Share Your Context

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Date: 09-06-2010

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Social Networks | Contextual Information Exchange

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Summary

Non face-to-face communication of social and emotional experiences between people happens nowadays through phone or other media like email, IM (Instant Message), webcam and other virtual communities such as SecondLife. Share experiences, express creativity and maintain easily contacts have made these virtual worlds very popular for millions of Internet users. To support the communication in these worlds emoticons are often used. This form of context is a combination of different states (physical, information, social and emotional), which help the receivers too understand the received information right.

To explore new opportunities, using context as well virtual worlds, the project was divided in three iterations of 3, 5 and 8 weeks. During these iterations different possibilities were explored and different prototypes were build. Although that after the first two iterations the target group was changed into grandchildren and grandparents, the information gathered during these iterations was still useful for the development of the final product.

The first iteration, done in three weeks, was about exploring the project theme and get more familiar with the idea of contextual information exchange and how others perceive this context. The idea of helping the students of the TU/e in their development as a designer was chosen. To make this possible, a tangible object (An abstract 3D representation of the main TU/e building) was designed. The object provides information about the activities in the different spaces of the ID environment and which space is interesting for the student's development. Connected to the digital learning environment of ID-compass, where the students can upload their personal development plan (PDP), the device is able to show the students which space is interesting for their development. To inform the student where to be, the device uses pulsating colours. The different colours represent the different spaces. After evaluating requirements were set for the second iteration. (See DVD appendix A for more details and pictures)

For the second iteration, the design case of the client was used, which is based on the relationship between elderly and their adult children (Elderly – 65+, Adult 30 – 50).

It's obvious that ageing brings physical and cognitive problems, which makes elderly a vulnerable target group. There are different types of elderly. Some are very active and have a busy social life while others are lonely. Also there are elderly who are very interested in the development of technology while others are more conservative. But in all cases the contact is very important and especially with the family. To get more insight in the relation between the target groups, interviews were held. The information, gathered from these interviews, showed that both parties mention that they have a positive relationship and regular contact with each other. The common ground for this contact is the exchange of information about their activities and their wellbeing. An interesting outcome was that most elderly would not want to be more involved in the life of their children due to privacy while the children would have a safer feeling if they were more involved in their parents life, because the vulnerability of their parents.

Requirements, like, the product should work intuitive, the product has to be functional, the product has to fit in the environment of the user and the product should respect the privacy of the users, were generated from the iteration and interviews and taken into the development of the product. Eventually a "morphing clock" was designed. Why a clock? A clock is original designed to indicate time, so people know in which hour of the day they live. Link the morphing shapes to the time and the users of the clock can easily interpret the context given by the clock. The concept contains two clocks that are placed by the elder and adult and informs each other about critical events. With respect to the privacy there is chosen to show only critical events. To measure these certain "critical events", the clocks scan the environment for changes in the loudness of sounds. Although the clock constantly monitors the environment, it only sends information when a certain loudness border is exceeded. The different shapes, which are generated by the frequency, loudness and duration of the event, appear on the side of the clock. To create a playful interaction these shapes will appear at randomly places. To indicate when an event has taken place, LED's light up at the specific time of the event. Twenty-four hours after the last event, the shape of the clock will slowly transform again to its original round shape.

The clock is also linked to a virtual world and in this case to SecondLife (SL). The virtual clock is representations of original one are synchronize, so the two clocks have identically shapes when an event takes place. Users of SL. are able to check the morphing clock form every place in the world when they have access to a computer with an Internet connection. The clock in SL. is able to record the critical events. When people want to know more about a certain event they can choose to login in SL. and get more detailed information about the specific event. Eventually this product was evaluated. An important conclusion is that this product probably wont be used in combination with SL, which means that the client can't use this product for his design case.

During the final iteration an alternative for SecondLife was found. Although the chosen alternative is also a social network, the environment is much more synoptic. There is chosen to use the Dutch 'Hyves' network. Hyves has ten million users with an average age of 27. Although the average is 27, research shows that these kind of social networks are most popular with children between the ages 17 – 24. Therefore there is chosen to set the design case into improving the relation between grandparent and grandchild.

Grandchildren see their grandparents average two times a month. This provides more opportunities in comparison with the target group elder - adult. Although the relation between grandparent and grandchild differs from elder and adult, the reasons for contacting are the same. Only now the challenge was to find an opportunity that blurs the generation gap between grandchild and grandparent.
A questionnaire showed that the amount of conversation items is low between them. This causes that grandchildren find having contact two times a month enough, while the grandparents want to see them as much as possible.

As mentioned in the second iteration, there are different types of elderly but for this design case the elderly have an active life. I concluded that a lot of these activities are done in local community centre.

Activities like computer courses, gymnastics and dinners are available at these community centres. To follow a course or other program, organized by an organization, the elderly have to subscribe themselves. These subscriptions are processed in by the administrations.

The final concept uses Hyves to provide grandchildren with information about the activities of the grandparents. Using the administration data of the organization, the data can be processed and transformed into contextual information. Therefore a service, based on API is developed which makes it possible to integrate the administration of the organization in the Hyves environment.

Although the third iteration differs from previous iterations, characteristics and requirements of the previous iterations are used. In the first iteration the target group were ID students, which have the same age as the users of the last iteration. During the second iteration it became clear what kind of elderly there are and what they find important. In the final iterations all the data from previous iterations was merged to a final product

List of content

First iteration | TU/e ID society

The community and the education model of the TU/e faculty Industrial Design is designed in such a way that the student can plan their own route in the development as designers. With this freedom, the student is able to follow a direction and focus or specializes in one or more competency areas. The ID community wants to stimulate that students learn from each other. Creating a community that helps the students in their development is already available in the form of library of skills. But what is going on in other spaces, in other projects? Communicating the environment and his activities in a context towards other students can stimulate students to look further than their own space.

1| First iteration

The first iteration, done in three weeks, was about exploring the project theme and get more familiar with the idea of contextual information exchange and how others perceive this context. Using the project description, which was based on the product of Bram Knaapen, several opportunities were explored.

1.1| What is context?

This non-spoken language is a combination of different states, which help the receiver too understand the given information. But what kind of states are there? First of all, there is the surrounding, in which the conversation is taking place (physical state). There are the people who are communicating to each other in this surrounding (social state). Furthermore there is the information flow, which can come from different areas like the environment or person (information state). And at last there is the important part of how the information is given and in which circumstances. The information flow is influenced by the way of speech, body language and emotions at the moment of the conversation (Emotional state). All these states combined can be seen as context. (www.wikipedia.org)

1.2| Value of Context

Context helps the receiver to understand and interpret the given information. The context, which affect the emotions and the reaction on the received information by the user, plays an important role when communicate information.

1.3| Vision

By using a virtual or physical tool, the student is able to see the activities in the different spaces and stimulated to check what is happening elsewhere. By trigger the curiosity of the student, he or she will go explore the different spaces and the projects. This can help the student to develop his vision and identity. Trigger a response to check the activity in a virtual representation. This representation of the space could be created in e.g. SecondLife. A student could login to check the virtual representation. If the activity is of any interest, the student can check it out in the real world.

1.4| Users

The users have different backgrounds, different mentalities and different interest. Graduates from VWO (Age 17-21), have to think suddenly about their future plans while graduates from HBO and WO (Age 22 – 25) often already have set up some plans. Still, all VWO, HBO and WO students who come to the ID department of the TU/e will be new to the education model which give them the space to development their own learning path. Besides the Dutch students, the TU/e ID offers also students from partner institutions the opportunity to study as an exchange student. To get the maximum out of this exchange, these students can use the system to explore the different spaces and their projects.
