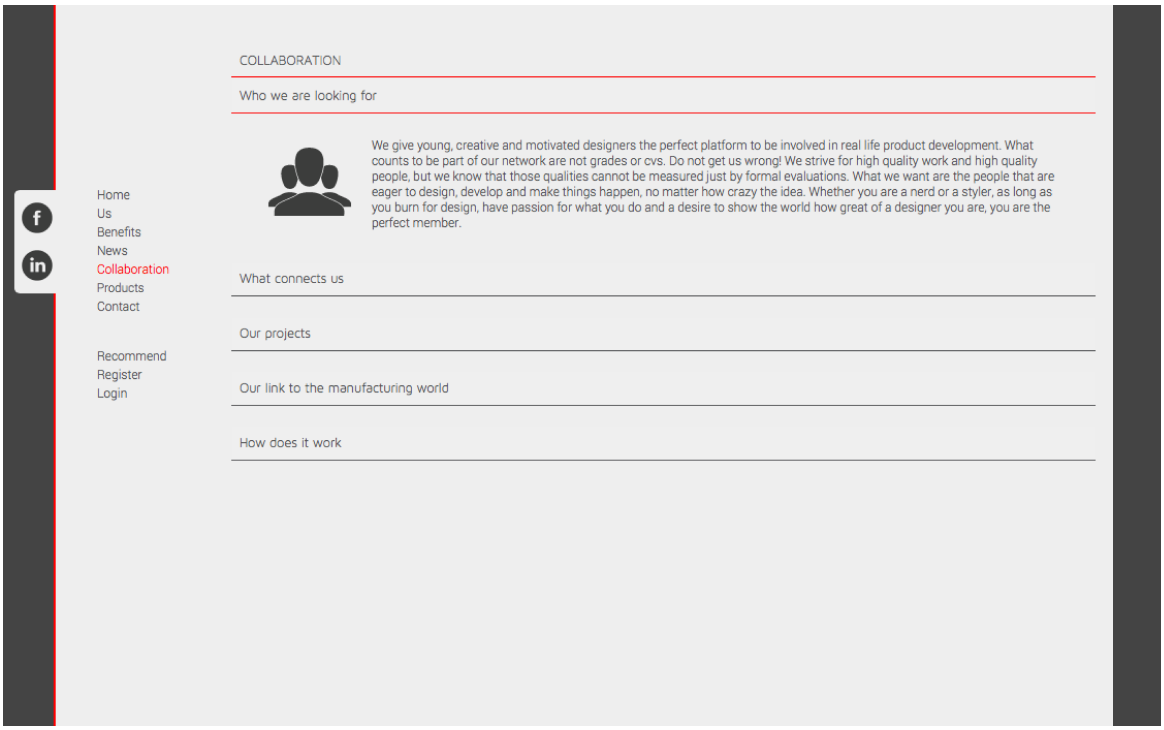

Figure 4.8 Collaboration

The organization will provide, for designers as well as customers, a new way of working. On the collaboration page is described for what kind of people the organization is looking in terms of designers.

The page describes the goal as well, which is making ideas reallity of fast moving consumer products. The close relationship with various manufacturing companies makes it possible to turn an idea fast into a real product. This is described in the last part.

Clients:

- Get a better understanding of the complete track (from project start to real product).
- Will understand the organization's way of realizing a product (in a relatively quick and easy way).

Designers:

- Get a comfortable feeling to register (which stimulates to become a member).
- Understand the organization's way of working (what the design projects are and how they can participate).
- Will understand the organization's way of realizing a product (from idea generation, to idea selection and finally production).

4.4.6 Products – website

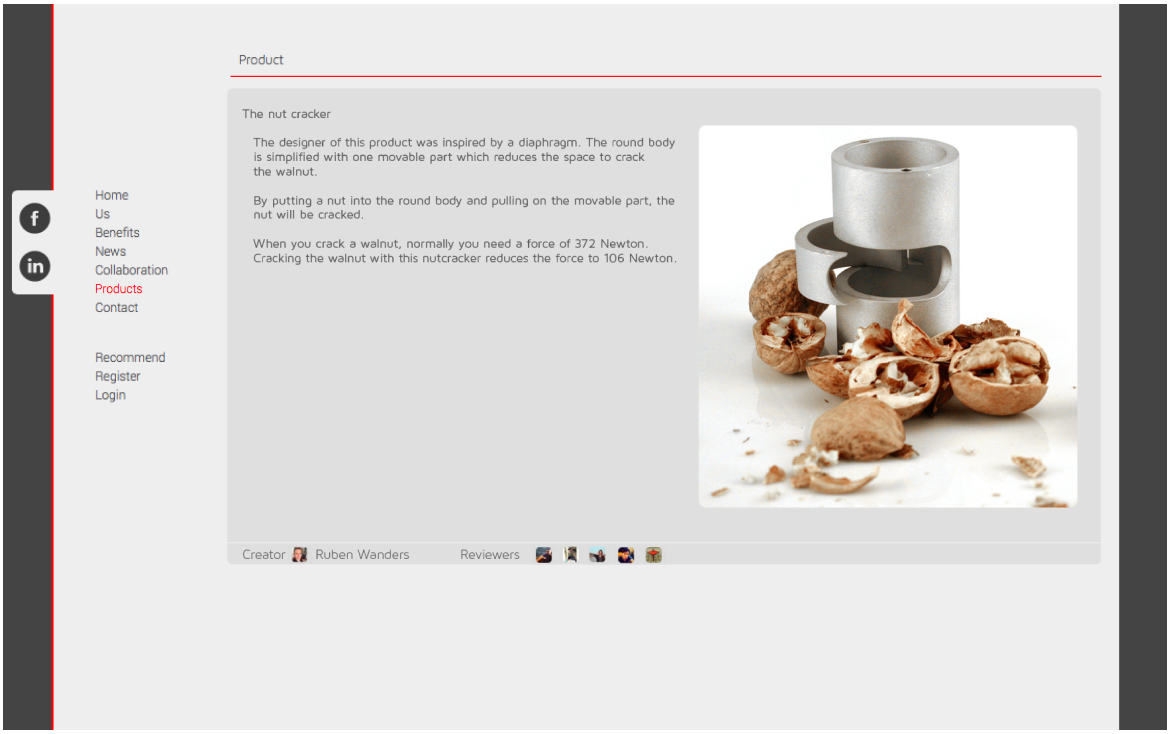

Figure 4.9 Products

All the finished products, created by the designers of the organization, are presented on this page. The page has a list where the products are chronologic shown in blocks. At the bottom of each block are the designers of the idea mentioned.

Clients:

- Will have a clear understanding of the organization's capacities (in terms of design and production).
- Knows what kind of fast consumer products are possible to be realized with the organization (and can compare this to their own demand).

Designers:

- Have a good understanding of the organization's capacities (in terms of practical experience that the organization can provide with the development track and production of designs).
- Know what kinds of fast consumer products are possible to realize (and see whether they would be interested to join these kind of projects).
- Receive exposure, because the designers of the idea are mentioned in every product list (when you click on a designer, his or her complete contribution list will be visible).

4.4.7 Contact – website

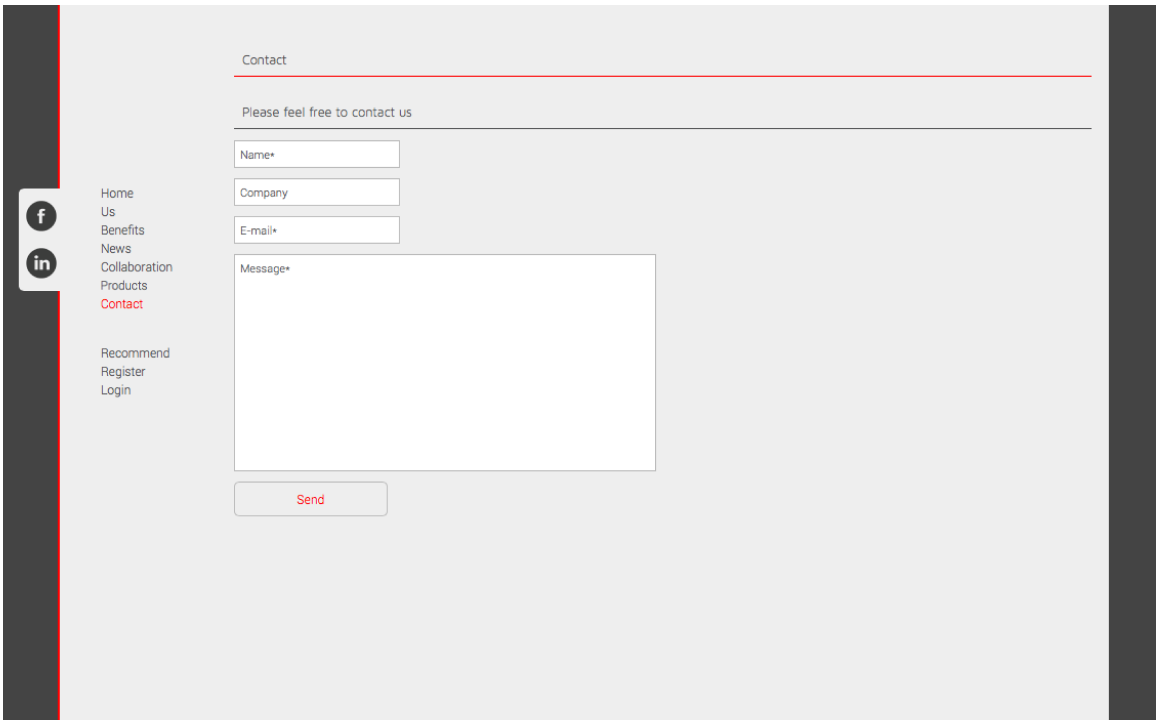

Figure 4.10 Contact

When an online user would like to contact the organization and they do not have any personal contact details, it is possible to write a message via the contact form. Online users can fill in their name, company name, email address and write a message.

Clients:

- Have the possibility to ask for details (of a design project that they have in mind or any other collaboration option).

Designers:

- Have the possibility to ask for details (of the complete organization and its proceedings).

4.4.8 Recommendation – website

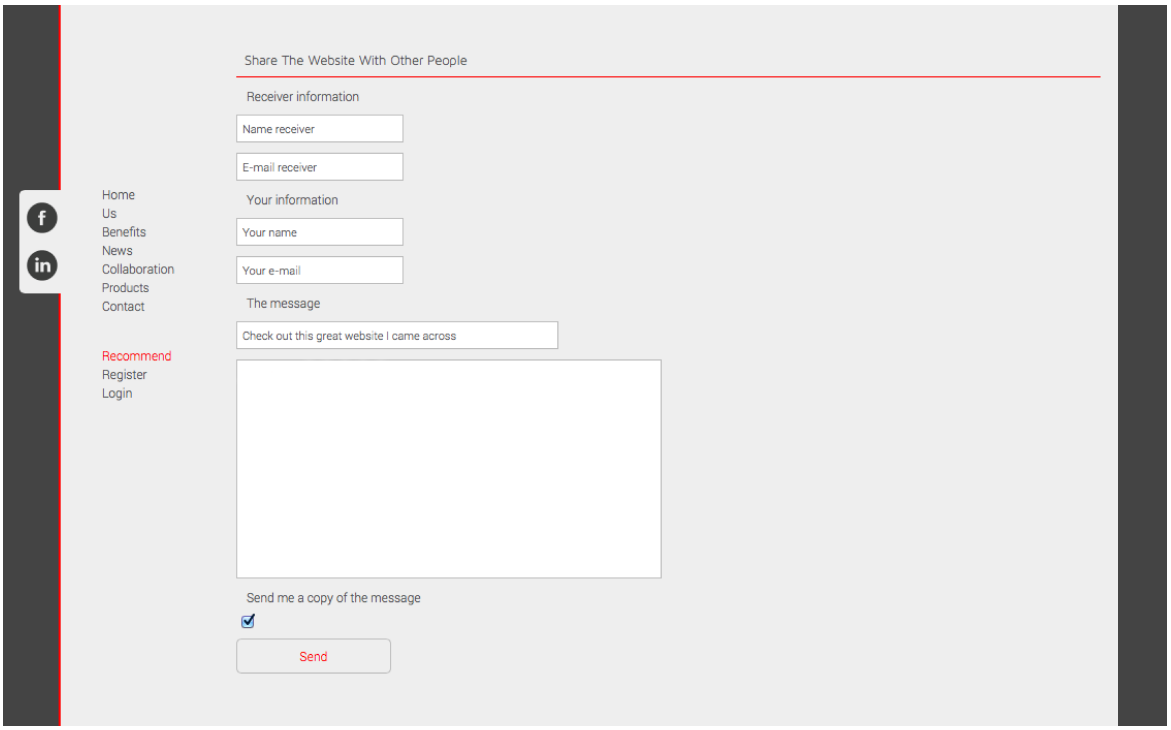

Figure 4.11 Recommendation

Via the recommendation page, online users are able to recommend the organization to and email address of the potential designer or client. Additionally, it is possible to add a personal message. The system will automatically send an email to the potential designers and inform them about the platform. Furthermore, it will thank the user who fills in the recommendation.

Clients:

- Have the possibility to inform any of their friends about the organization (to recommend the product design service that the organization is offering).

Designers:

- Have the possibility to inform any of their friends about the organization (and can enthuse them to become eventually a member).

4.4.9 Register – website

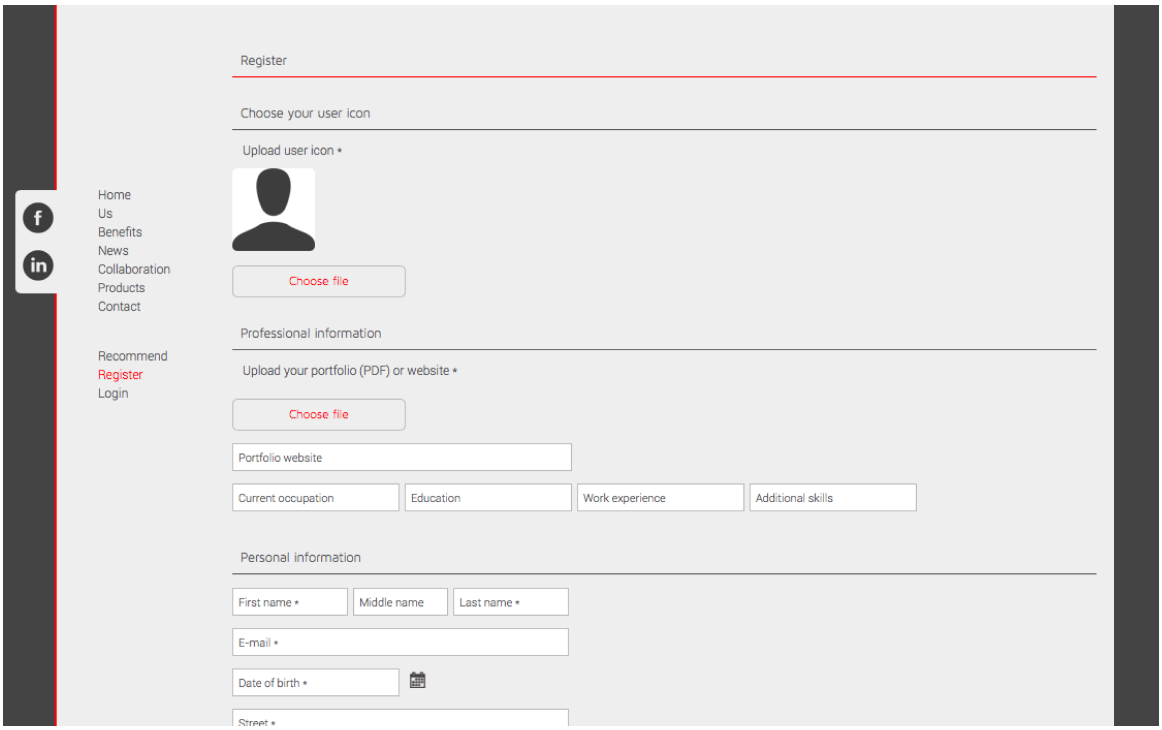

Figure 4.12 Register

To become a registerd designer of the organization, the registration form needs to be completed. This requires a profile picture, portfolio and description of the current occupation, education, work experience, additional skills and personal information. Furthermore, designers have to confirm the terms of agreement. When they have fulfilled the registration, the organization will decide whether they are suitable to join the projects. This is based on the personal information and the designer's portfolio. If a designer gets accepted, he or she will receive an email to confirm the registration and is be able to login. If a designer not get accepted, he or she will receive an email as well, to thank for their effort and is not be able to login.

Designers:

- Can save ideas secure because the terms of agreement mention that it is not allowed to use any of the content on the application for their own purposes (without this confirmation, designers can not become a member).

The organization:

- Is the owner of every uploaded idea (because they need to have the possibility to modify the content for real production, which gives the designers a valuable experience).

4.4.10 Login – website

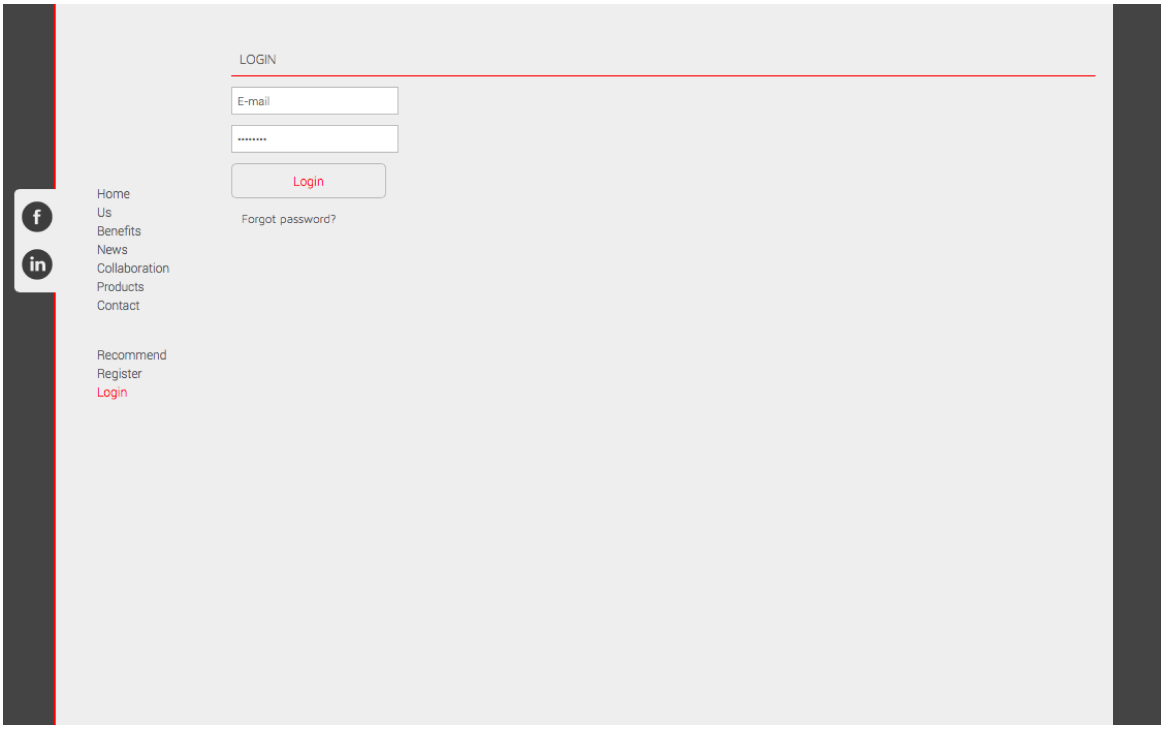

Figure 4.13 Login

Designers who are registered can login. Therefore, they need to fill in their email address and personal password. The exact features of the application are described in paragraph 4.5.

4.5 The application features

The second part of the platform is the application. Only registered designers can enter this part. Therefore, every feature is focused on the designer, to make sure that the digital environment stimulates the idea generation in its best way. The organization presents these ideas to the clients when the deadline of a project is reached.

4.5.1 Dashboard – application

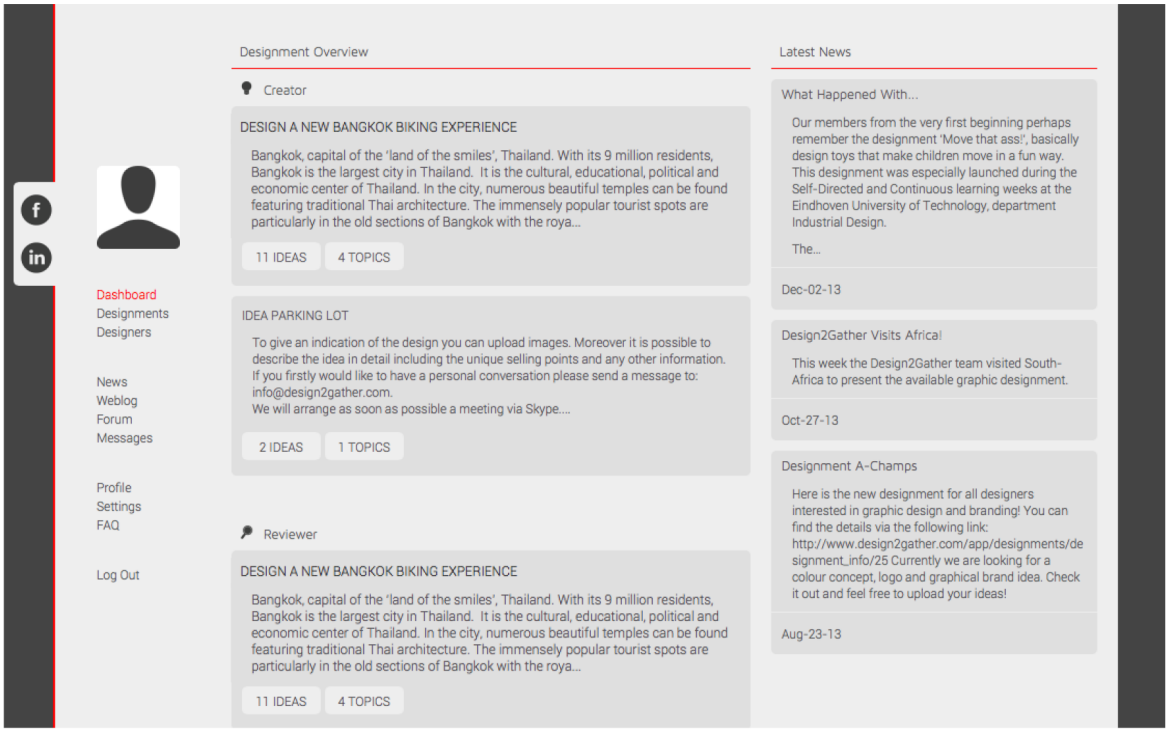

Figure 4.14 Dashboard

When a designer logs in, the website will directly switch to the dashboard page of the application. On the left side of this page, there is the navigation bar with all the features. In the middle, there is an overview about the design projects for which the designer can subscribe. Each project in the overview indicates how many ideas are created and how many designers have started a topic in this specific project.

Designers can subscribe as a creator, reviewer or both for every project. As a creator, it is

possible to upload ideas. A reviewer then gives comments to ideas from the creators. Furthermore a poll on the right side is visible. This gives the organization the possibility to gather information by a very simple question. Designers can quickly answer this when they log in. Below the poll are the news items of the application shown. When the member clicks on ‘read more’, the complete news item will be visible.

Designers:

- Have a complete overview about their subscribed design projects (as a creator and reviewer).
- Can quickly have a look at the news items (check the latest development steps and new design projects).

The organization:

- Receives information through the poll (and can adapt content on the application and website according to the answers).

4.5.2 Designments – application

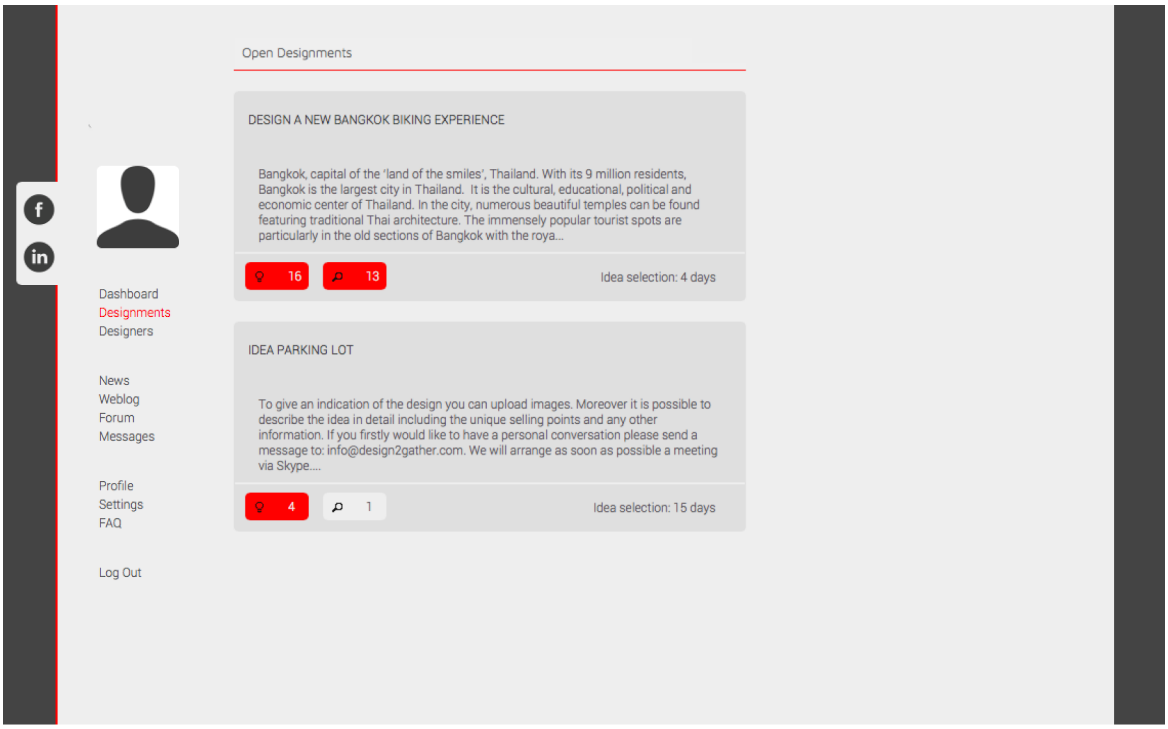

Figure 4.15 Designment overview

The design projects are named ‘designments’. On the designment page all the design projects are shown. Running projects are listed under ‘Open designments’. Past projects are visible under ‘Closed designments’.

For each designment is indicated how many designers have subscribed to create ideas and how many designers the ideas will review. The available time to hand in ideas and review a project is mentioned on the bottom of the designment block.

When a member clicks on one of the designments, the description of the project will be visible as shown in Figure 4.16. Every designment has a description, which contains the background information, task description, deliverable, research, target group, target

market, motivation, requirements, limitations and reward.

Designers:

- Have an overview about the available designments (and can choose to subscribe as a creator, reviewer or both).
- Can see when the project will end (which is indicated by the amount of days before the idea selection).

The organization:

- Has an overview about the amount of people that have subscribed as a creator, reviewer or both (to make sure that there will be enough generated ideas for each designment).

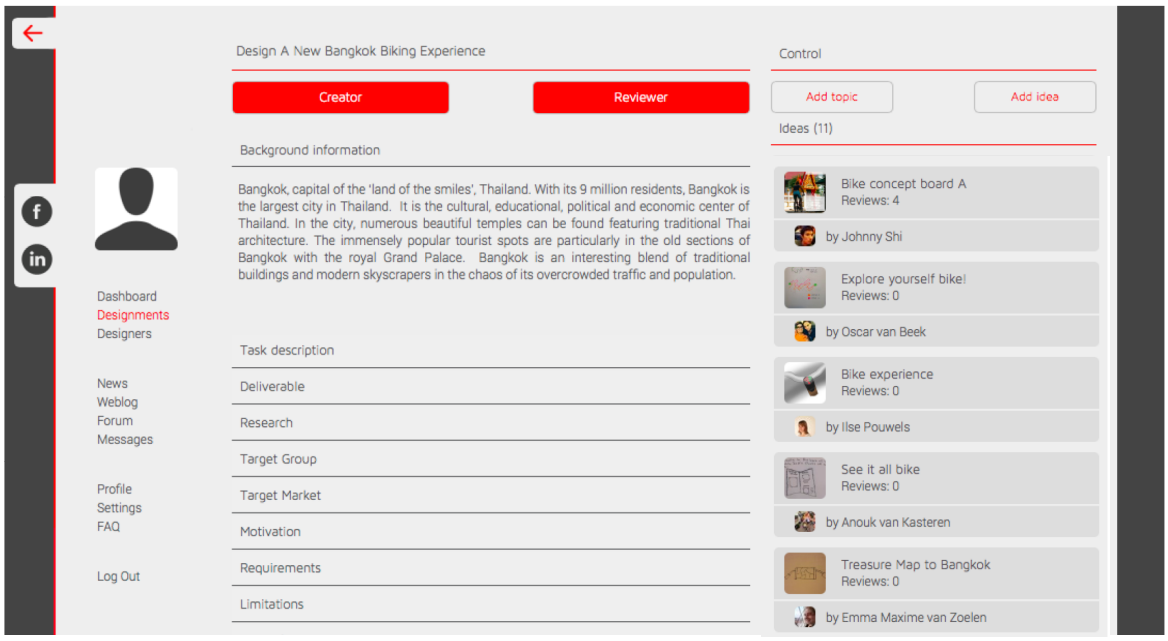

Figure 4.16 Designment description

On top of the designment description page, there are buttons for becoming a creator and reviewer. As soon as a designer subscribes as a creator, reviewer or both, ideas and topics that are already created will appear on the right side.

Creators as well as the reviewers have the possibility to start a topic about the designment. In this way designers can start a discussion with other creators and reviewers who have subscribed for the designment. All these creators and reviewers are mentioned under the project description.

When a designer is the creator of a designment, the button ‘add idea’ will appear on top of the right side as well. This gives the possibility to upload an idea and describe the details, unique selling points and extra information. Also attachments can be uploaded via this page.

Designers:

- Have an overview about the project requirements (and can create ideas according to this description).
- Can become a creator, reviewer or both (to upload ideas and start topics).

The organization:

- Can reply on the topics (to answer specific questions about this designment).

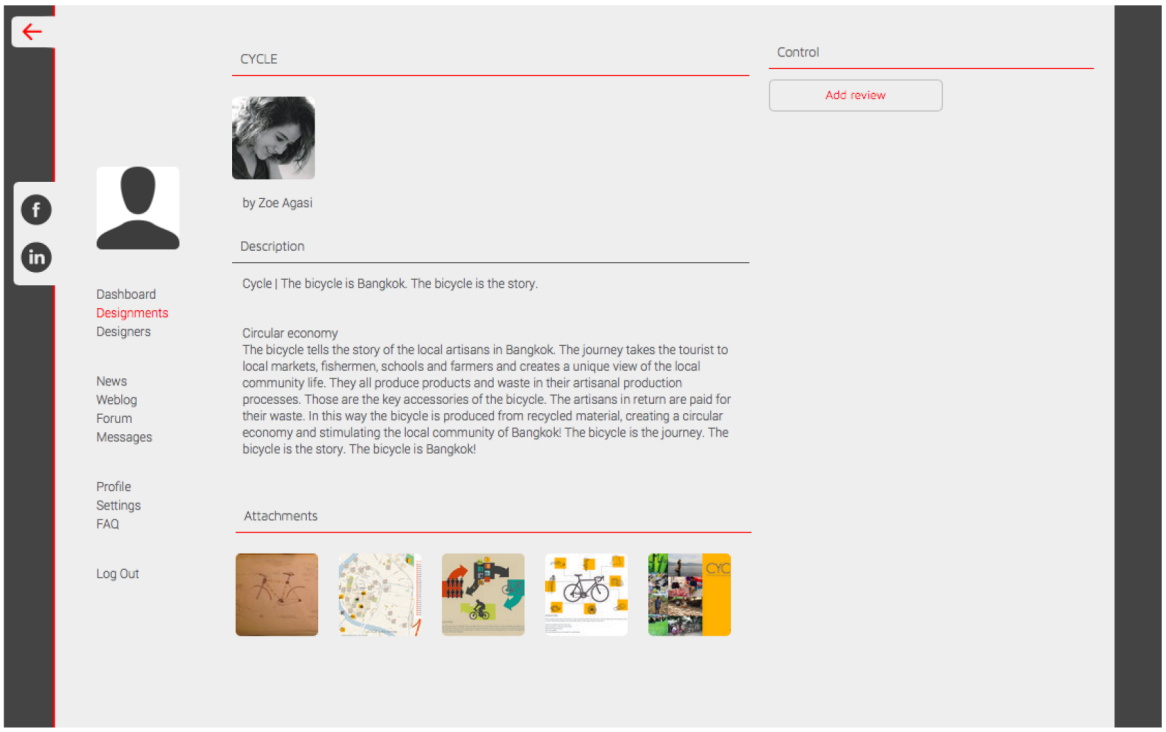

Figure 4.17 Idea overview

By clicking on one of the ideas that are listed on the right side of figure 4.16, the details of the idea will be shown as in Figure 4.17. Besides the details of the idea, the creator of the idea and attachments are also shown. By clicking on the attachments, the figures will enlarge. As a reviewer, it is possible to support the creator with improvements of the idea. Therefore, the reviewer has to click on the button ‘add review’. When the idea is selected for further development, the reviewers will get exposure by mentioning them as a creative brain behind the idea. Moreover the creator of the selected idea has the possibility to share the cash reward with maximal 5 reviewers who helped to improve the idea.

Designers:

- Can see the uploaded ideas (when they are subscribed as a creator or reviewer).
- Have the possibility to support creators by providing a review (which will give the reviewer exposure and a chance to get a percentage of the cash reward).

The organization:

- Has an overview about the generated ideas with its descriptions and attachments.
- Can provide reviews as well to support the creator of the idea.

4.5.3 Designers – application

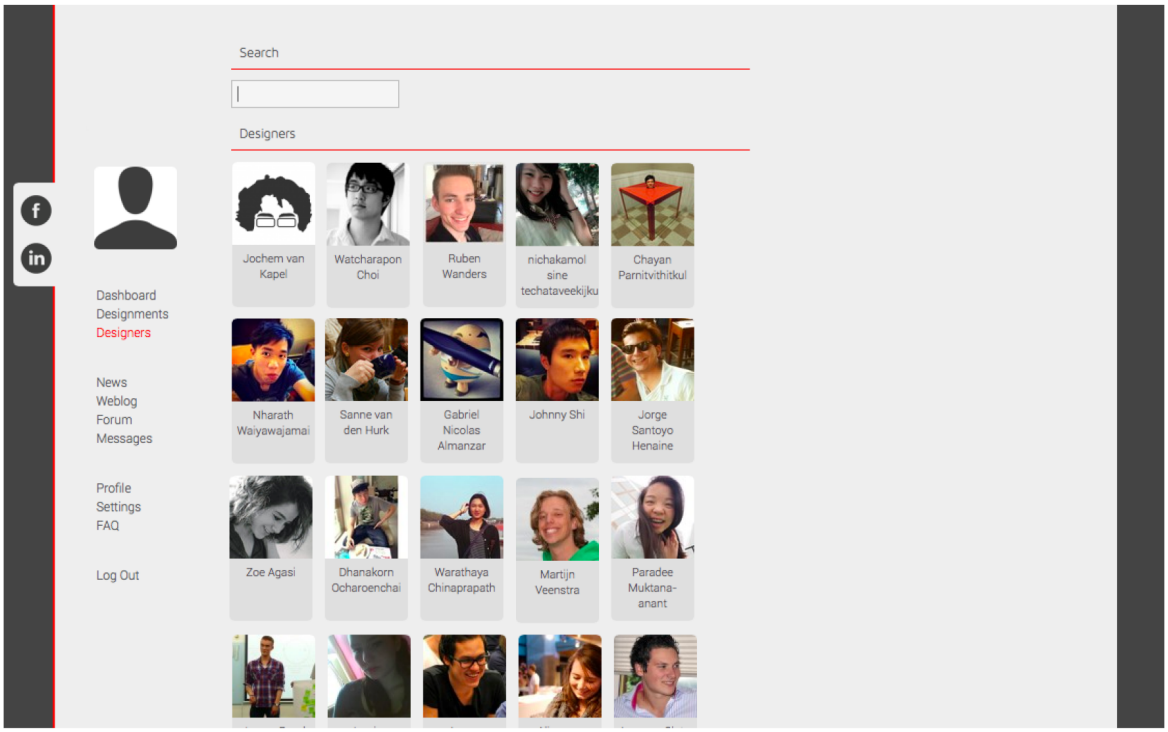

Figure 4.18 Designers

Registered designers can see all the other designers on the platform. Via the search option, it is possible to find a specific designer by name. By clicking on the picture of a designer, the complete profile will be shown. The registered designers have access to more details of the profile from other designers on the application, compared to other online users of the website. This means that registered designers can see the name and nationality of other designers and also the occupation, education, work experience, other skills and their portfolio. The contribution list with joined projects is attached to the profile as well. By clicking on any of these contributions, the page with the idea or comment will directly open.

Designers:

- Have the possibility to search for other registered designers (and have a look at their occupation, education, work experience, other skills and portfolio).
- Can look up the details of contributions from other registered designers (which gives the possibility to build up a focused network of designers with certain expertise).

The organization:

- Has the possibility to search for a designer with specific skills (through the details mentioned in their profile).

4.5.4 News items – application

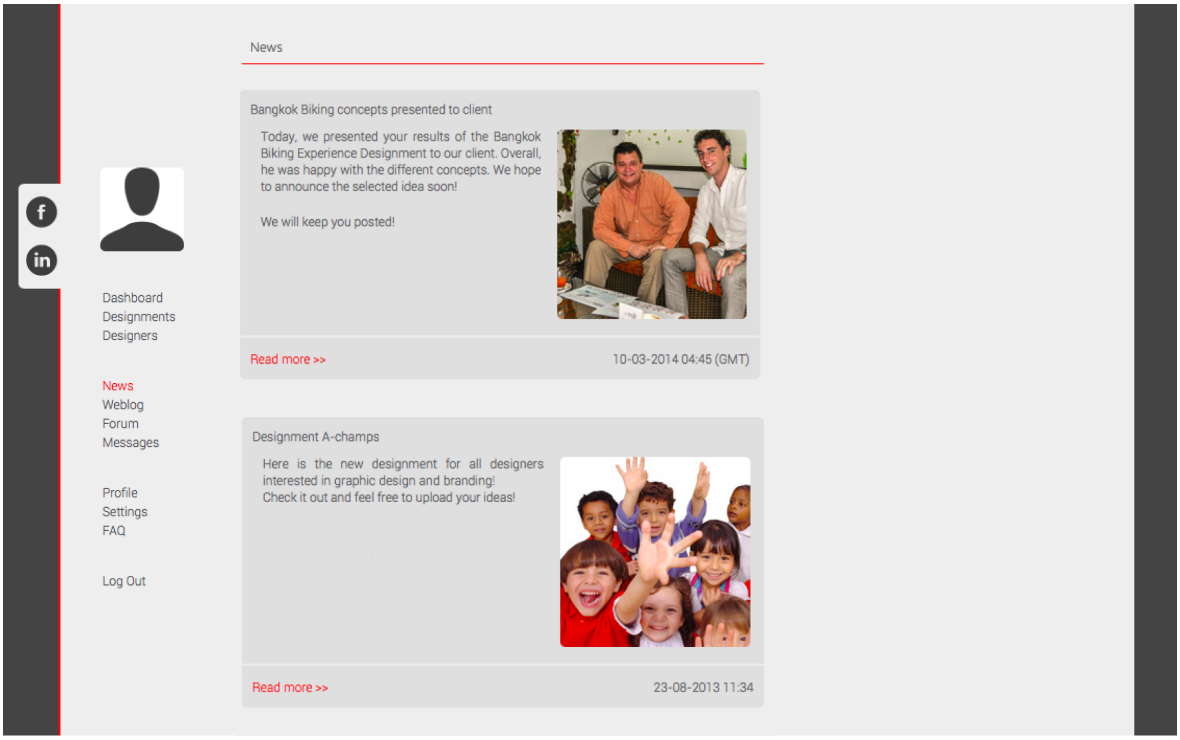

Figure 4.19 News items (application)

The news item feature is available on the application as well. Additionally to the news items on the website are the news items about development steps of the different projects. These detailed development descriptions give designers a practical experience. News items that are available on the website will be shown on the application as well.

When a member clicks on ‘read more’, the page with the details of the news will show up, together with the related creators and reviewers.

Designers:

- Have the possibility to read the development steps of selected ideas (which gives a practical experience).
- Receive exposure through connection between their profile and news items about the development steps of an idea (for which they contributed as a creator or reviewer).

The organization:

- Can share the development of selected ideas (which improves the knowledge of the designers).

4.5.5 Weblog – application

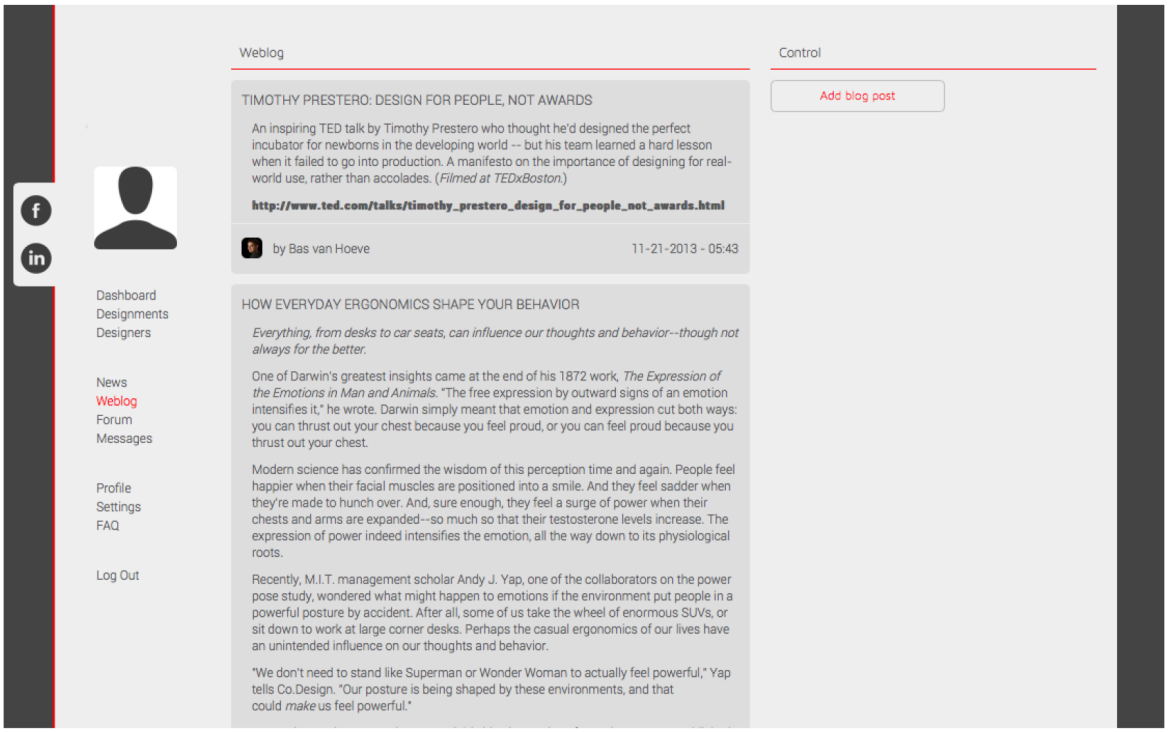

Figure 4.20 Weblog

The weblog creates another possibility to enhance interaction between the designers. Via blogs the designers are able to share interesting information like for instance articles that relate to any of the designments. Every registered designer has the possibility to share information on this page by clicking on the button ‘add blog post’.

Designers:

- Have the possibility to share design related information (which enhances the interaction because of the possibility to add reactions).

The organization

- Has the possibility to provide extra information about a certain design project (in an creative and interactive form).

4.5.6 Forum – application

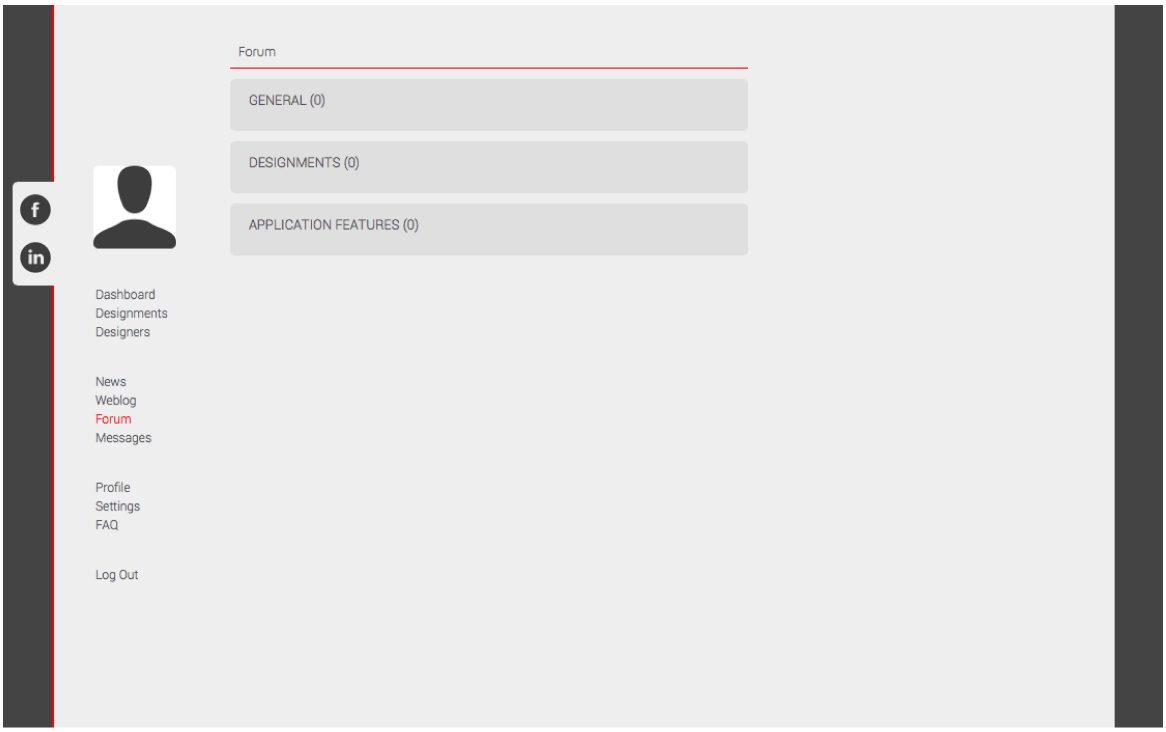

Figure 4.21 Forum

The forum is created for designers who have a question about general functions or designments on the application. By posting the question on the forum page other designers can reply, which is another form of interaction between the designers.

Designers:

- Can quickly ask general questions about functions and designments on the application (which stimulates interaction and provides answers from experienced users of the application).

The organization:

- Has the advantage with this feature to let the platform run independently (because designers are helping each other with answers on their questions).

4.5.7 Messages – application

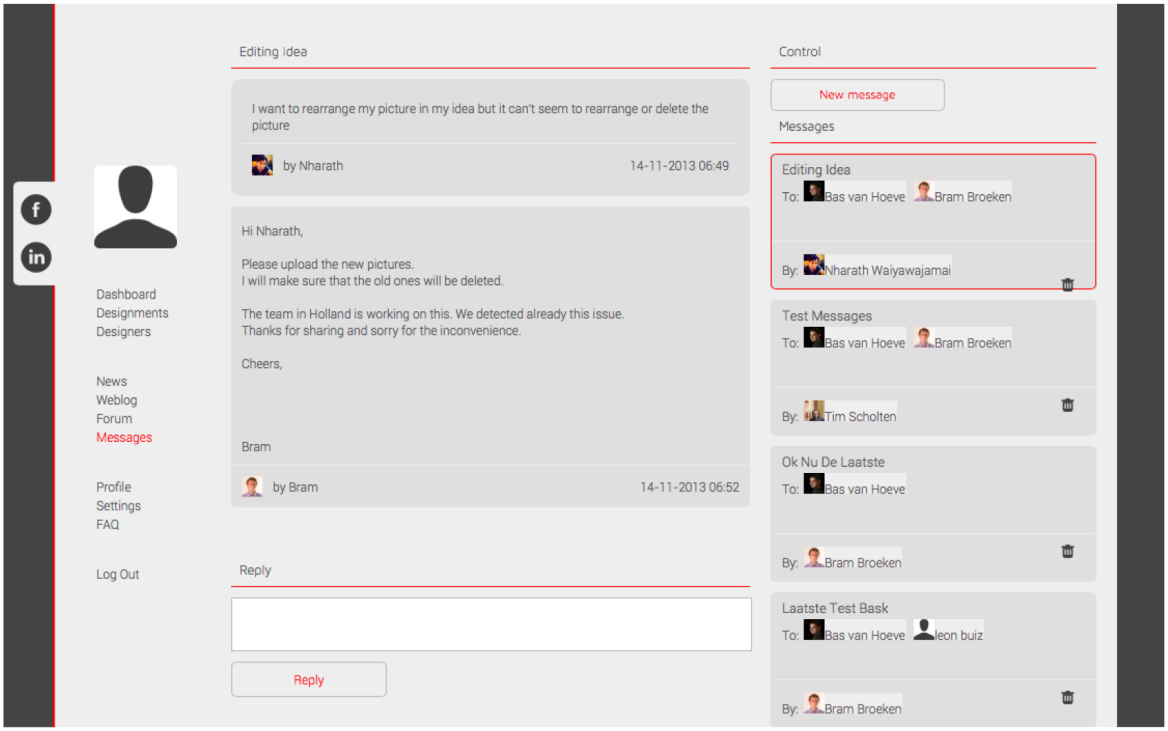

Figure 4.22 Messages

For communication on a personal level, the organization provides a message system. On the right side of the page are the received messages listed. The messages will be visible in the middle part by selecting them in the list. Below the visualized message is a column where designers can reply on received messages. When designers want to set up a new message, they should click on the button ‘new message’. This will lead to a page where the message can be composed and receivers can be given in. This page includes the search option as well to add the receivers in a quick and convenient way.

Designers:

- Have the possibility to quickly set up a personal message (which will be available for one or more selected designers).

The organization:

- Can receive personal messages from the registered designers (that are not suitable to share with other registered designers).
- Can send out personal messages to registered designers (to arrange for instance the payment of the cash reward).

4.5.8 Profile – application

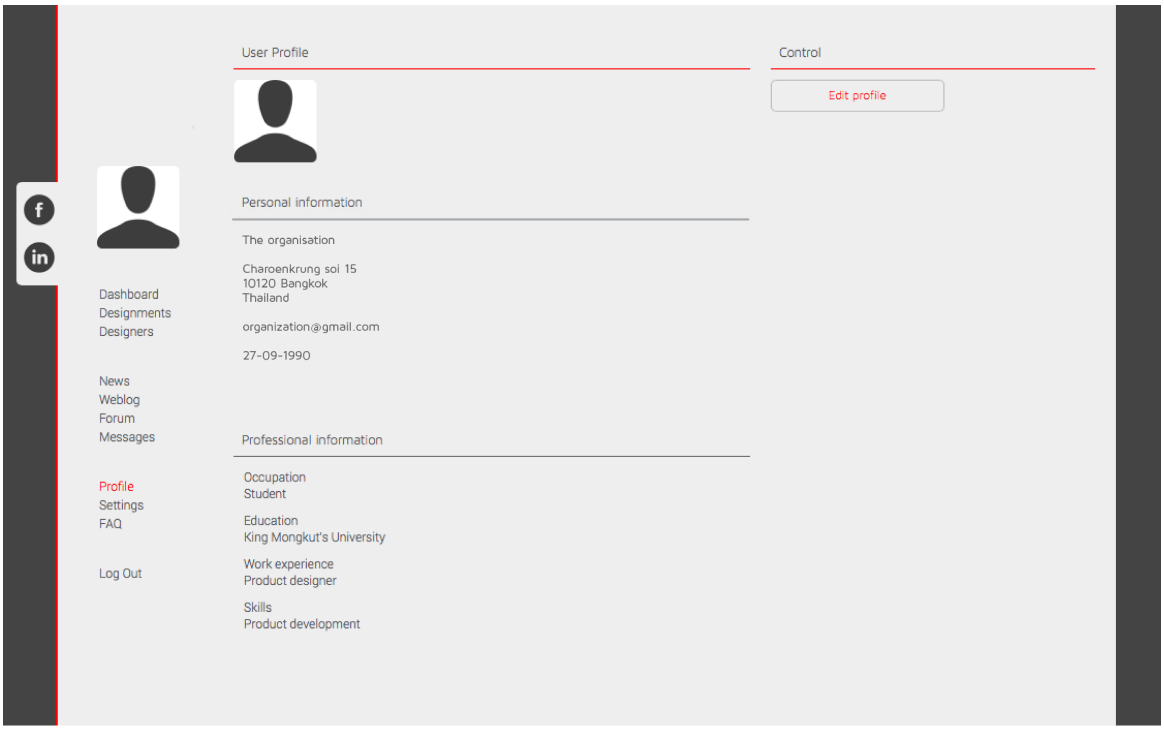

Figure 4.23 Profile

The profile that designers create (to register) is adjustable via the profile feature. In this way, designers can change their profile picture, portfolio and personal information. To do this, designers have to click on the button ‘edit profile'.

Designers:

- Can edit their complete profile (to keep the information up to date).

The organization:

- Is able to provide an updated designers database (to find people with for instance specific design related skills).

4.5.9 Settings – application

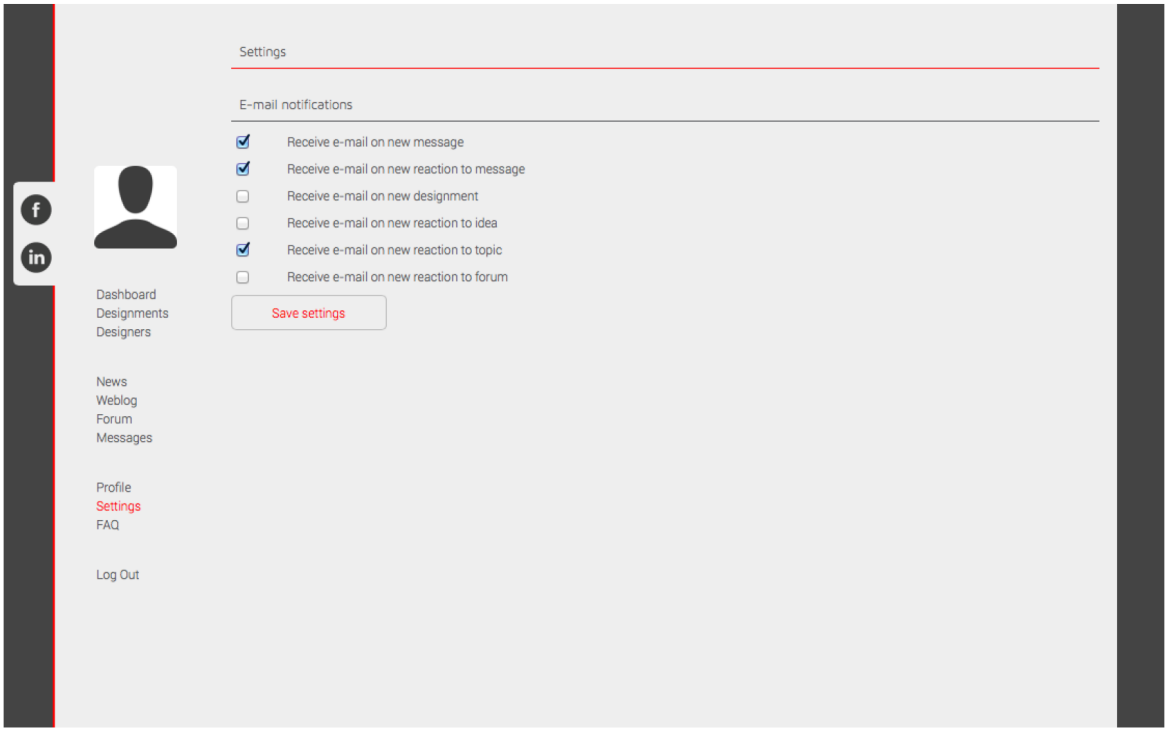

Figure 4.24 Settings

To keep the registered designers informed about different activities on the platform, email notifications are integrated. When a designer receives a message or answer on a message via the platform, an email will arrive in their mail inbox to notify the received message. This feature is available for new designments and reactions on topics and forums.

Designers:

- Are reminded via their email (to make sure that they receive all the provided information and stay up to date).

The organization:

- Has another medium to spread important information (which will be easily accessible through a link in the notification email).

4.5.10 FAQ – application

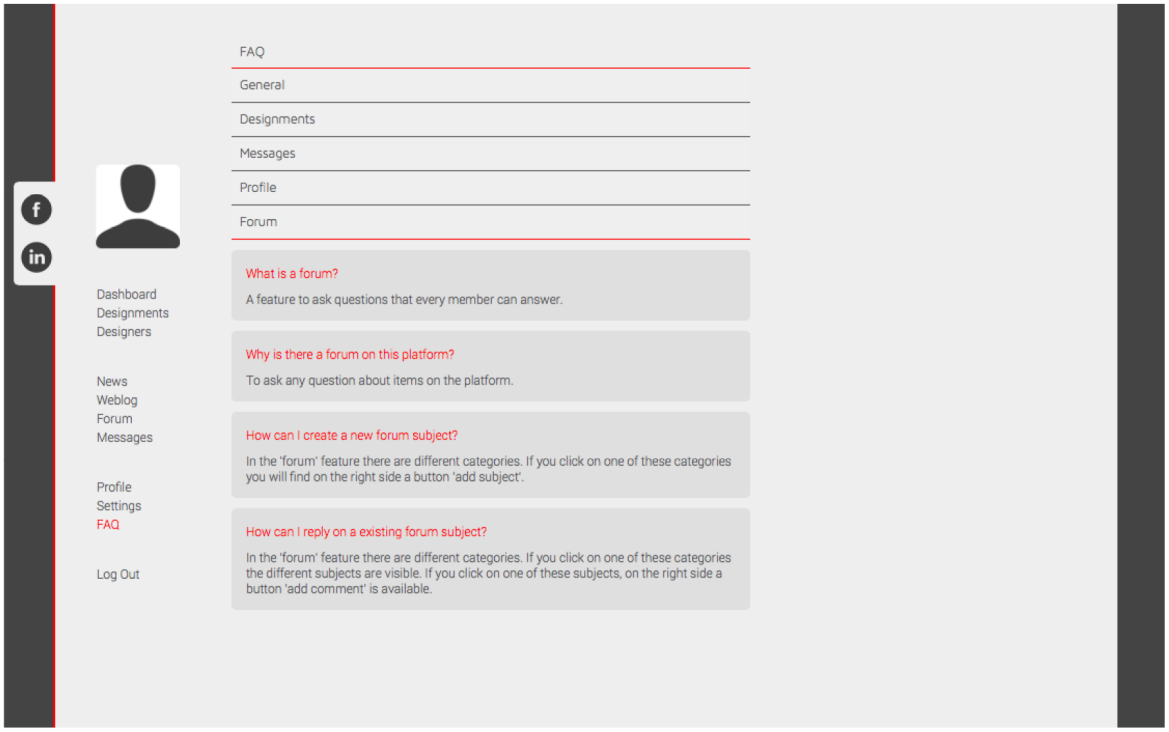

Figure 4.25 FAQ

Due to the many features that the organization provides, there is a possibility that designers have questions about certain options of the application. Therefore, the FAQ is integrated. Via simple questions, which are divided in different categories, designers have the possibility to look up the answer of unclear options.

Designers:

- Can easily look up information about frequently asked questions (without posting the question on the forum or sending any personal message).

The organization:

- Avoids working on answering questions that are repetitively asked (which makes the designers more independent).

4.5.11 Log out – application

The last feature on the navigation bar is called ‘log out’. This leads back to the home page and makes sure that no one else can use the personal account of a designer.

Designers:

- Can safely close their account (which makes sure that personal content is not available for other people).

The organization:

- Uses this feature to keep out other people in using content on the application for other purposes

4.6 Prototype test

After finishing implementation of the features, a company contacted the organization via the contact form. They were interested to run a design project through the platform. This gave the organization the possibility to test the platform in its current status. With the gathered email addresses of designers who joined the presentations, Facebook and LinkedIn, informed the organization designers about the new designment.

Interested designers as well as potential clients had the possibility to see the organization’s founders, registered designers, benefits, collaboration opportunities, news items and finished products on the website. The company’s objective was to design kitchen items that enhance safety and comfort for the end user. A complete description of the designment (appendix 8) was written by the organization. As a result of the announcements, 10 designers subscribed as a creator and 5 designers wanted to review during the design

project. Creators and reviewers of this designment were indicated on the dashboard page. Designers as well as the organization had access to the information by logging in with their email address and password.

4.6.1 Idea generation kitchen items

Creators started to share general information about the kitchen tools via the topic feature and generated ideas. Every designer described the idea in detail and had the possibility to upload images. Reviewers supported the creators by providing comments. The organization gave comments as well to make sure that the project was heading to the right direction.

Some designers created more than one design of the same product idea, while the client planned to choose in the end 8 different products. These designers were only possible to inform after they had created and uploaded their idea, because the platform has no feature to record and guide the research process.

4.6.2 Midterm for feedback of the generated ideas

During the midterm, every creator received feedback on their result, to provide guidance and indicate whether ideas were according to the client's requirements. Creators and reviewers were communicating through the topic option among each other. The forum feature, to ask general questions, was not used at all.

Based on feedback from the organization, during the midterm and comments of the reviewers, creators modified their ideas. It was possible to do that by revising the product description and the attachments with pictures, drawings and renderings. This kind of

communication between designers broadens their network and feedback from the organization provided the first valuable information for more experience.

4.6.3 Result of the idea generation process

Finally the designers handed in 10 different ideas (appendix 8). Those ideas were presented to the customer during a face-to-face meeting. The organization was therefore in the occasion to explain details and answer questions directly.

It is important to explain the details because the client did not have a design background and sometimes faced difficulties with understanding the ideas. Finally, they chose 8 ideas for further development. All the registered designers were informed through the platform. Different news items show which ideas were selected in combination with the creators and reviewers. When designers had their settings saved correctly, they would receive a notification email as well. The creators of the selected ideas received also a personal message about the idea selection and were asked whether they wanted to share a percentage of the cash reward with the reviewers. Some people shared a part of the cash reward with their reviewers, which enhanced the connection between those designers. The creators received also an official certificate mentioning they were the creative brains behind a selected idea. Since every designer has confirmed the terms of agreement during their registration, the organization is the owner of the not selected ideas. This is to avoid that any content on the platform will be used for development with other companies.

4.6.4 Development process of the kitchen items

The development team of the organization will craft the selected ideas into product designs. Therefore, the product designer adds technical solutions, sizes and materials according to the requirements of the client. The engineers make 3D drawings based on the result of the product designers. During the drawing process, manufacturing processes are already taken into account. This complete development process will be shared in different steps via the news items, to provide a valuable experience. It gives creators and reviewers exposure as well since they are linked to those ideas. After the development track, the organization will send a prototype and production sample to the creator of the selected idea.

4.7 Summary

The requirements of the prototype are based on the results of the research methodologies. These results indicate the latest status in the field of education, profession, connection and digital technologies. The business implementation shows how the prototype can be used for real design cases.

To establish the prototype, features are communicated with the web developer through the system flow, in combination with a detailed description. This description indicates also the advantages of each related stakeholder.

The prototype is tested with a designment that comes from a real company. The client was satisfied with the result and the organization could start the development of the selected ideas. In chapter 5, the requirements are indicated to improve the exiting prototype.

CHAPTER 5 CONCLUSION

Carly Fiorina [10]: Many people see technology as the problem behind the so-called digital divide. Others see it as the solution. Technology is neither. It must operate in conjunction with business, economic, political and social system.

5.1 Platform validation

In general, the case study went very well and gave a lot of detailed information about how designers used the features on the platform. This test case is validated to see how the platform can be optimized.

5.1.1 Feedback from the designers

There are designers who have a website instead of design work in a document to show their portfolio. For them there should be a possibility to mention their website instead of creating a special portfolio for the registration. When the designers were registered, the organization had to confirm their registration. This is to make sure that the platform only consisted of designers with the right intentions. For the designers, it was not clear that the organization still had to approve their account. When designers uploaded their work, they could not order the attachments and it took a lot of time to bring the attachments online. This deterred a lot of designers to upload their work because it was too difficult and time consuming. It is important to avoid any inconvenience for the designer during the upload process. The possibility to explain the idea in detail worked very well since all designers provided a clear explanation. The attachments from some designers were not visible in the right colors and this is why they sent the attachments also by email to the organization. Moreover, designers were concerned about the security of their work. Since every other

participating designer was able to see their ideas, there was a possibility that one of the participants used their idea for other purposes. Therefore, it needs to be reconsidered how designers can visualize the work only for the organization. On the other hand it is also important to provide a possibility among designers to give and receive feedback. The main objective for the organization is to make ideas reality, but in the end not every idea can be selected for further development. This is why the designers asked whether it would be possible to receive non-selected ideas back. In this way, they still have the possibility to revise their idea independently.

5.1.2 Feedback from the client

The companies that would finally take the idea into production were very satisfied about the results. They were only concerned about the openness of the platform. When every designer can see the project description, also competitors are able to read this. The designment describes a problem that is based on their research and knowledge. This is where the client gets concerned since there is a possibility that they loose the potential to become market leader of a certain product range. A balanced solution therefore is necessary to provide the designers enough information but keeps important data safe.

5.1.3 Concerns from the organization

The forum feature is the only feature that the designers did not use. The FAQ feature provided enough information for designers who had a question. If the answer on their question was not mentioned in the FAQ, most of the time their question referred to a personal issue. Therefore, designers contacted the organization via the message feature. This is why the forum feature can be taken out, to avoid unnecessary features. Designers

can upload only the final idea in the current platform, while the research track can be valuable as well. This makes the ideas even more substantiated for the client. On the other hand, designers should not get required to hand in their research since the organization focuses on working according to the designer's interests. If their ideas finally got selected for further development the client expects, in the current platform version, the freedom to change the complete idea. In this way, there might be a chance that the designer does not want to get associated with the final product anymore because his or her intentions with the idea could be eliminated. This situation can be improved by a closer collaboration between the designer of the selected idea and the client. In other words, the designer can be involved during decisions in the development track. It can lead to a better result as well, for the designer can keep improving the idea. Furthermore, there is a concern when the client wants to patent an idea. The ideas are generated via an open source platform and created by the designers. It is important is to think how the designers can be involved in this process and will be rewarded for this as well.

5.2 Improvements for the future

The platform can be improved based on the prototype validation. This should create more trust and work efficiency for clients, designers and the organization. Therefore, this will be continued with the existing features, but sometimes in a modified form.

5.2.1 First contact with the organization

The website is the first possibility for potential clients, potential designers and other online users to get in contact with the organization. The following overview shows how every page on the website will motivate these people to participate in the organization, according to their demand.

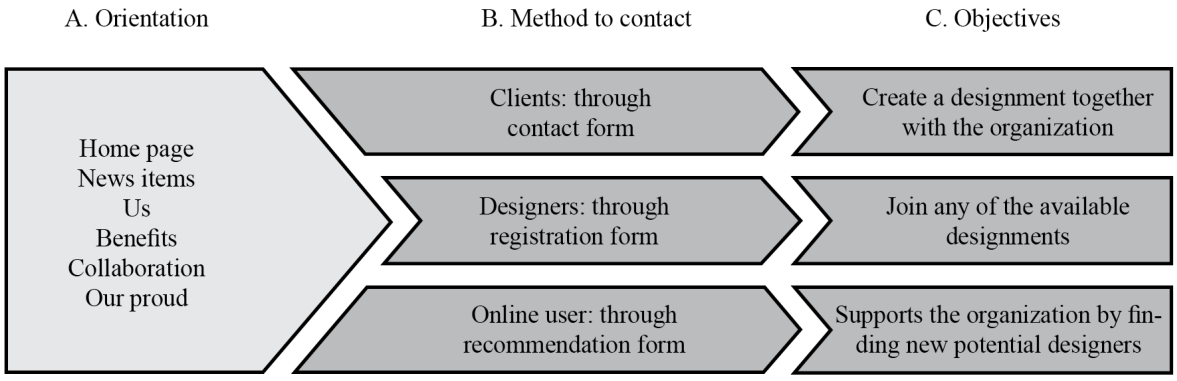

Figure 5.1 Objectives website pages

During the orientation phase (A), every online user will be able to see via the pages home, news, us, benefits, collaboration and products of what the organization stands for. Secondly, every online user can contact the organization through different methods (B). When a company is looking for an organization that has the possibility to generate ideas and craft those ideas into products, they can contact the organization through the contact form. An interested designer can register through the registration form. Processes to inform the designer about the approval of their membership, consist now of 3 different moments. When the designers register, they will receive an email with a link to confirm their email address. This email already mentions that afterwards the organization needs to approve their membership. Also, when the designers confirm the registration by clicking on the link on the platform, there is a mentioned that the registration is confirmed and shall be

approved by the organization within 7 days. If the designer still tries to login with the account that is not approved yet, a message that the account shall be approved within 7 days appears. Online users without any affinity with design could have friends that are interested to join the organization. They can recommend their friends through the recommendation form. In this way, the organization tries to achieve 3 goals (C). With companies that contact the organization about the design possibilities, they try to start a project. This begins with the set up of a designment, which will be in close collaboration with the company. By providing the registration form online, designers are able to easily register. This leads to more idea generators for the designments. Furthermore, supports the recommendation form potential designers to register on the platform. Afterwards registered designers always have the possibility to modify their profile and can set up email notifications for any progressions on the website.

- Clients: get in this way the possibility to provide as much information as they want. If they prefer not to mention certain information due to the security of their research, it is possible to make certain information not available.
- The organization: will translate only provided information into an interesting designment for the designers and can ensure that designers will not deter to register, regarding the improved registration process.
- Designers: can decide whether they would like to join a designment, based on the description and can register with their portfolio as a website as well as a digital document.

5.2.2 Idea generation process

When the designment is online with more designers registered, the idea generation process can start. To improve this process, according to the results of the prototype validation, the features are on the platform slightly modified.

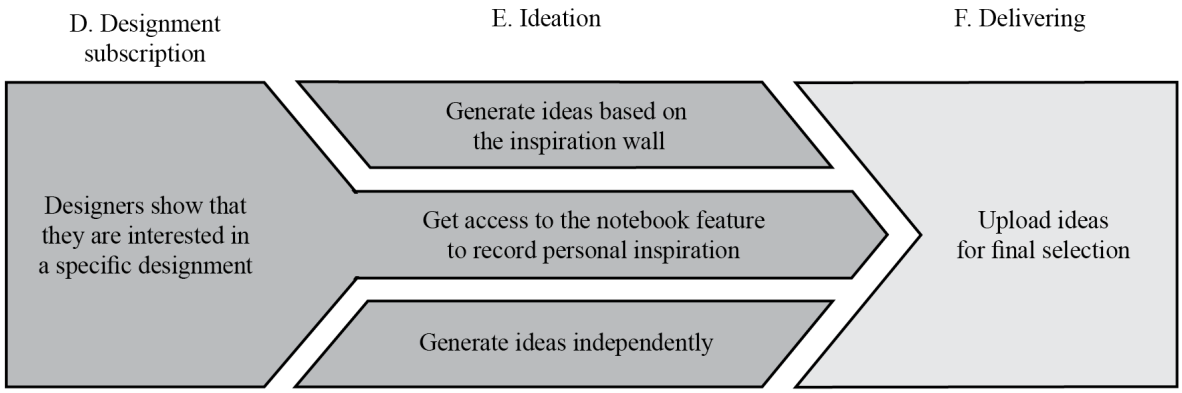

Figure 5.2 Idea generation process

The first step of the idea generation is the designment subscription (D). Designers can subscribe for any designment, which is presented on their dashboard, according to their interest. This provides them directly access to a personal notebook feature to record inspiration about this specific designment. In this digital notebook, it is possible to save notes, images and videos. This notebook stays the complete idea generation process available for every designer.

- Clients: have an idea how many designers will be interested in their designment, which is indicated on the dashboard.
- The organization: can send related information about the designment to the designers who subscribed for the designment.
- Designers: have the possibility to record their personal findings in a digital way.

During the ideation (E) designers have 2 ways to create their ideas. Firstly, they can join the research track via the inspiration wall. Every designer can describe and visualize their experience about similar products, compared to the designment.

- Clients: will receive research, based on personal experiences from people all over the world.
- The organization: has the possibility to lead the ideas into a certain direction by posting information on the wall as well.
- Designers: get inspired by people that share the same interests on a global scale.

Designers who do not want to join the research track have the possibility to create ideas independently. In this way, the organization gives every designer the possibility to work in his or her own way. These designers will not have the possibility to see the research track. This stimulates the designers to post their personal experience on the inspiration wall. Via the blog feature, every designer is able to read general design information.

- Clients: receive also results from designers who prefer to work independently.
- The organization: provides every designer a digital space to work according to their preference.
- Designers: have the possibility to work out a stroke of genius, which is not based on a research track.

The forum feature will be available for every designer to ask for feedback from other participants of the designment. If the designer wants to ask the question to one particular designer, they can look up the person via the page with the list of designers and write a message.

Finally, designers will upload their ideas for delivery (F) to the organization. To solve the problem about the attachments, which were not visible on the website in the right colors, a small investigation was needed. All in all it turned out that some designers saved their files in CMYK format instead of RGB. That is why the colors were not the same on the website. This color issue is described in the FAQ, so that designers are able to find the solution by themselves next time. The possibility to arrange the sequence of the attachments is added. Also when a designer uploads any document, there will be an indicator to show how long the upload process will take. Furthermore, the bandwidth is increased to improve the speed of the uploading process. The ideas will not be visible for other participants. They are only visible for the organization.

- Clients: are ensured that people with other intentions can not make use of the ideas
- The organization: can gather the ideas from every designer who joined the designment.
- Designers: will not have a chance that their idea will be used by other designers and still have the possibility to ask for feedback through the topic feature.

5.2.3 Product development process

In the last part, the organization crafts selected ideas into products for real production in the factories. This also involves the in-house development team with product designers and engineers.

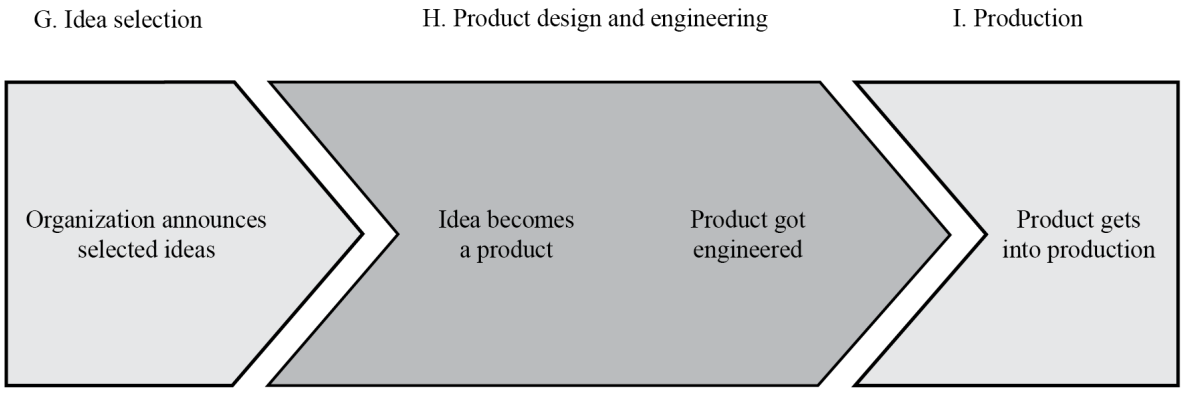

Figure 5.3 Product development process

After the deadline is reached and designers handed in their ideas, the organization shows every idea to the client. The client can select the ideas for further development and the organization will announce the selected ideas (G) via the platform.

- Client: can give feedback about the idea selection to the designers, which will help the designers during new designments.
- The organization: can show that ideas become reality via new items, which will motivate new designers to join next designments.
- Designers: receive exposure because their profile is linked to the selected ideas.

Based on the requirements of the client, the development team starts to craft the idea into a product and afterwards engineers parts according to the production possibilities of the manufactory (H). For this process, the designer of the selected idea will be more involved.

The message feature will be used to discuss personally the details during the design process.

- Clients: will be guaranteed that the idea stays in its optimized form because the designer is still involved.
- The organization: has an additional recourse for the development track.
- Designers: will be closely involved, which gives them the best experience and makes sure that they will be satisfied with the final product.

Ideas that are not selected will be given back to the designers to give them the possibility to develop them independently.

- Clients: are not interested in ideas that they do not select.
- The organization: handles according to their main objective, which is making ideas reality.
- Designers: have all the freedom to develop their ideas independently.

Production of the developed idea is the last part of this track. This will happen in the factories and is interesting for designers to see.

- Clients: can show the result by making videos, which will promote directly their product.
- The organization: can show their capabilities through news items, which motivates designers to join new designments.
- Designers: receive exposure since their profile is connected to the developed products.

5.2.4 Finalized products

The complete track will lead to products in the shop, which is the main objective of the organization. If a product gets patented, designers will be mentioned in the patent documents as the designer of the product. By making the improvements on the platform, the organization will be able to provide a real valuable experience. Moreover, designers will receive exposure and an official certificate on which is mentioned that they are the creative brain behind one of the products. Since designers from all over the world can join the organization, they can build up a network with people who share their passion for design. At last, there will be a cash reward available for the designer of the selected idea.

5.3 Recommendations for the future

For any improvement in the future it is important that the benefits for designers and companies are well balanced. Therefore the paradoxes, which are described in the next section, need to be well considered for every new development step.

5.3.1 Share or secure

The main reason to join this platform for the designers is the value-based aspect. This means that the more information will be shared, the higher their benefits are. On the other hand, security decreases when high valuable information is shared online. Something where companies are worried about, since they want to avoid that their competitors can take advantage of the information.

5.3.2 Collaborate or compete

When designers interact with each other and exchange feedback, their ideas can reach a higher level. After the idea selection, every registered designer can see how the selected idea will become reality. The designer will receive a cash reward, certificate, prototype and production sample as well. Most of the designers will therefore be challenged to increase their chances to get selected by improving their own deliverables to a very high quality level. That is why collaboration cannot be applied for every step of the idea generation process.

5.3.3 Design or sale

The designer of the selected idea has certain intentions with their idea. Often, the vision of the designer is different compared to the vision of the company that needs to sell the product. The right balance is achieved when the product can become a commercial success, but still contains the intentions of the designer.

5.3.4 Offline or online

Although there are many possibilities with digital innovation, many ideas are still created without a computer. Creating sketches on paper and making physical models provides a lot of feedback. The organization is based on an online platform and needs to have the intention to provide the same convenience online for designers.

5.3.5 Company's rights or designer's rights

Every designment involves input from the designers and the company. Ideas are created by the designers, but companies pay money for the ownership of those ideas. When we talk about other related aspects of the design, like for instance patents, it necessary to make sure that both parties can benefit from this aspect.

5.4 Summary

Although the platform is in its start up, the test case gave a positive experience and had a good outcome. Furthermore, it provided feedback for improvement. With this improvement, it will be possible for the organization to provide work even better according to the interests of designers. This leads to an efficient way of working and develops the designer's experiences. Since designers have the possibility to check out profiles of other designers, they can build up a network. Contributions will lead to exposure via news items and designers of selected ideas will receive a cash reward as well. For every improvement in the future it is important to take certain paradoxes into account because the involved parties have different intentions. Improvements can raise the amount of registrations to make sure, even more, that every designer can participate any time, from all over the world and make ideas reality.

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APPENDIX

1. Interviews

Full name: Apirom Kongkanan
Study background: Industrial design bachelor and master of fine art
Occupation and organization: Industrial design department instructor, King Mongkut's University of Technology Thonburi

1. What is the difference between your education and the education that the students get today?
At the time that I was studying, every designer was supposed to have a professional attitude. When I came back from my study in America, the industry in Thailand was quite different. During my study period there was no collaboration with real companies. The trend is to involve these companies as much as possible nowadays to give students a practical learning experience.

2. What are in your opinion the biggest advantages of the technologies, which we are daily using?
Nowadays students are more used to the new technologies and use them a lot. This helps to gather information but the students need also more skills, because of the high amount of different tools.

3. How do you motivate students to work on their assignments?
In my opinion the teacher should be a coach. Every student has an own space and works on the assignments. I do not force them and let them lead. They only get advice. In this way my role as a teacher is actually more like a design director.
You cannot make students a professional. This they have to learn via practical experiences.

4. When a project is finished, what happens with the work of the students?
Most of the time when the assignment is finished, students get a grade but do not use their work anymore for further development.

5. Are there any possibilities for talented or interested students to develop their skills?
They can select courses from different tracks. They believe at this school that it is important to discover all kind of design aspects, which students can select according to their own interest.

6. What is in your opinion the value of an internship?
To get out and see the real world is great. Unfortunately in Thailand there are less opportunities to do this. Therefore it is difficult to get a proper internship. To go abroad is very expensive for Thai students, so this is only possible with support in terms of money.

7. Do the students get any help with the preparation for job interviews?
Yes, there is a professional practice course, but this is more focused on design business in Thailand.

8. Is there any possibility to make the educational situation even more valuable by digital technologies (for students) in your opinion?
Yes, by creating a working way that is even more remote.

Full name: Jacques van de Kamp
Study background: Bachelor mechanical engineering in the Netherlands
Occupation and organization: Lecturer mechanical engineering at Fontys University of applied sciences

1. What is the difference between your education and the education that the students get today?
Design is nowadays more than only creating products. Designers across the world start to think how design can contribute to solve problems. Therefore design becomes more valuable for a broader target group.

2. What are in your opinion the biggest advantages of the technologies, which we are daily using?
Information is quickly available at any location. Of course you have to filter the information, since it is not possible to trust everything from the Internet. On the other hand is gathering personal information nowadays also quite easy through the web.

3. How do you motivate students to work on their assignments?
You have to provide assignments that are focused on currently interesting cases. Furthermore you have to follow students in their process and keep stimulating them. Important is to provide an alternation between group projects and individual projects. For the individual projects we still try to make sure that students share their thoughts. In this way they encourage each other to reach the best result.

4. When a project is finished, what happens with the work of the students?
At the moment we established a good collaboration with companies like for instance Philips. Students get the possibility to show their work. If this is reaching the right quality, there is a big chance that Philips uses this for further development.

5. Are there any additional possibilities for talented or interested students to develop their skills?
Not really. Students can choose a minor to improve their skills for a certain technique, but most of the students will go for the minor that is similar to their major.

6. What is in your opinion the value of an internship?
This is very important. Our education starts with two years of basic knowledge. Afterwards students have the possibility to apply the information that they gathered, during the internship. As a university it is impossible to simulate exactly the real business world. Students finish their education with a graduation project in a company. In this way they have sufficient experience in working with other people, building a network and discovering their interests for the future.

7. Do the students get any help with the preparation for job interviews?
Yes, they have a communication course. During this course they get trained in application interviews. Also third parties are involved in this course to test the students.

8. Is there any possibility to make the educational situation even more valuable by digital technologies (for students) in your opinion?

Set up a more intensive cooperation with real companies all over the world. It is important to provide the basic information through courses, but universities and companies should work more together to make sure that the education prepares the students better for the real world. This can be achieved by online connections as well.

Full name: Chokeanand Bussracumpakorn
Study background: Bachelor in industrial design, master in design management and doctor in design
Occupation and organization: Chair of the Graduate Program of Design and Planning, School of architecture and planning

1. What is the difference between your education and the education that the students get today?
There are a lot of new technologies. Students can use 2D and 3D software now. At the time that I was studying, the focus was more on hand skills.

2. What are in your opinion the biggest advantages of the technologies, which we are daily using?
They are great to work out designs. Unfortunately there are no tools yet that stimulate creativity. You have pens and pads, but these are only tools to work out the designs. Hopefully tools will enhance creativity as well in the future.

3. How do you motivate students to work on their assignments?
By giving them support and try to help developing their ideas even further.
My goal is to challenge them, rather then evaluating and judging.

4. When a project is finished, what happens with the work of the students?
We rarely have the possibility to implement it. The ideas are always far ahead compared to what companies need at this moment.

5. Are there any additional possibilities for talented or interested students to develop their skills?
Of course, but in a very flexible way. Students can join any course where they are interested in. In this way they can develop according to their own motivation.

6. What is in you opinion the value of an internship?
Nowadays it should not be elective anymore in my opinion. Before knowledge was contained in particular work places, therefore you needed an internship. Today information is everywhere available. It will only be valuable when students get deeply involved in the projects.

7. Do the students get any help with the preparation for job interviews?
Yes we have specialists for this in the university and also the regular staff is always available for advice.

8. Is there any possibility to make the educational situation even more valuable by digital technologies (for students) in your opinion?
The education should focus on learning students how to master skills, according to their interests. Furthermore they should get a better overview about the international way of thinking and working with different sectors, which can be shared through digital technologies.

Full name: Koen de Wandeler
Study background: bachelor in architecture and master anthropology
Occupation and organization: Assist professor and lecturer at the faculty of architecture at KU Leuven

1. What is the difference between your education and the education that the students get today?
Students now have more opportunities for exposure, especially abroad and to other fields of study.

2. What are in your opinion the biggest advantages of the technologies, which we are daily using?
The access to much wider and diversified knowledge. Everything is available online.

3. How do you motivate students to work on their assignments?
Ask the right questions to raise their interests. They have to give answers.
I don't provide knowledge they provide the knowledge. My goal is just to ask the right questions. In this way I can build up my courses, adapted to the interests of the students.

4. When a project is finished, what happens with the work of the students?
Very often the work is related to a specific case. When a company is involved and they like the work, it can definitely be that the will try to implement it. Another possibility is that the student puts this into an article for publicity. In this way it is also attractive for the university. When this is in collaboration a professor, most of the time the biggest advantage is for the career of the professor.

5. Is there any additional possibility for talented or interested students to develop their skills?
Yes, this happens more and more with workshops or seminars or lectures. These possibilities are not compulsory and students have the choice to attend or not.

6. What is in your opinion the value of an internship?
In Belgium this is compulsory to be a registered architect. In this way you learn the profession, which is absolutely necessary.
In school you get background knowledge, the ''hands on'' knowledge will be provided when you are working in a company.

7. Do the students get any help with the preparation for job interviews?
At our university is a course about office management. They also have student projects to build up a portfolio.

8. Is there any possibility to make the educational situation even more valuable by digital technologies (for students) in your opinion?

Yes, I think that there are possibilities to have online joined workshops and courses. I teach my class in Leuven (Belgium) and it would be great when I could also teach the same class in another city or country.

In this way we expand the class to the whole world, but the whole world will come also into the class.

Actually not only courses could be set up in this way. Our university has two other locations and my colleagues still plan meetings according to their attendance at a certain location. When we would do the meetings via a digital way, you can reduce your food print, safe time and work more flexible. We need to make more use of the exiting technologies.

Full name: Daichi Iwase
Study background: Bachelor design management in Tokyo and master Design Academy in The Netherlands
Occupation and organization: Lecturer product design at King Mongkut's University of Technology Thonburi

1. What is the difference between your education and the education that the students get today?
When I was following my study, every course was providing theoretical information. We did not have projects while students nowadays join projects with real companies.

2. What are in your opinion the biggest advantages of the technologies, which we are daily using?
It can help people to easily access information. Actually the whole study can be remotely since you don't get the information only via teachers. At the moment it is only a support for education.

3. How do you motivate students to work on their assignments?
This is not really the responsibility of the teacher. They should be interested to work on certain assignments by themselves.

4. When a project is finished, what happens with the work of the students?
Students can show their work on the main campus. There is a kind of exhibition, but important is that the models are of the right quality.

5. Are there any additional possibilities for talented or interested students to develop their skills?
Only by selecting elective courses.

6. What is in your opinion the value of an internship?
I think that the most significant value of an internship is that students get in touch with real design work. This is totally different from what we do here at school. Design firms will give them a real experience.

7. Do the students get any help with the preparation for job interviews?
There is a course where they get trained to apply for a job, but I am quite new in this university and don't know the details of this course.

8. Is there any possibility to make the educational situation even more valuable by digital technologies (for students) in your opinion?
If the school would be more like an incubator, they are more valuable for the students and also the society. In this way, students will be better prepared for jobs in a real work environment.

Full name: Alvaro Conti
Study background: Bachelor graphic design, master film and Riba architecture (first 2 parts)
Occupation and organization: Interior department instructor, King Mongkut's University of Technology Thonburi

1. What is the difference between your education and the education that the students get today?
In my opinion, our generation is generation 'why'. During my study I had to explain every step. This generation is the generation 'why not'. Students do not need to explain every step and their work goes way broader. Information is accessible in terms of databases and everyone has access to everything.

2. What are in your opinion the biggest advantages of the technologies, which we are daily using?
That information decentralizes. The information is not longer in hands of a few and gives insights and transparency in many cases. This motivates to start projects with other people who can offer you unmet needs, wherever they are.

3. How do you motivate students to work on their assignments?
By linking the education to students' life. This engages their capacities with the world. In my opinion is former education a bored format. The classroom is completely dissolved. Information comes from everywhere.
You can only survive with cooperation. This is highly stimulated today and helps to align you with the capacities of others. The power is in the interaction, not in individual knowledge.

4. When a project is finished, what happens with the work of the students?
Students record it in the best way they can. This is highly valuable for their future, since they can use this to create a portfolio.

5. Are there any additional possibilities for talented or interested students to develop their skills?
Students are not fixed to the classroom anymore. They can specialize according to their interests. School has become a social environment to share work.

6. What is in your opinion the value of an internship?
It can give you a practical experience, but there is not really a need anymore to be on the spot. Digital technologies made it possible to communicate information from all over the world.

7. Do the students get any help with the preparation for job interviews?
The study teaches students to speak about their work. This enhances project discussions to make connection with real businesses.

8. Is there any possibility to make the educational situation even more valuable by digital technologies (for students) in your opinion?
The idea of education needs to be exploded to something much wider. The function of a teacher is not based on giving knowledge anymore. It is all about providing a wider view and let students become independent entrepreneurs. Digital technology is therefore the most important medium.

Full name: Sharon Poggenpohl
Occupation and organization: former design professor at Hong Kong Polytechnic University, Institute of Design, Illinois Institute of Technology and Rhode Island School of Design

1. What is the difference between your education and the education that the students get today?

My education, because of university requirements, crossed between art and science. I have a bachelor and master of science degree in design. This was unusual at that time and continues to be a bit odd, but I was well educated beyond design, particularly in the social sciences. As my interests in design grew and changed from an aesthetic (artful) focus to a more human-centered focus, my social science background and continued reading in this area served me well. My education was in the pre-digital era, my first research was analyzed after creating punch-cards, then given to a lab assistant who ran them on a remote computer. This aspect of education is certainly different today as easily accessible computers and software are under students' personal control.

The craft of design, thanks to the computer, is fairly automatically achieved. But the thinking—by design—remains a challenge. I fear students get too caught up with the technology and the making of a solution rather than thinking deeply, using or doing research as necessary to advance their project, taking the time and risk to be creative. Human-centered design has taken off in many universities and this is to be applauded. Designers, both student and professional, need to engage in life-long learning, because social, technological, and cultural change seems to happen faster than ever.

While undergraduate degrees are fairly standardized in terms of goals and learning, graduate degrees are an opportunity to focus on new skills that lead to expertise in areas beyond the first degree. I suspect most design students are unaware of the possibilities and meaning of advanced degrees. Too much design education is caught up in the past (typical projects that require only form making, aesthetics) and tied to the present (technology) but not really thinking about the future. Design is really about the future and this is what prepares students beyond their first design position.

2. What are in your opinion the biggest advantages of the technologies, which we are daily using?

• Easy access to a wealth of information via the Internet. This, however, requires a critical attitude about the value and authenticity of the information.
• Software that expands, corrects, resolves a design idea easier. This, however, also needs a critical attitude so we don't become trapped by the software's affordances. Sometimes the designer needs to think and go beyond what is easily done.
• Games as vehicles for learning can be effective. The downside of this is getting addicted to games in general.
• Contact with colleagues, friends, and family across the world via email or Skype is a powerful connector in many ways.

3. How do you motivate students to work on their assignments?
• Design an assignment that is interesting, appropriately challenging (not too hard, not too easy, build on what students know or don't know but should know, support creativity).
• Give an honest critique of their work with constructive criticism and encouragement.
• Share my passion for design and the possibilities of what they are working on.
• Get to know them as human beings and ask what they want to learn. I can adapt the courses to their interests.

4. When a project is finished, what happens with the work of the students?
Sometimes the work is displayed at an exhibition, it certainly becomes part of the student's portfolio, it is recorded in the class archive, it may appear on the university website, it may go to a competition.

5. Are there any additional possibilities for talented or interested students to develop their skills?
Universities sponsor all kinds of events (music, scientific symposia, etc.) and they frequently have little help in providing promotional material (posters, ads, website announcements, etc.). This is an opportunity for a faculty sponsor to invent an on-campus design studio, using talented advanced students to design for these events. The student works with a real client who has a real problem.
I did this years ago at the University of Kansas, it was called The Arts and it exists to this day, long after I moved on to other universities. The students did fine work and their clients were appreciative but not always easy to work with.

6. What is in your opinion the value of an internship?
An internship takes the theory, principles and project knowledge learned at the university and puts it into practice. In this way, design becomes real embedded in a life situation with co-workers, clients, time limitations, etc. A good internship benefits both the student and the company, but not all internships are good. It takes time to make the right connections between the design program and the company and then between the company and the student. Sometimes, upon graduation, the student is offered a position in the company in which they formerly interned.

7. Do the students get any help with the preparation for job interviews?
One place where I taught, we coached them on portfolio, cover letters, interview etiquette, etc. We even taped mock interviews for undergraduate students that we reviewed with them later. Sometimes, knowing the student well, we'll make some recommendations for where they should look for a design position. Over the years, many faculty members write lots of recommendation letters for students and serve as references.

8. Is there any possibility to make the educational situation even more valuable by digital technologies (for students) in your opinion?
The cost of a 4-year undergraduate degree in the United States is very expensive. Finally people are becoming alarmed at the cost. However, universities and their design programs seem unable to address this major problem. Technology affords new forms of learning that do not require class attendance or studio participation. Some design classes could use remote learning as a way to keep costs down and accommodate student schedules and

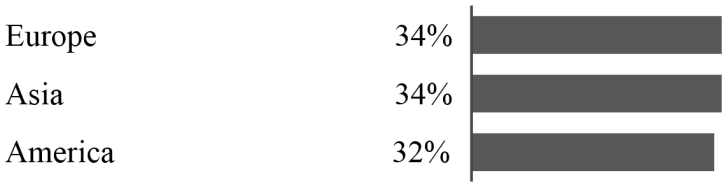
finances. I am not suggesting removing the design school studios or on-campus learning, but supplementing it with other technology-based opportunities.

I have taught and coached graduate-level design research remotely, using email and Skype meetings between Hong Kong students and my location in the United States. I know this can work for mature students. Whether this could work for undergraduates depends on their discipline and maturity.

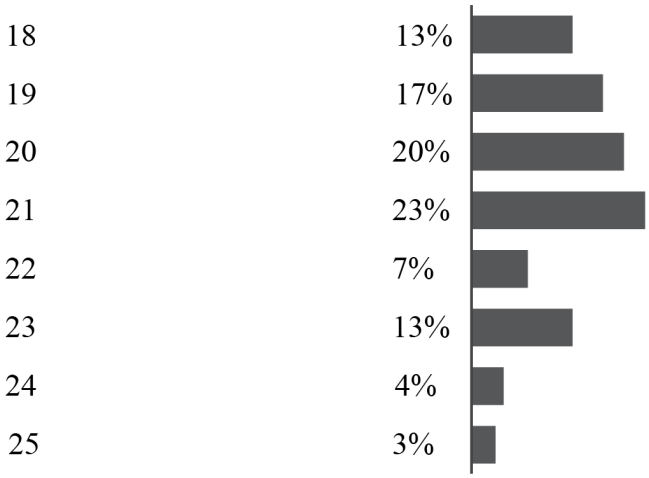
Another possibility that has seen some work is cross-cultural design between 2 design programs in different countries where the students and faculty meet via technology. This can be a very enriching experience if the cultural and program barriers can be overcome.

2. Results survey

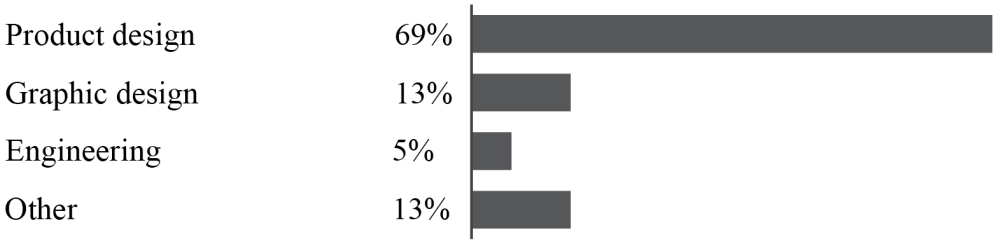
In which continent are you studying?



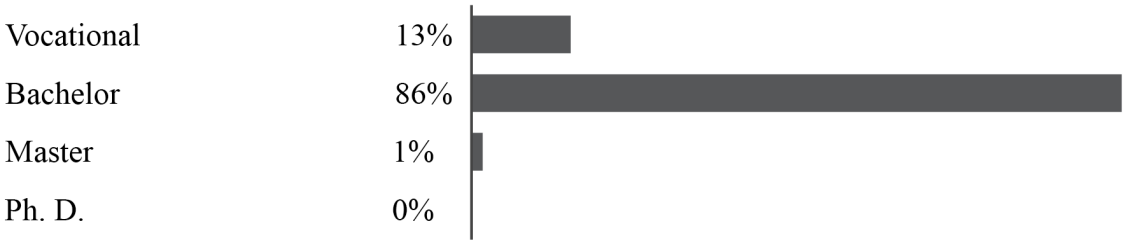
What is your age?



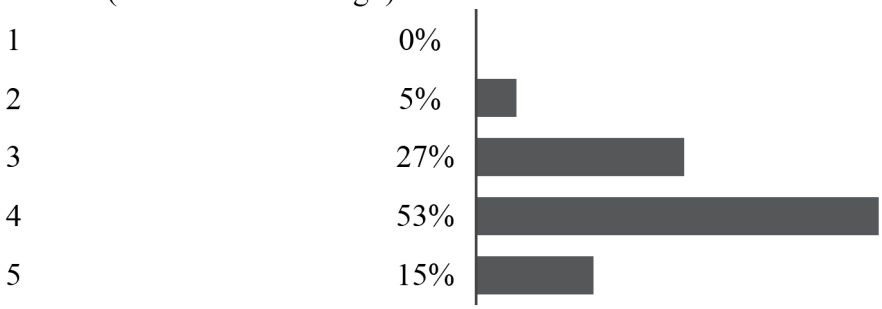
What is your field of study?



What is the level of your study



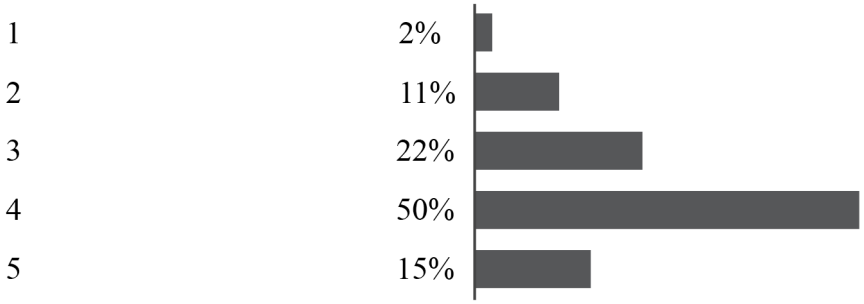
Do you find your current courses have enough content to prepare you for your intended career? (1 = low and 5 = high)



Is your current curriculum made up of compulsory courses and electives?

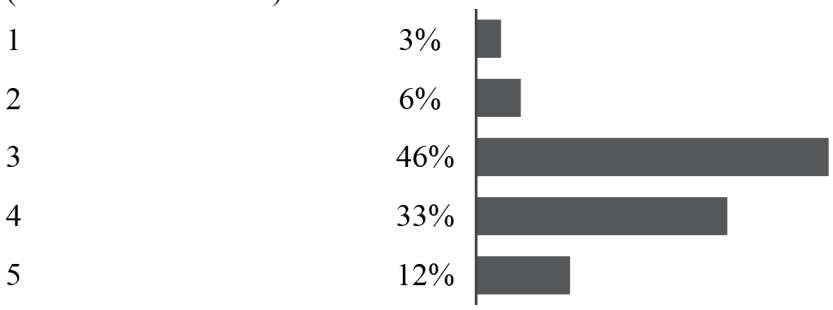
Do you do assignments in groups?

If so how much do you enjoy working collaboratively? (1 = little and 5 = lot)

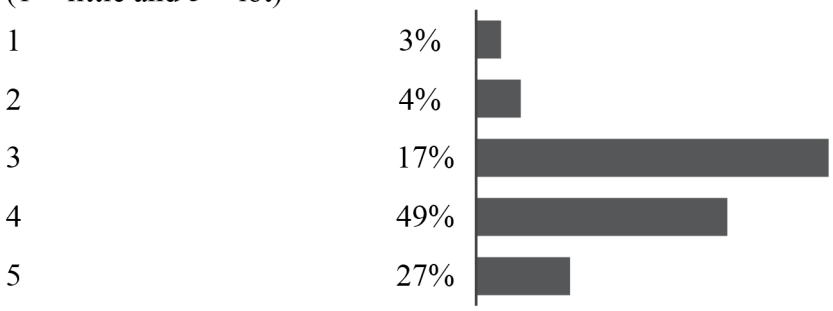


Does your university work with outside/third party industries for class assignments?

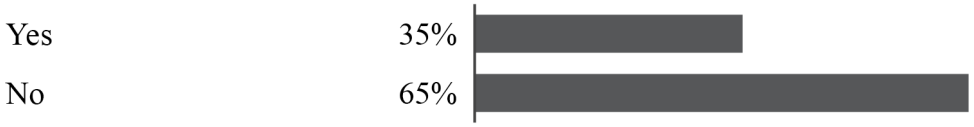
How much do you like to work with third party industries?
(1 = little and 5 = lot)



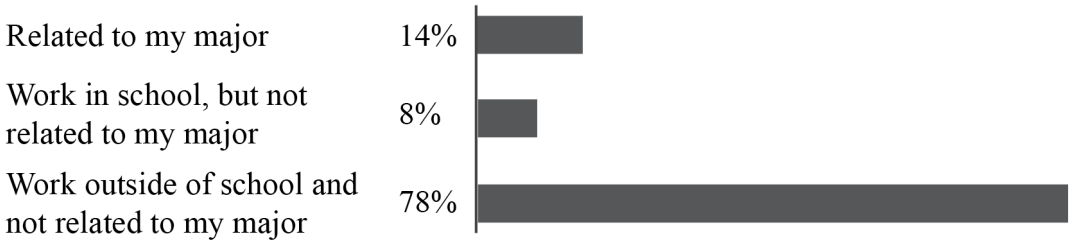
Do these types of projects motivate or inspire you to do your best work?
(1 = little and 5 = lot)



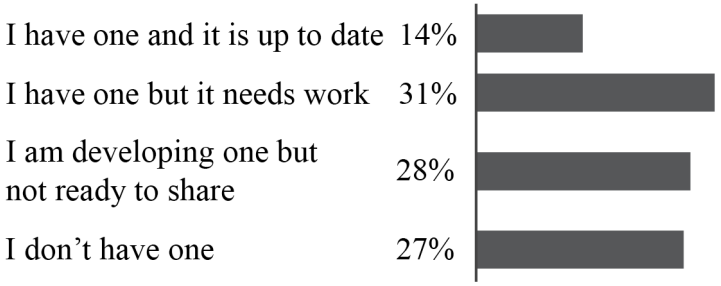
Do you have a job during the semester/while you are in school?



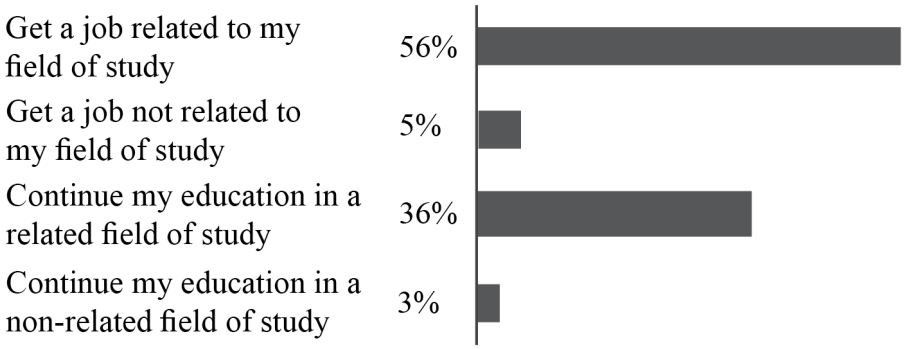
If so what kind?



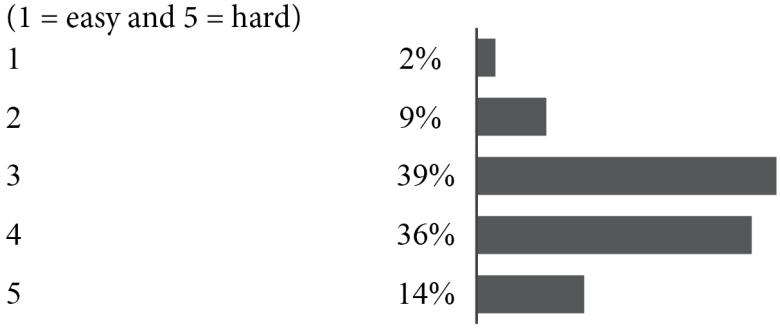
How would you classify the state of your current portfolio?



What are your plans after you graduate?



How difficult will it be to get a job in your country/region related to your major? (1 = easy and 5 = hard)

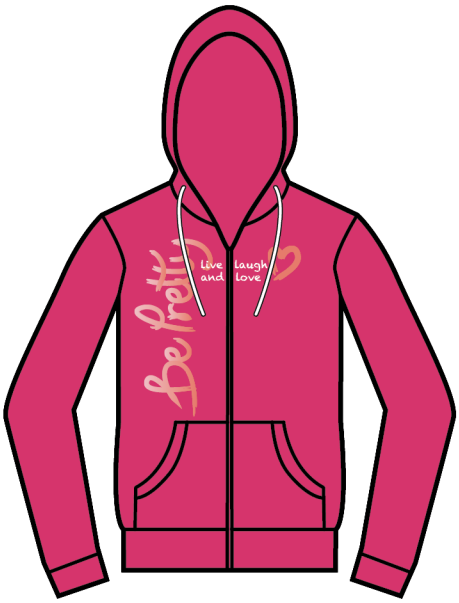


3. Results experiment on remotely working

Design brief: create different graphic designs for the garments. The designer is free to come up with any style, but it should be suitable for the German market. Furthermore it needs to be producible in Bangladesh. Target groups are boys, girls and ladies.

T-shirt boy

By Martijn Veenstra



Sweatshirt girl

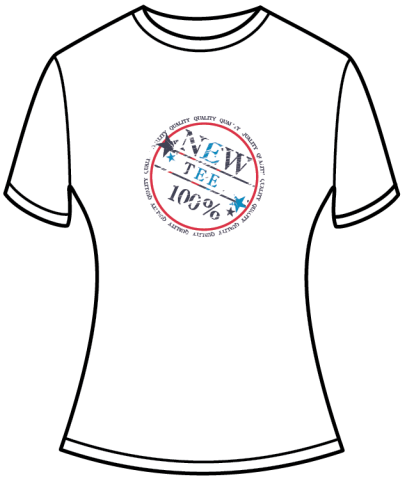
By Mimi Lilmim

T-shirt lady

By Pasunart Makanukhrao

Sweatshirt boy

By Mimi Lilmim



T-shirt lady

By Pasunart Makanukhrao

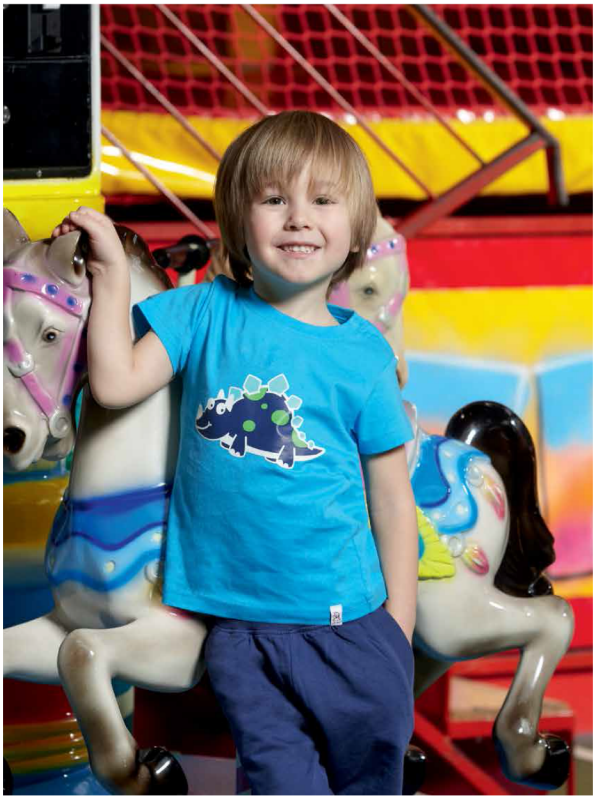
Sweatshirt lady

By Pasunart Makanukhrao

T-shirt boy

By Martijn Veenstra

T-shirt boy



By Pasunart Makanukhrao

Longsleeve shirt girl

By Mimi Lilmim

T-shirt girl

By Pasunart Makanukhrao

4. Different universities

Industrial product design Fontys of applied sciences, Venlo - The Netherlands

LUCA School of Arts, Gent - Belgium

HAN University of applied sciences, Arnhem - The Netherlands

The Hague University of applied sciences, The Hague - The Netherlands

Technical University Eindhoven, Eindhoven - The Netherlands

University of applied sciences Rotterdam, Rotterdam - The Netherlands

Windesheim University of applied sciences, Zwolle - The Netherlands

King Mongkut's University of Technology Thonburi, Bangkok - Thailand

5. Results project in the university

Design brief: develop a product that stimulates children to engage in physical activity in a fun way. They should not realize that they are actually doing something beneficial for their health. The product should combine the following 2 areas into one product.

Area 1: a physical activity.

Definition: activity that should move the whole body and should be a high intensity activity (it should not just be a coordination activity) and should engage the child in physical activity for at least 3-5 minutes in a row.

Area 2: media consumption.

Definition: children spend more than one third of their spare-time in front of a screen (TV, computer, phone etc). The product should contain any multimedia product.

Nice to have: if the product motivates children to do the activity on a daily basis.

Stack m' Burgers

This is an innovative jumping game for kids and can be used as a single player or with multiple players. The game challenges kids in a sequence and time mode of play.

How the game works:

- Each player (1-4 players) has a "Top bun" to insert their feet into. This will force the kids legs to stay together all the time
- The burger fillings such as cheese, mayo, and tomatoes are spread on the field (indoor or outdoor)
- The application challenges the kids to jump and collect the burger fillings according to the picture and sound from the application on the tablet

By Dhanakorn Ocharoenchai

- After the game ends, the kids can see who collected the biggest amount of fillings in a correct sequence.

There are 3 game modes:

1. Survival: race to collect the maximum amount of one particular piece according to the application (e.g. collect most patty and veggie)

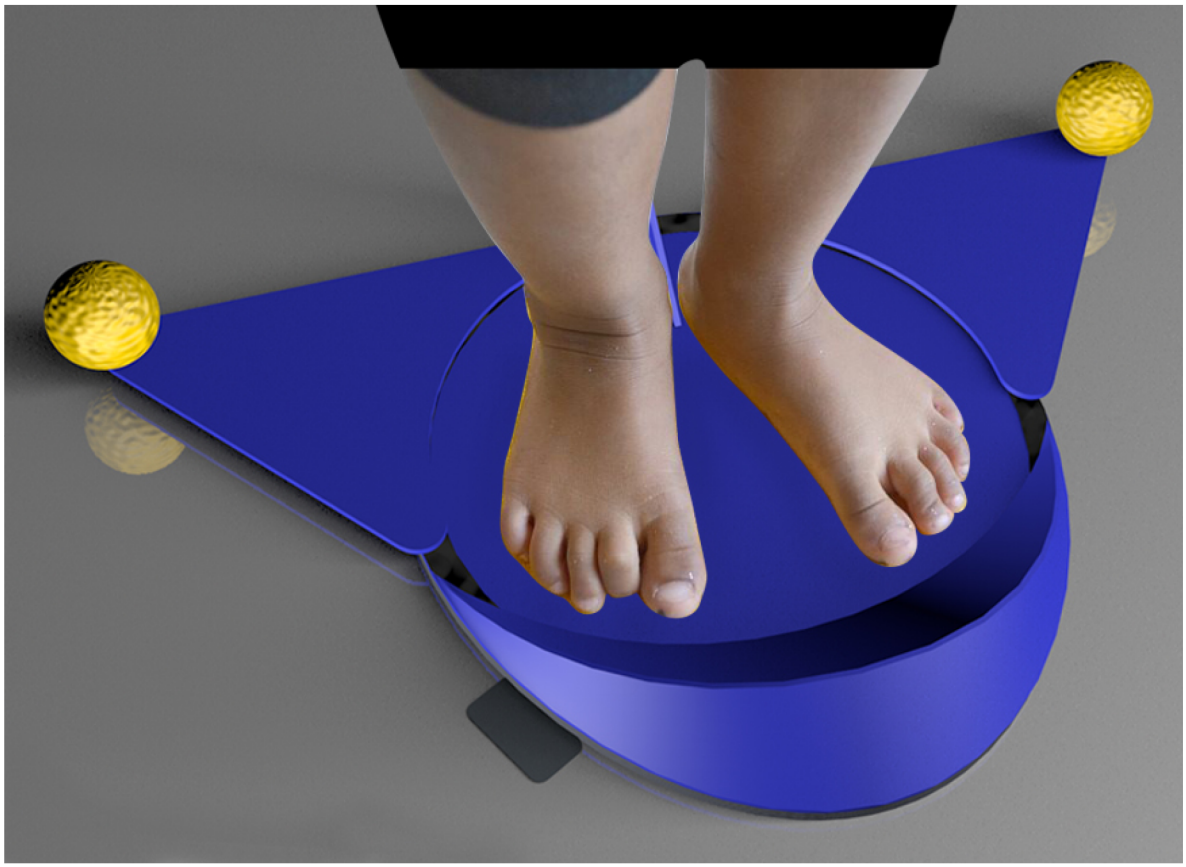
2. Time attack: collect the corresponding pieces according to the picture that is shown on the application. The piece that is shown on the application will change in random time intervals 3sec, 5sec or 8sec.

3. Stacking: a side view of the burger is shown and kids need to remember the sequence in order to stack the fillings

MadMATT

This is a customizable board that allows kids to ride in-house with a special movement. Children can ‘‘drive around’’ through the twisting movement. In this way they are active in a fun way, while at the same time it also cleans the floor!

Kids can explore the toy by themselves with the given sets of accessories, which will transform the board into various styles and games; from nascar circuit racing to bomb deploying planes and helicopter rescue missions.



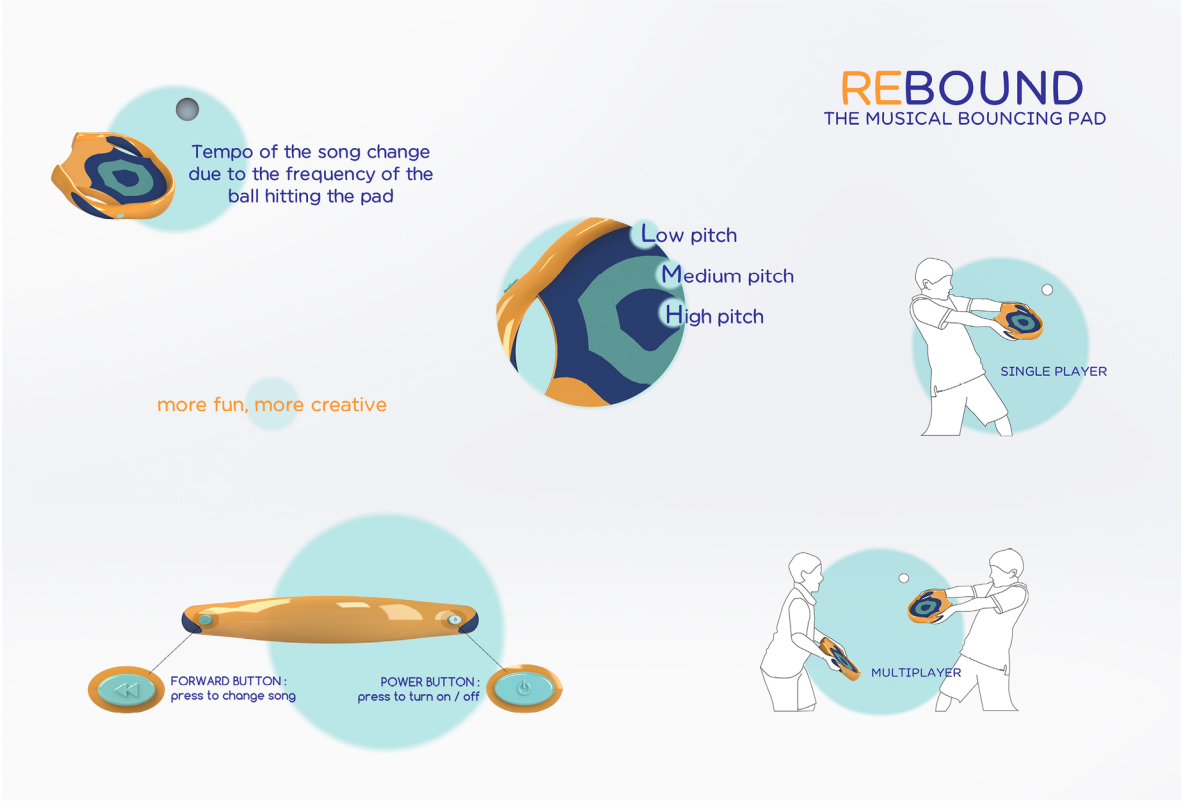
By Charlie Nagara

The rebound

The toy consists of 2 pads and a foam ball to do the bouncing game, which includes sound. Kids can play this game outdoor as well as indoor. The sounds will appear according to the position where the ball touches the surface. The tempo of the music changes due to the frequency of the ball that hits the pad.

Kids are having fun and doing a physical activity, but will also enjoy to create their own sound trough the pad. Each time when they play the game, the sound feedback will change. This will make sure that the kids do not get bored.

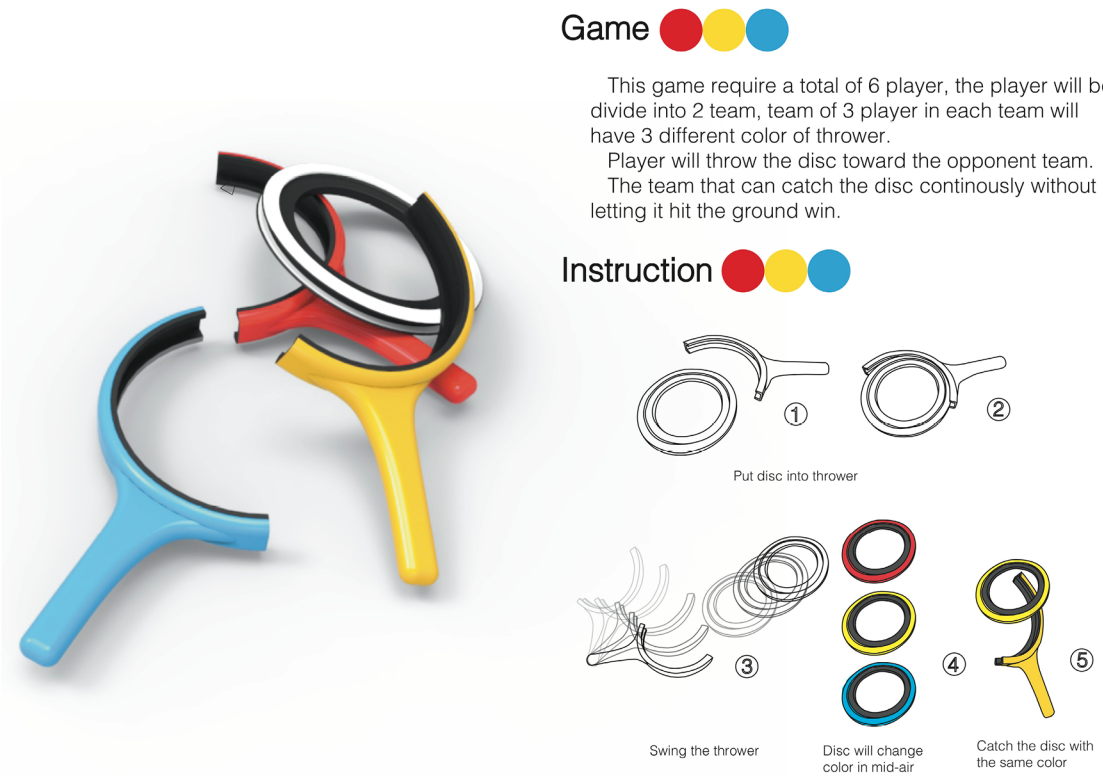
This toy involves hand-eye coordination skills. The child can play this game alone, but by playing this game with others their social skills will improve as well.



By Warathaya Chinaprapath

Jarn-bin

This game consists of a light glowing disc and throwers in different colors. With the throwers it is possible to throw the disc over a long distance. The light of the disc will randomly change into 3 different colors. The player that uses the thrower, which matches the color of the disc, needs to catch the disc. Each team will have 5 points and every time when a member of the team cannot catch the disc, the team loses 1 point. When the team has no points anymore, they lose the game. This game requires an eye-hand coordination and enhances interaction with other people.

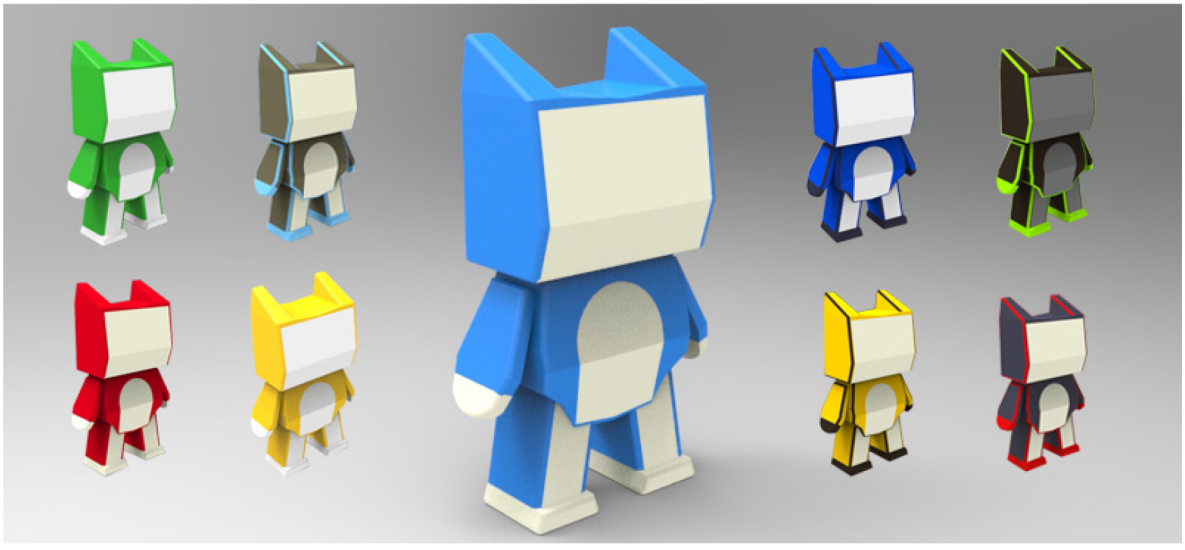


By Nharath Waiyawajamai

Mimo

This little toy is supposed to be a personal buddy and kids should take care of it. Kids have to find food, make sure that the toy can go to the toilet and collect the items that make the toy happy. Because kids want to be better than others, they will take care of their buddy in the best that they can.

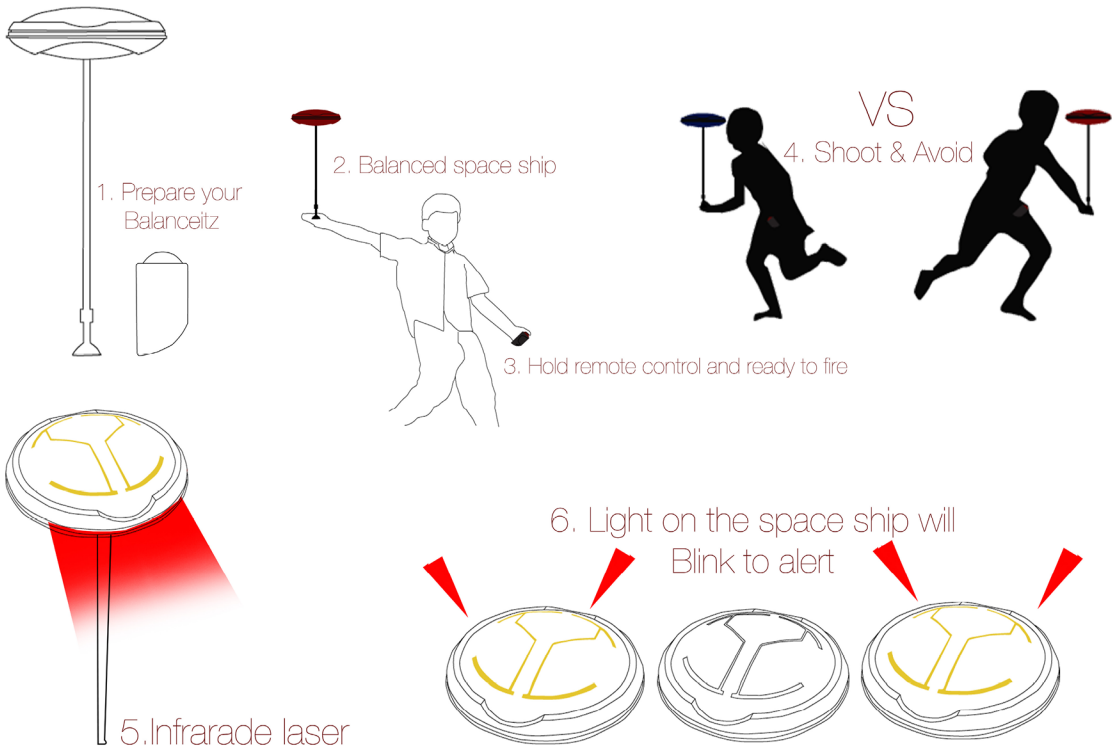
It is an active version of the Tamagotchi because kids have to run, jump or do any other activities to collect credits. Kids can get the food and other items by collecting credits, but since kids are focused on the toy, they will not recognize that they are doing a physical activity. Moreover, they can play the game with multiple players.



By Chayan Parnitvithitkul

Spaceship balancing toy

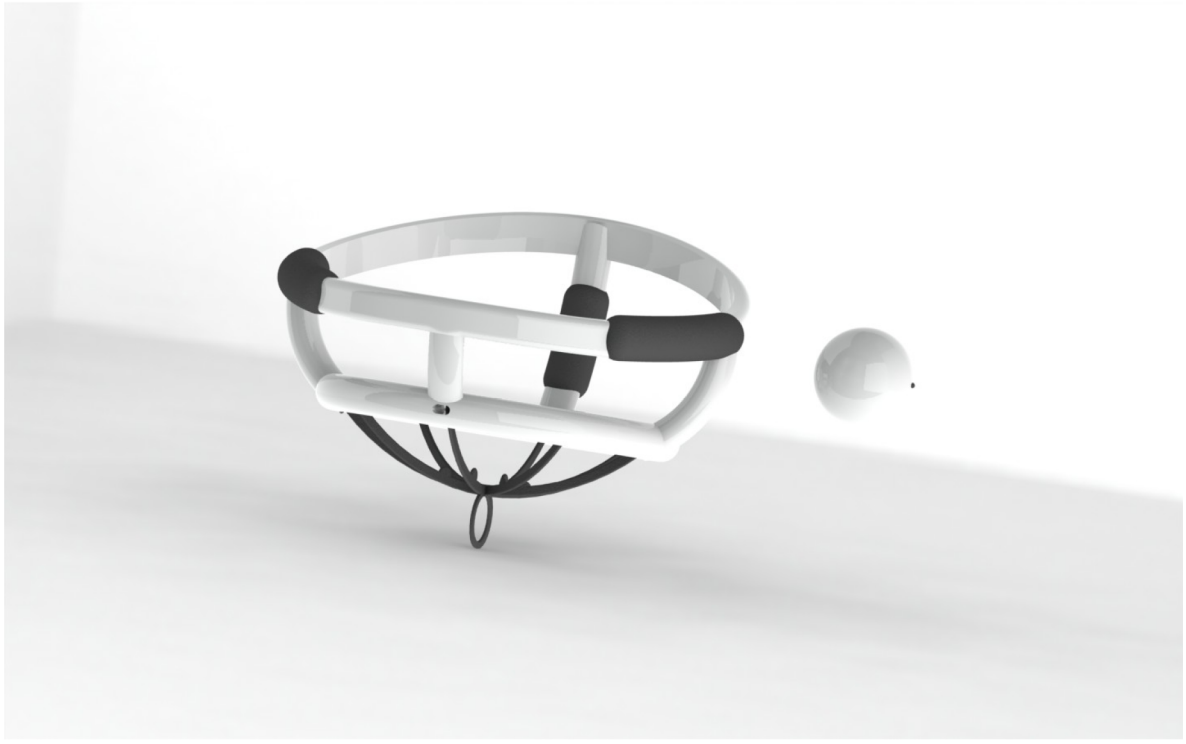
This toy makes kids feel like they can control their own spaceship. They have to do this with their hands, by keeping the stick in a vertical position. Through an infrared laser, they can attack the spaceship of other participants. Therefore, they have to keep their spaceship in balance and shoot to the other spaceships with a laser. When they hit another spaceship, the toy will give feedback by light and sound.



By Pichak Tanarojviboon

Empower play rackets

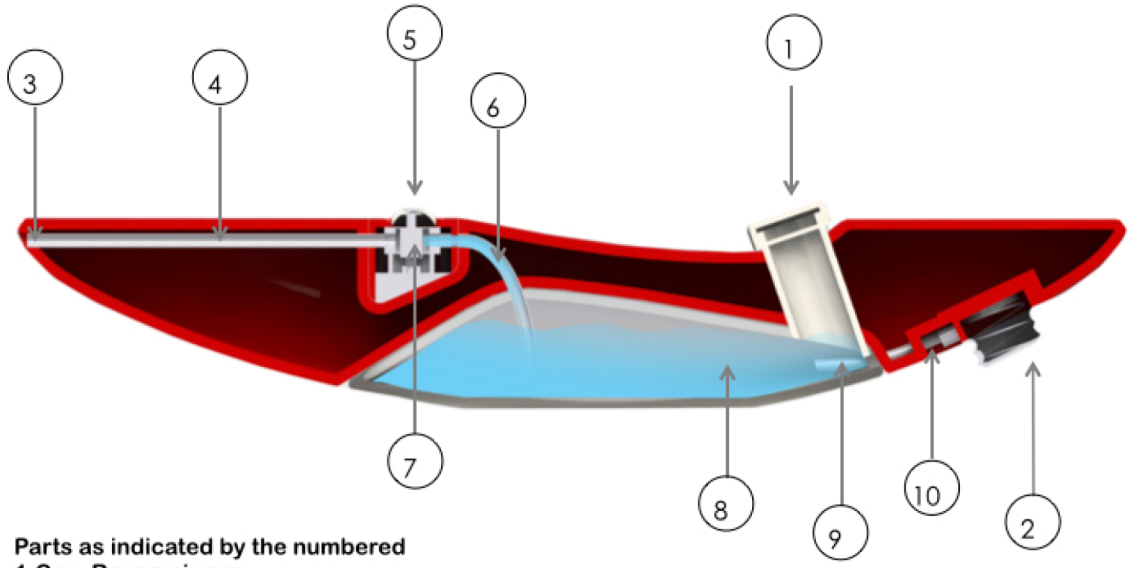
The catch and throw racket comes with lightweight balls. Kids can use the rackets to shoot the ball to other players. The racket can be used to catch the ball as well. The ergonomic design will fit perfectly in the hands of little kids and can be used by left and right-handed people.



By Paradee Muktana-anant

Water board

This is an outdoor toy. Kids can move around by standing on top of the board and moving it side by side into a direction. Pressure builds up in the tank through this movement. By standing on one side of the board and pushing the trigger with the other food, kids can shoot water. In this way they can try to hit each other.



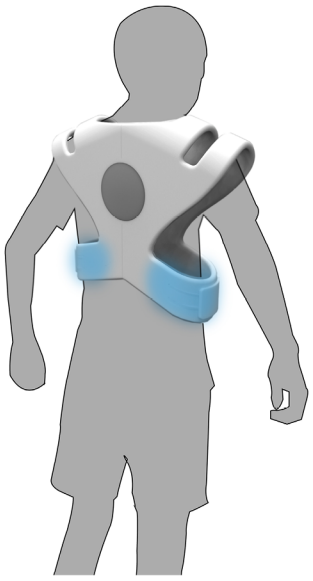
Parts as indicated by the numbered
1.Cap, Reservoir cap
2.Squeeze Bulb
3.Nozzle
4.pipe (Trigger - nozzle)
5.Trigger
6.Tubing (tank - trigger)
7.Preasure gauge
8.Reservoir, tank
9.Tubing, feed tubing
10. Ball valve

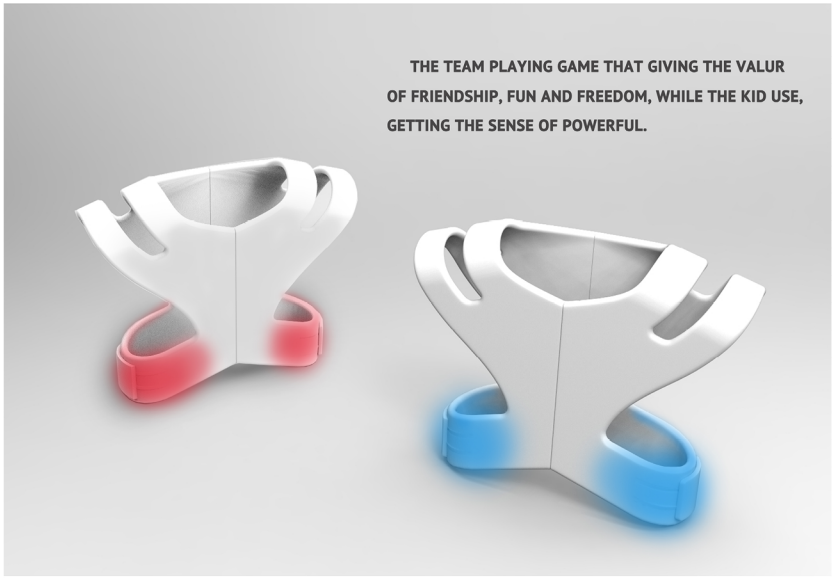
By Athimoke Vanitkoopalangkul

Tagger

This suit is named TAGGER. The name comes from the activity game that kids call tagging. The process of playing this game is easy. The suit indicates to which team the kids belong. As soon as someone from the other team tags by touching the suit, the color of the suit will change. The product is made from silicone, which is flexible but very strong. LED light will be integrated together with the battery pack.

The suit will enhance the feeling of a super hero since it lights up and broadens the body of a kid. Although it involves some technology, the product will be very solid and easy to use.





By Wasan Choosakul

6. Results project in cooperation with a university

Design brief: develop an idea that stimulates children to engage in physical activity in a fun way. They should not realize that they are actually doing something beneficial for their health.

Physical activity is defined as: activity that should move the whole body and should be a high intensity activity (it should not just be a coordination activity). It should engage the child in physical activity for at least 3-5 minutes in a row.

To make sure that the child engages in the beneficial activity regularly, the concept should include a solution that stimulates the child to do the activity every day again.

Stepping shoe

The SteppingShoe is an interactive shoe. It integrates the world of video games into outside play. This shoe adds interaction upon a child's movements, by emitting light in different colors and playing various sound effects. Kicking a ball could for example result in a "pieuw" sound, combined with a bright blue/green light flash. Letting the ball roll between the feet could result in a "boink" sound and a red/orange blinking light. Heavy steps could result in a soft "zap" sound, and a white light flash.

The SteppingShoe interacts by responding to certain stimuli: bumping objects, rapid movement, proximity of objects and stepping pressure. By emitting light and playing sound effects it is up to the child's interpretation what game is to be played. Next to individual action, it might also be possible for the SteppingShoe to communicate with other children's SteppingShoes. In that way, the interactivity could be tilted to another level, creating more game possibilities such as hide and seek (verstoppertje), play tag (tikkertje) etc.

The power is that the children can replicate movements for creating patterns of light- and sound effects. In this way, it is easy to share goals (make the biggest step ever, do not let the ball pass between the legs) and create games on their own. By interacting upon the several effects, different ideas about games might pop up to a child's mind.

The SteppingShoe comes in different colors, and is made in several child sizes. For example, the Dutch shoe-sizes are in between 30 to 38. It is made of flexible material, and

shock and waterproof. There are technological developments concerning alternative means of generating power. Among these developments is kinetic energy conversion (pressing a button = kinetic energy = power) an opportunity and comes in handy for this device.

The advantages of this product are:

- The child wears it, instead of carrying it, which leaves more possibilities for play
- Combining video game effects and the real world adds another dimension to outside play
- It is open-ended, which means that it is up to the child's imagination what to do with it
- It is free play, which means it is not restricted to a place or any objects. The only thing they need is a wearable toy
- The entry-level is low, and for a playful child it is easy to create games of its own, whereas the enhancements by the SteppingShoe might make a game more interesting

By Jeroen Rood

KISOLar

KISOLar is the pet that every child and parent would like to have. The solar powered virtual pet needs food, time to play, hygiene and time to sleep but most important: exercise!

Mimo (female) and Wono (male) need regular daily exercises to keep them fit. The KISOLar pets want to be outside to get power via a small solar panel and are able to measure its effectiveness in combination with a step-counter. The kid has to take their KISOLar outside for a walk everyday for 3-5 min, or spread the time over more days. The natural effect of having too less exercise is integrated in the KISOLar, it will get obese and can, as a result, die.

Scenario:

A 7-year-old girl is playing with her Mimo and notices that Mimo gradual increases weight. She wants Mimo to be healthy and therefore decides to exercise outside with Mimo. Mimo gets energy from the movement of the girl via a step-counter and from the sunlight that shines on the solar panel.

Once she played outside, Mimo clearly expresses her happiness and starts to get fit. The girl wants Mimo to be happy all the time so she plans a daily exercise moment together with Mimo. She doubles the workout time on Wednesday since she wont be able to exercise on the day after.

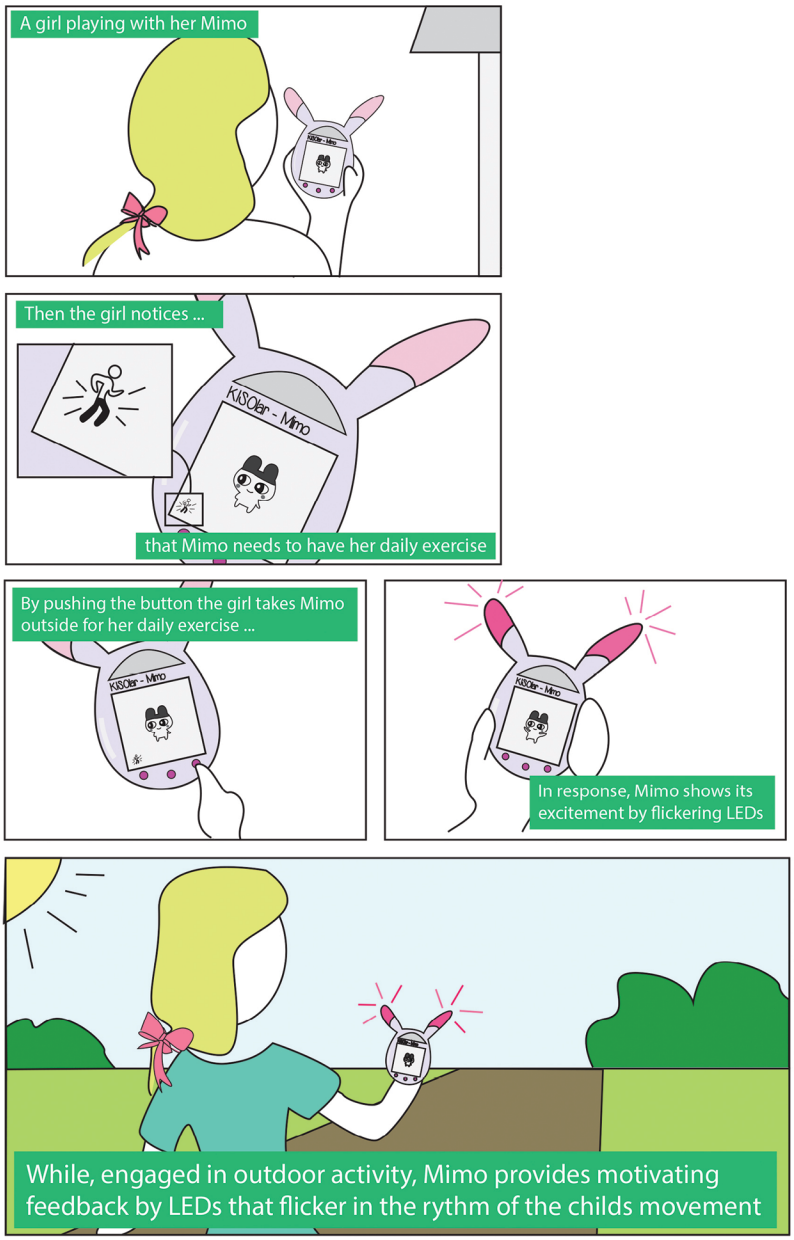
Extra information:

- Fun, playful, for girls and boys

- Easy to take along for children

- Use of solar power and a step-counter

- Incremental innovation: the idea builds further upon the already existing and successful Tamagotchi, making the investment in this idea a lower risk.



By Alice van Beukering

Get out!

The problem nowadays is that children do not really know what the possibilities are when going outside. Game consoles and electronics with screens and buttons are taking over. The idea of this product basically is that it inspires children to go outside and play games. There are a lot of games that used to be played but are now forgotten. The Get Out provides these games for the children.

The Get Out has a few buttons. At first, there are four buttons where the kid has to choose sun, dry, rain or snow and then push the play button. When the temperature and the atmosphere are chosen and the play button is pushed, the product will provide a game or activity. In this way, the children will have new experiences and have more fun in playing outside and hanging around on the playground.

When players link the Get Out to the Internet and social networks, they will be able to add new games and share their experiences. Like buttons can be created to show what games they like the most. It would also be nice, while most children have mobile phones already, to create a place where they can drop photos of their activities. By creating this platform, the kids will also be stimulated because of the game for the best picture or proposing the game with the most likes.

Extra information:

- This product gives children new experiences

- Fun for boys and girls

- They can play it with all of their friends

- This brings the old-fashioned games back to life

- A daily updated ranking list with the most popular games can be created

- The children are the ones who tell which games are the best

By Leroy Spiekerman Weezelenburg

RGB

RGB is a pocket toy that excites children to explore their surroundings in terms of color. It consists of an RGB-LED and a color sensor. Combined, the fun can start.
The RGB challenges children to search and match colors to its own color.
At first both a fire truck and a traffic light are scored red, but RGB becomes pickier over time!

RGB will make children see their environments more colorful. It will trigger them to be more active in how they look at things and can lead to more physical activity in a non-forced manner.

The game plan of RGB is just a start. The real excitement elicits from the child's imagination. RGB can be an enabling tool, an instigator, for children to act more playful with their surroundings. We don't introduce another toy, we introduce the idea of playing with color.

Extra information

- RGB makes you play with the things you already have. It is not just another toy

- Simple yet effective in motivating children to be active explorers

- Cheap to produce, hard to break

- Strong branding possibility; a new kind of toy

By Phillemonne Jaasma and Chris Gruijters

Shake!

Shake can be played up to 8 players (1v1, 2v2, 4v4) but you can also play on your own to beat the high score.

The idea is that everyone gets a device attached to his or her body. You have to shake the device as much as you can, a display is showing the amount of movement the teams are applying to the device and who is winning.

This can also be played as, everyone with a device, on teams 2v2, for example, and the display of the devices tell you who are you going to compete of the other players, and then players will get a challenges like who jumps higher, or who can jump more in 20 sec, etc.

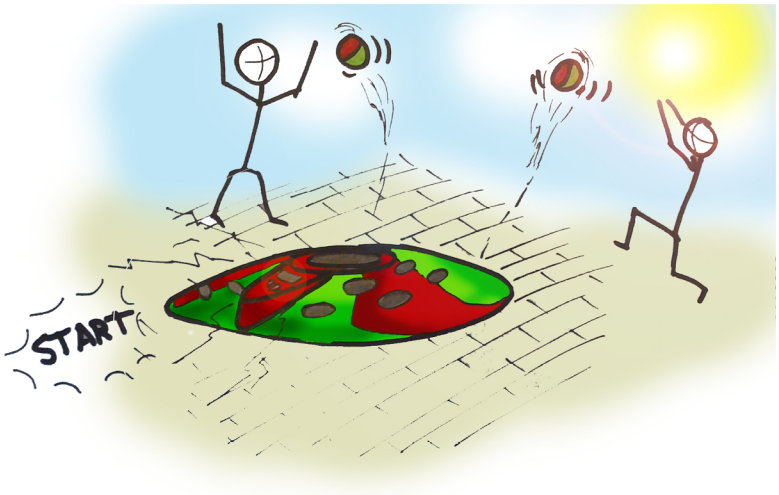
Devices could be on the t-shirts with displays, or instead of t-shirts it can be a vest.

By Jorge Santoyo Henaine

Catch ‘nd run!

The product is a dome with small holes in it and is filled with foam balls. When a child wants to play, he inserts the amount of players (friends). When he chooses for example 10 people, the machine will launch 10 foam balls in the air in different directions. When the balls fly in the air, the children need to catch them, and return them to the main station as quickly as possible. However, there will be just 9 holes to put the balls back in. Every round, there is one child who loses and needs to wait for the next game. He drops his last ball, for example, in the center basket.

The time intervals can be different and without warning. This might take a while to make it really fun to do. They learn to concentrate, be patient, play fair, and improve their stamina. All this can be done while having great fun with friends.



By Ruben Wanders

7. Results Independent project

Design brief: Bangkok has many sightseeing places, which are often very hard for tourists to visit and experience. Recreational Biking Bangkok creates the opportunity to experience parts of the city that you would not be able to visit in any other way.

During a 4-5 hour biking tour, you will visit a local Buddhist temple, a sweatshop making sandals or other goods, take a short boat trip across the Chao Praya river in a long tail boat and see luxurious villas and apartments juxtaposed with poor shacks of local slums. Also an open-air Muay Thai school (kick boxing), a Burmese style (Mon) built Chedi, a local elementary school will be visited, before riding through the greenest area of Bangkok, where you might even recognize some of the plants you have at home.

Your challenge as a designer is to design a new biking experience, by designing a comfort city bike. Relevant questions to think about are: How can we optimize the bike in such a way that it fits the essence or this trip perfectly for the user? How can this bike contribute to experience the city and its environment even more intensively? How will this bike be unique, recognizable, sportive, aesthetic, suitable for the rough terrain, comfortable and optimal for male as well as female tourists?

Add-ons like a luggage rack, mudguards and the bottle holder can contribute to this. Interesting could be to create a modular system for bikes which can be converted to e-bikes, because of the growing demand for e-bikes.

The explore bike

The explore yourself bike is a bike that:

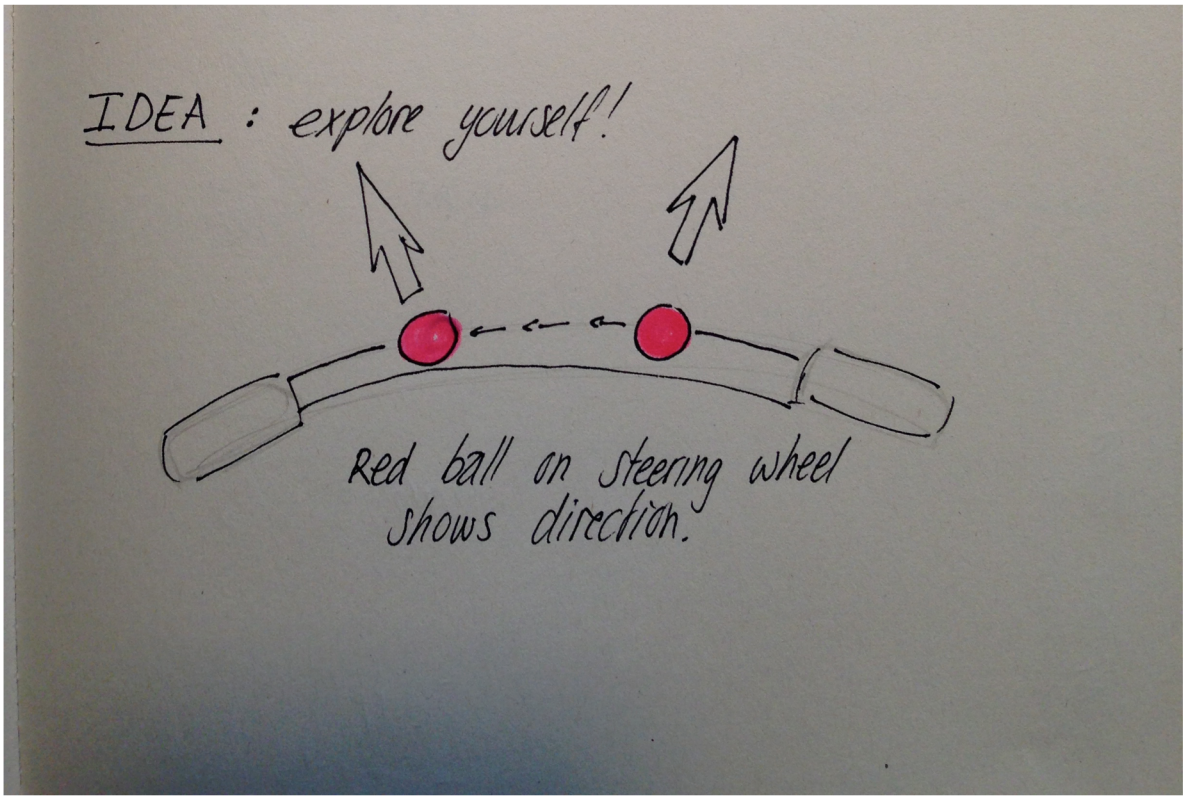
- Is made out of robust and solid materials
- Can be identified with the biking-company
- Creates connections with the other bikers in your group
- Creates contact with the locals
- Can create an experience to take home
- Lets you explore Bangkok YOURSELF!

On top of the steering wheel, a red dot is connected. This red dot seems to have its own life because when changing direction it moves. The red dot is a navigation tool for the biker. It always 'points' at the next destination (must see activity). The exact route to that destination is not given. So when you arrive at a crossroads, the choice is yours! When you arrive at one of the must-sees: the red dot starts blinking, now you can start exploring this place.

The bike must be solid because different kinds of terrain must be crossed. This also gives the bike a sporty and steady look. The red dot on top of the steering wheel will be recognizable, to identify the company that is related to these bikes.

Because the route is not given, the group has to make decisions. This creates connections between people in the biker group. It can create contact with the locals as well. For example, the group gets lost and finds itself in a dead ended street. With help of the locals,

they can find their way back. In the red dot, a camera can be installed. If this camera films the entire tour, you can share the experience at home. If the red dot can be removed from the steering wheel, it is possible to aim at anything you see. Making pictures while biking is pretty tricky, when the camera is hanging around your neck and stopping for every picture. With the red, making pictures becomes easy! While biking you can aim the dot at anything you want, and you have to use one hand only to make a picure. By selling these movies, more money can be generated by the company.



By Oscar van Beek

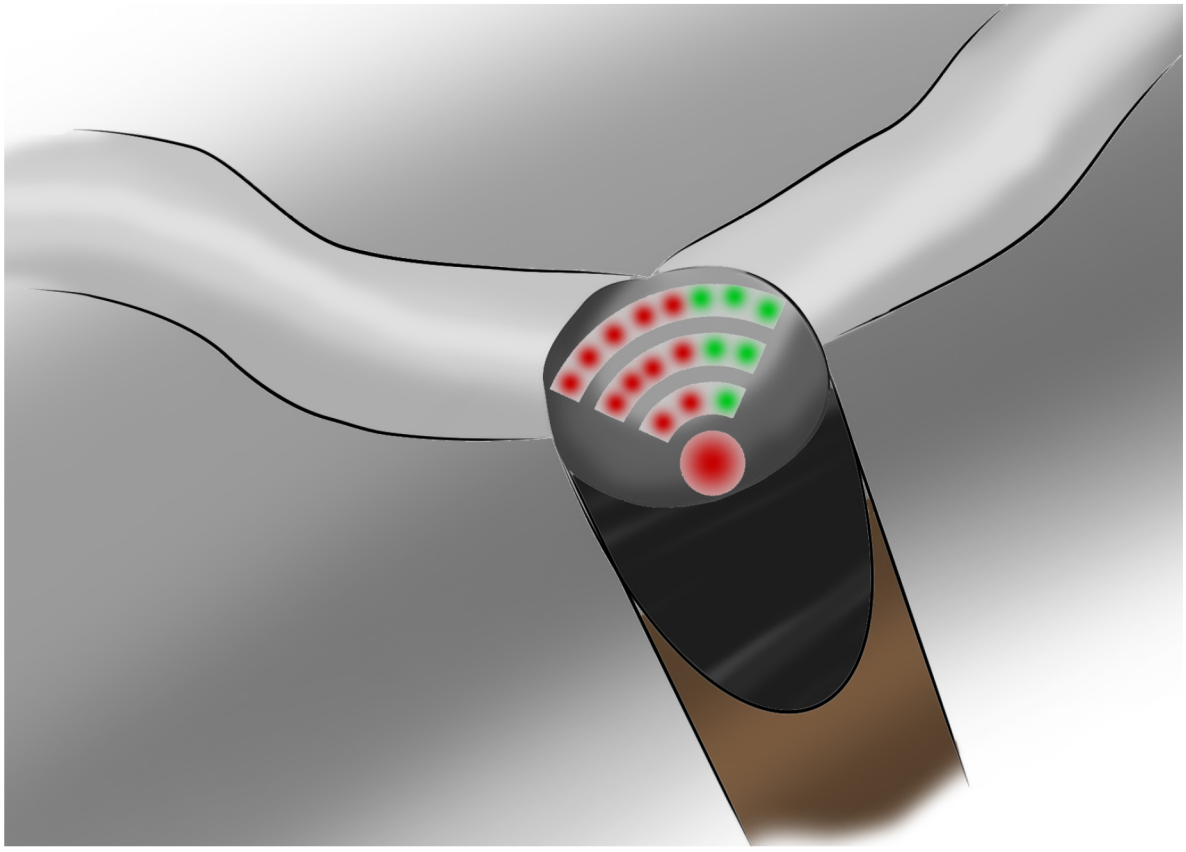
Bike experience

It is very important that the bike is adjustable. People of different heights need to be able to ride the bike, so the steering wheel and the saddle need to be adjustable. With this, it is possible to adjust the bike in a way that people still can touch the ground. In this way, pictures can be easily made.

On the steering wheel of the bike a removable basket needs to be fixed. If the tourist wants, he or she can put the camera in the basket and easily take it. If the tourist does not want to use the basket, it is possible to take it off.

At the back of the bike there is also a basket. In this basked the tourist can put his or her bag. With this adjustment the tourist can easily bring water and other important things.

These bike tours take place in groups of eight with one mentor. I think tourist like to have a unique experience because it makes them feel that they have done something special. The bike can be used to make this experience more special. The bikes will have a GPS-sensor. On the steering wheel will be an indicator with LEDs. These LEDs will indicate if the bike is going in the right direction. By applying this system, the tourist will be able to ride his or her own unique route. The mentor will still ride along to make sure that the tourists are not getting lost.



By Ilse Pouwels

See it all bike

The bike needs to be solid and able to ride on all kinds of surfaces, from city to jungle. The color of the bike is orange because this represents The Netherlands and is very recognizable. It should be easy to ride the bike in the narrow streets of Bangkok. For comfort during the 5-hour ride, the seat needs to be soft. The accessories of the bike to improve the biking experience are as follows:

- A plate in the wheels where you could put your name; in this way you can leave a message of yourself there.
- A solid but easy to use case to put your phone or camera in.
- Holder for drinks
- White board "number'' plate to put your name and country on. During the ride this makes communication between everybody in the group easier.
- Removable and flexible camera on the steer that also indicates the route by going left and right on the steer. It helps finding the way through Bangkok more interactively and the camera captures the whole ride, so you could look it over later. This camera has small solar panels on it. In this way it does not need batteries and is always charged as well as environmental friendly.

- Small book at the beginning of the trip. In this book people can find:

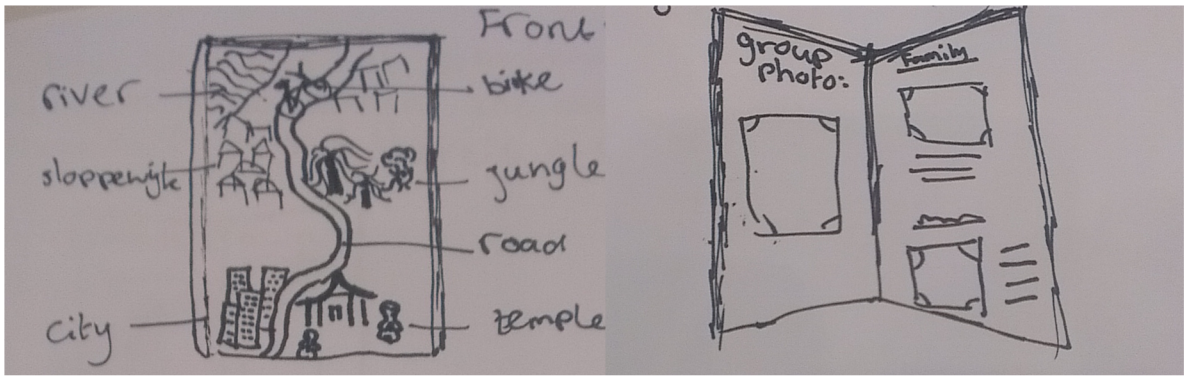
-> Information of different places that you visit

-> Photos of some objects and buildings (bikers should try to find these and make a photo of it themselves to put next to it)

-> Some tips about the different locations. This could vary between attending to wear long sleeves, a tip to buy of try something on the market, or how to behave to the locals

-> Some blank pages to let the locals put personal notes

-> Some pages to put some of your own photos and comments when you get back home, a special place for the group photo, taken at the end of the trip



By Anouk van Kasteren

Treasure map to Bangkok

Choosing for a biking tour instead of any other sightseeing tour will very often be a deliberate choice. People who choose to do the tour want a different experience. A much more intimate and personal experience in which they get to see what Bangkok really is, how people are and how they live in order to see all the beauty and small wonders they will come across.

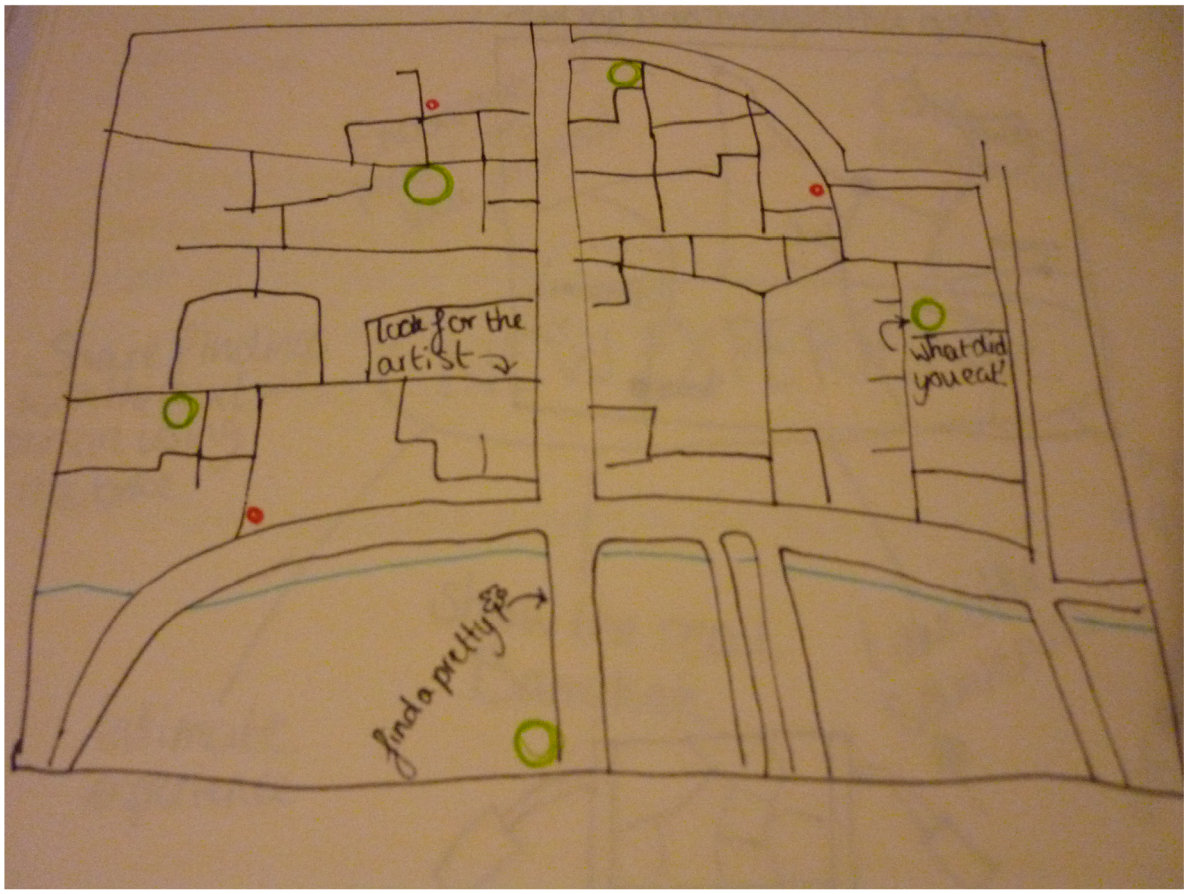
Therefore, they will have to look around them and get in contact with the local people. However, sometimes it can happen that they miss the most special surprises, as they are hidden behind trees, walls and the faces of people. This bike has a solution to avoid missing any of these interesting things. The treasure map encourages people to search for wonders of Bangkok. It will be like a quest to discover beauty, which they later on can take home.

The concept is called ‘Treasure Map to Bangkok’. It consists of a map placed on the steer of the bike. In fact it is a board that can emit light, over which a paper map is placed. On this map, green circles or dots show the highlights of the trip. However, this is not the only thing displayed on the map. Little clues all around the route suggest hidden treasures where tourists can search for. It could be that a shop owner in one of the streets is an artist in his spare time, or maybe there are beautiful flowers just around the corner. The map will give clues and suggestions to look for special hidden aspects like that. Tourists will have to search for them and ask locals or just look around. When they have found something special, the tourists can leave a memory to the treasure on the map by drawing, gluing, or

simply making a stain with food they have eaten, at the place of the treasure.

In this way, the map will absorb its smell, look and memory.

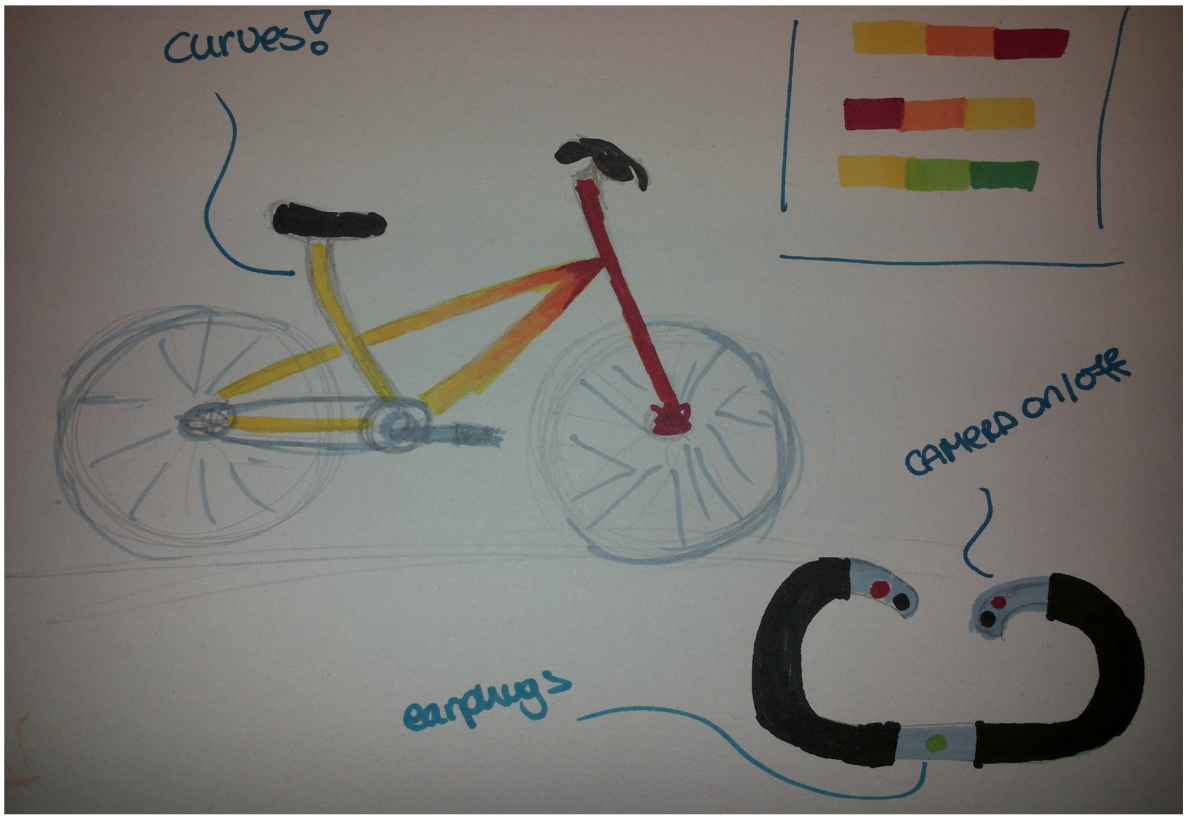
The board safes all the interesting places. When the next person is using the bike, all these places appear on their map as little red lights shining through. Tourists help in this way to make the bicycle tour more interesting for next cyclers. Afterwards, the map can be taken home as a real memory of the experience.



By Emma Maxime van Zoelen

The light bike

The Light Bike is a unique bike that communicates throughout light. Before the ride starts, the group leader will choose a route they will cycle for the day or night. All the bicycles will be programmed with the route and distances between the stops (check points/sightseeing) during the ride. The bike will slowly change into a different color when you get closer you get to a “check point”. In this way the participants will know when they are reaching the next checkpoint. The integrated LEDS make night rides possible as well. The bike will light up and change from color, but also help to see objects in the dark. It will make a night ride safer because the guide has a better overview of his or her participants and group members can keep track of the guide. Besides the safety aspect, it will be a whole new experience with lots of fun. The ride will be a highlight of the city.



By Milou Bruinenberg

Footstep

As a tourist, the roads seem to be one big car; the markets seem to be impossible to cross and the weather makes it even harder. This is a part of the experience. Something that makes the tour the best of Bangkok. However, being slightly scared riding the bike through the markets and crossing the roads is something that can be solved by this concept: the FootStep.

The FootStep is a bike and step combined. Take a comfortable bike, combine it with a speed-step, and make the experience even better. The comfortable bike has several add-ons: box for belongings (and lunch), holder for a camera or phone, bottle holder to stay hydrated in the heat and (if needed) a power pack for some extra energy.

Why is this combination needed? Important during a ride on the roads in Bangkok is to keep a certain speed and be able to bike on the rougher terrains. Sitting on a high saddle makes riding through the markets or narrow roads unstable. By being able to step instead of walking with your bike, riders can maintain their stability and follow the tour-guide without getting off.

By Loeke Bibi Molenaar

Cycles

The bicycle tells the story of the local artisans in Bangkok. The journey takes the tourist to local markets, fishermen, schools and farmers and creates a unique view of the local community life. They all produce products and waste in their artisan production processes. Those are the key accessories of the bicycle. The artisans in return are paid for their waste. In this way the bicycle is produced from recycled material, creates a circular economy and supports the local communities of Bangkok!

The bicycle is the journey. The bicycle is the story. The bicycle is Bangkok! The whole bicycle is built from products and waste of local artisans. From the steering wheel to the tires, every accessory takes part in the circulation of materials and keeps the local economy circular. The list below displays only a few possible solutions, but there are many possibilities.

- The steering wheel is made from leather skins of local cows.
- Bamboo from local bamboo production is the basis of the frame.
- Local carpenters make the mudguards.
- Old flip-flops can be used for the saddle.
- The old worn fishnets from local fishermen can be recycled for a small basket.

Extra information:

Circular economy:

- Product stimulates the community and local artisans (People and Profit).

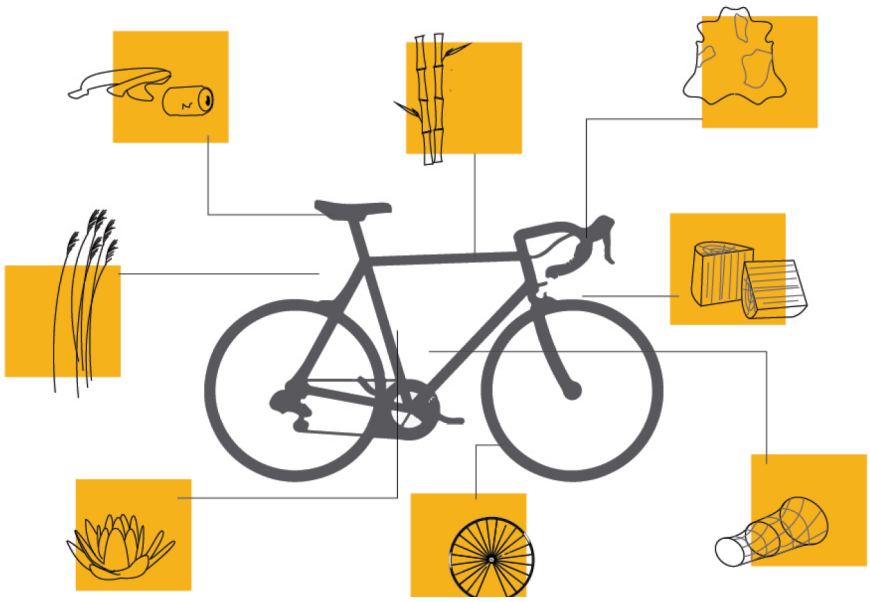
- Product stimulates clean environment (Planet)

- Product stimulates compact production, assembly and transport (profit)

- Tourist is cycling on a Bangkok waste and local produced bike.

- Tourists experience the cycle story.

- The tour guide can give a unique story during the cycle journey by visiting the local artisans and showing the crafts, which are now key accessories of the bike where they bicycling on.



By Zoë Agasi

8. Results prototype test case

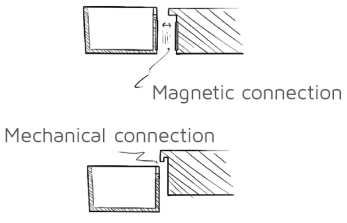
Design brief: the kitchen, a known area in every house with plenty objects and designs around. This Designment is actually about everything in and around the kitchen.
Example products already made are as follows: kitchen scale, salad bowl, water boiler, kitchen towels, citrus fruit knife and a toaster.
Your idea is for the here and now. Approximately, the production price should be below 10US$. This means it should not be too complex and futuristic but can be based on existing designs.

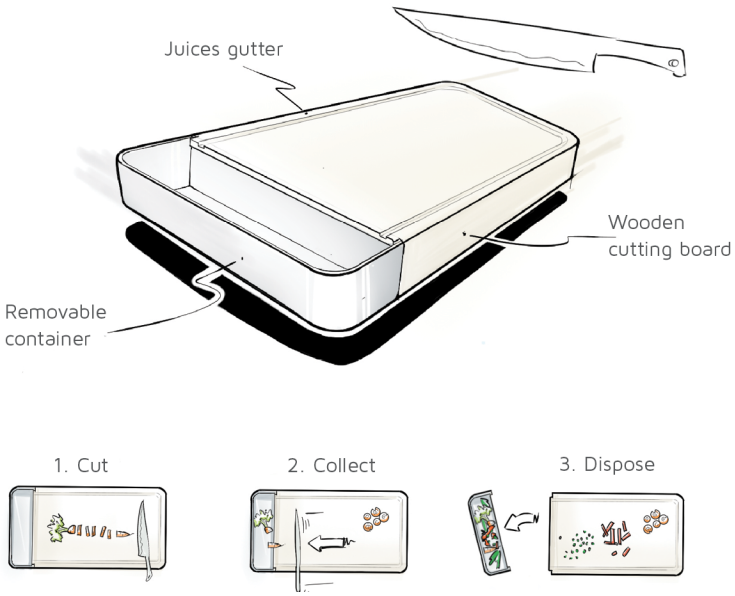
We would like to challenge you to come up with designs that add in a certain way meaning/value for the end-user. An example could be a kitchen tool that offers the possibility to eat healthier. A possible deliverable could be a set of kitchen tools in the same aesthetic/interaction/functionality style. Please upload these ideas separately so that every single design has the chance to get selected and rewarded!

Every design, selected by the client, will be produced and has to be in the shops in the summer of 2015. A maximum of 12 designs can be selected which will be rewarded with 200 US$ per selected idea. You can upload as many ideas as you want!

Cutting Board

This is a wooden cutting board. On the side is a container where waste can be disposed. The container can be attached with a mechanical (lip and groove) or magnetic (by an insert) connection. In this way, the cutting surface is always free to work on. Cut, collect and dispose!

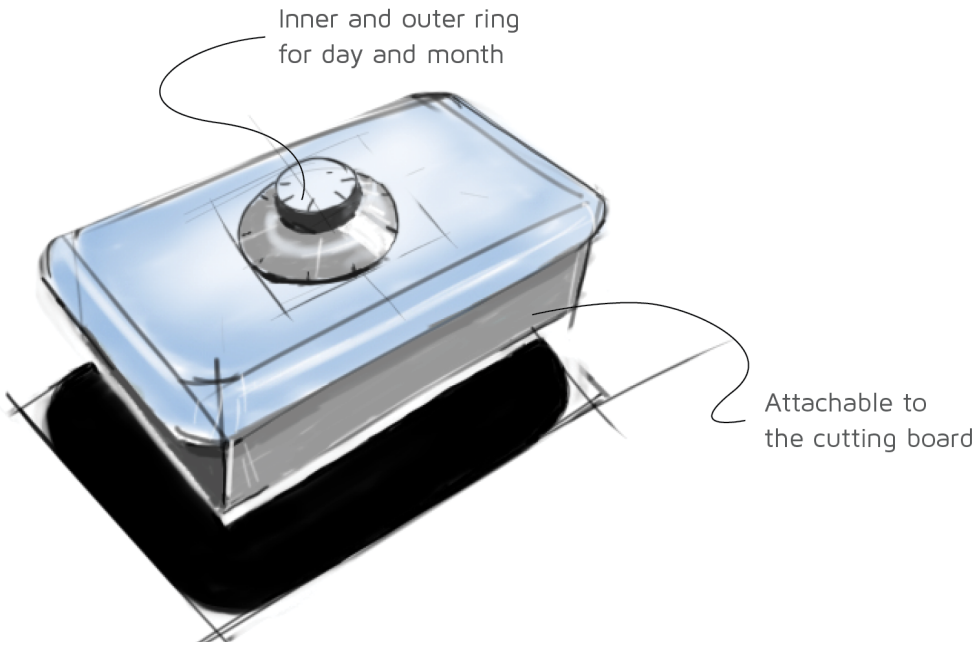




By Koen Beljaars

Storage containers

The storage container is a product that ensures people to only keep fresh food. On top of the cap is a date indicator that shows the time that the food was stored in the container by day and month. The containers are stackable and save the food hermetically.



By Bas van Hoeve

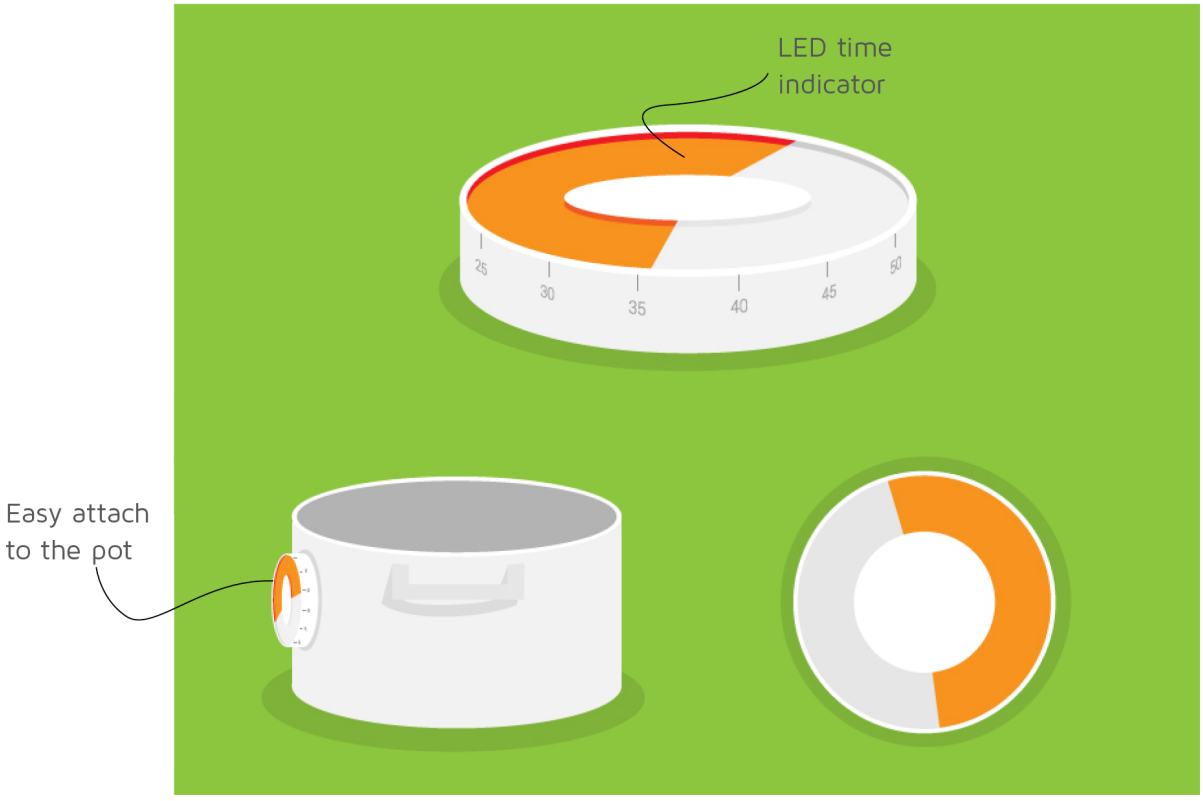
Flowerpot

This flowerpot indicates when your favorite plant or herb needs water. In the bottom of the pot, a water sensor is attached and as soon as the sand is dry, the LED light will start to light up. This will happen in different colors, which indicates the water shortage in a fancy way. The flowerpots can be produced in different sizes with different colors LED.

By Koen Beljaars

Egg timer

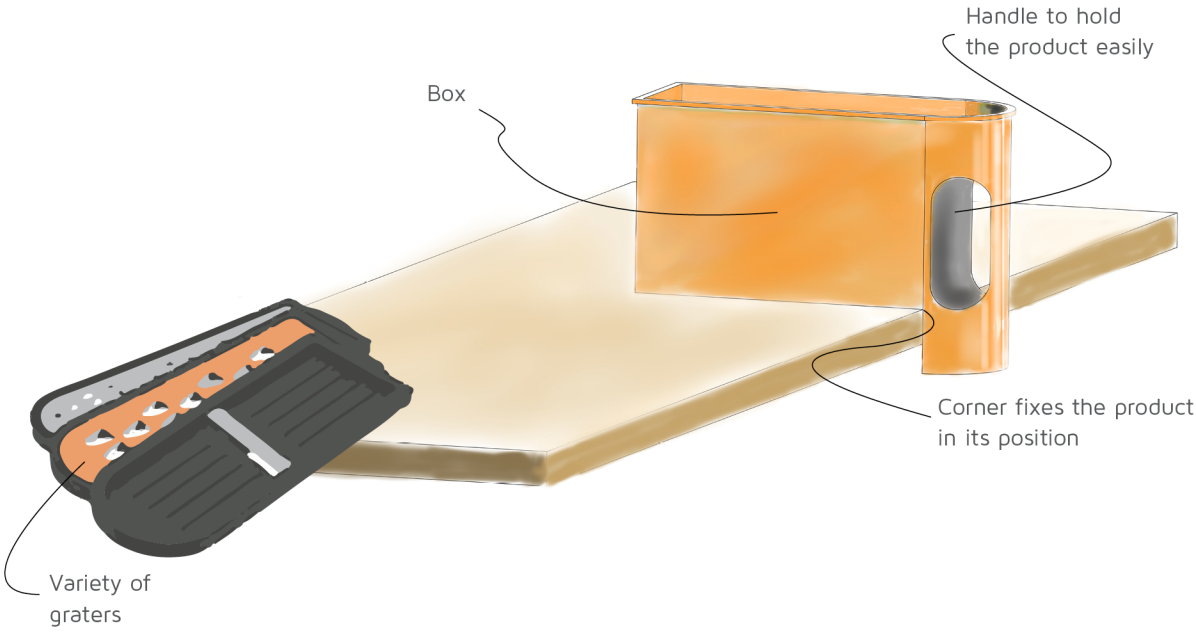
The egg timer indicates time by light. The LED indicates the time, before the alarm starts to make a sound, in a circular way. On the backside of the product is a magnet integrated. The user can attach the product by the magnet to the pot. Selling them in a package of three makes sure that the user can keep track on multiple pots.



By Martijn Veenstra

Grater

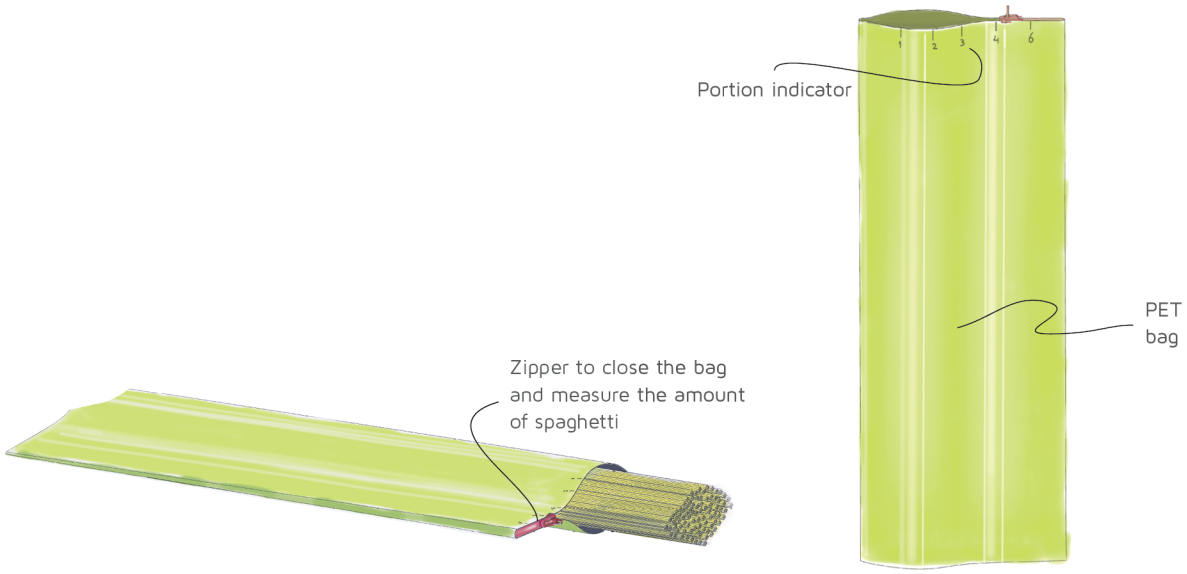
Grating ingredients is a dirty and hard job, but not with this grater. The box will catch up all the grated ingredients. This avoids a dirty kitchen counter. The counter will be directly used as a fixation because the special shape of the box fixes the product at the corner. The ergonomic handle can easily hold the grater and a variety of graters will fit on top of the box.



By Bas van Hoeve

Spaghetti bag

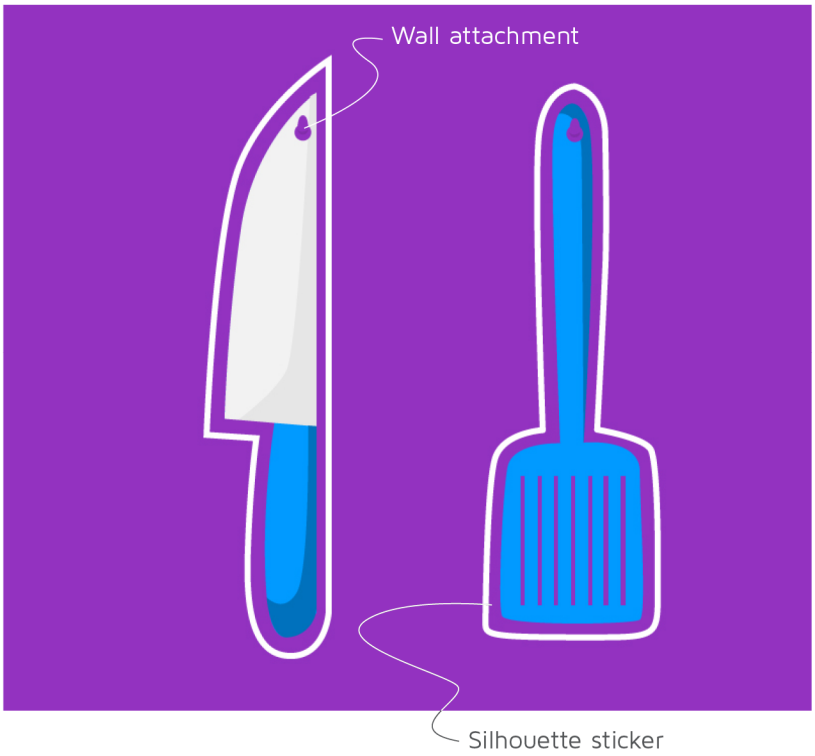
The spaghetti bag is made of PET. On top of the product is a zipper to close the bag hermetically and safe the spaghetti dry and clean. At the same place is also a portion indicator printed. By closing the zipper until 2, for instance, means that the user can take out spaghetti for 2 people. In this way the bag is useful to measure and storage.



By Bas van Hoeve

Kitchen utilities

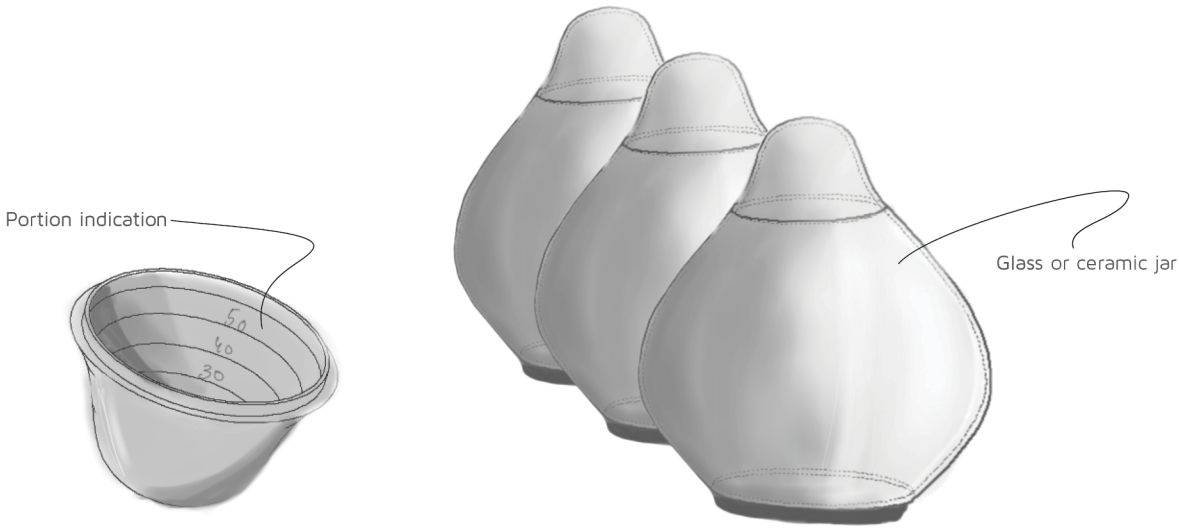
This is an idea for kitchen utilities. The client can sell for instance a knife, spatula, fork etc. These items can be packaged in a polyester bag with inlay card. The inlay card will be a sticker with the silhouette of the kitchen tool. This can be attached to the wall so that the user knows exactly where each tool can be placed. By working with different colors, knifes for meat and vegetables can be separated as well.



By Martijn Veenstra

Pasta jars

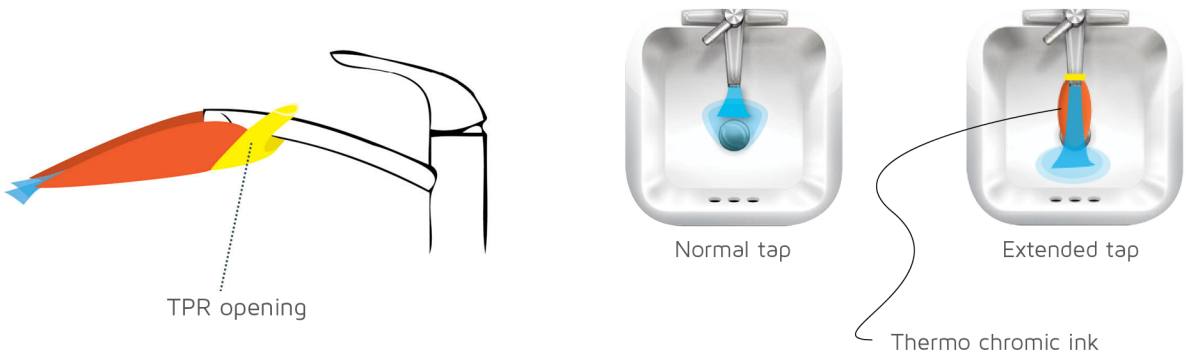
These stylish jars can save rice and pasta. The material of the jar is glass. This shows directly how much rice or pasta is available. By taking of the cap, the pasta and rice can be taken out. Inside the cap is a portion indicator. In this way, the user exactly knows how much he or she needs to cook.



By Bas van Hoeve

Tap extender

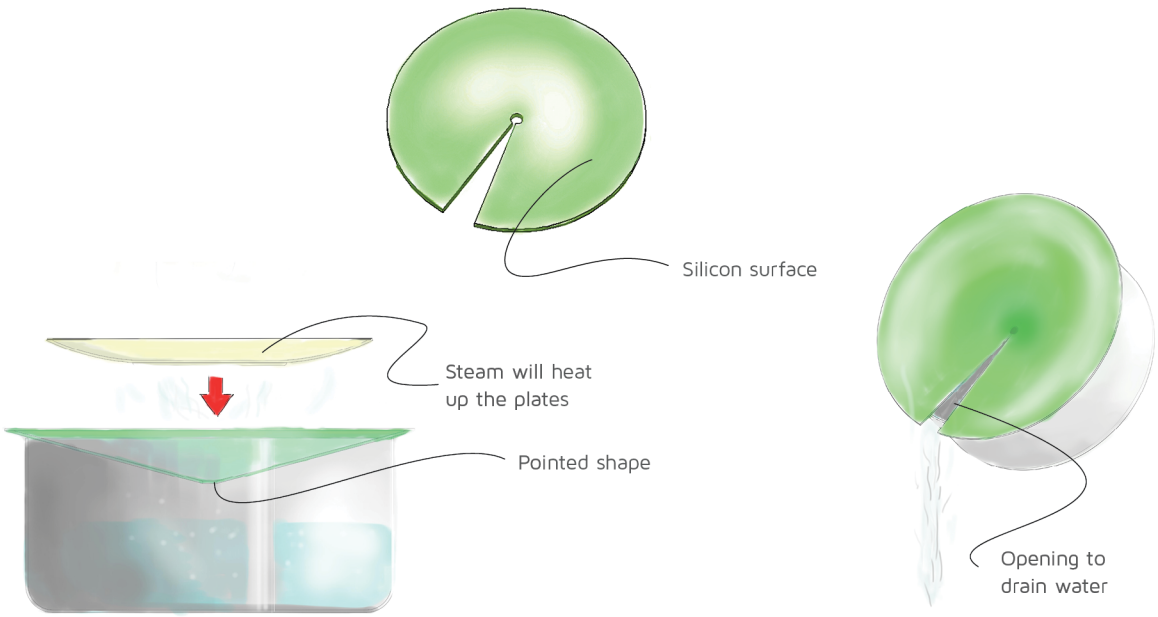
This tab extender can be easily added onto any type of tab by a flexible rubber opening. The extender transports the water towards the side of the sink. In this way kids can easily reach the water beam. Since the product is made of thermo chromic ink, the color changes according to the temperature of the water. When the water is cold, the extender will be blue. When the water is hot, the product will become red to prevent kids form burning their hands.



By Marleen van Bergeijk

Multi cover

The multi cover is a product that ensures the cook to do his or her job safely. Normally, by cooking a product in water, there is a big chance that foam arises and flows over the pot. This silicone surface will make sure that foam bubbles will collapse while steam can escape through the small hole in the middle. Plates can be put in the conical cavity. When steam escapes through the hole in the middle, it directly warms up the plates. By putting the product horizontal on top of a pot, water can be easily drained without using the cap of the pot.



By Bas van Hoeve

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DATE OF BIRTH	24 March 1988
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PUBLICATION	Bram Broeken and Chujit Treerattanaphan 2014, ''Innovation management tool to generate fresh and innovative ideas for product- and graphic design'' **Conference on Management and Engineering (CME 2014),** 24-25 May 2014, Shanghai, China.

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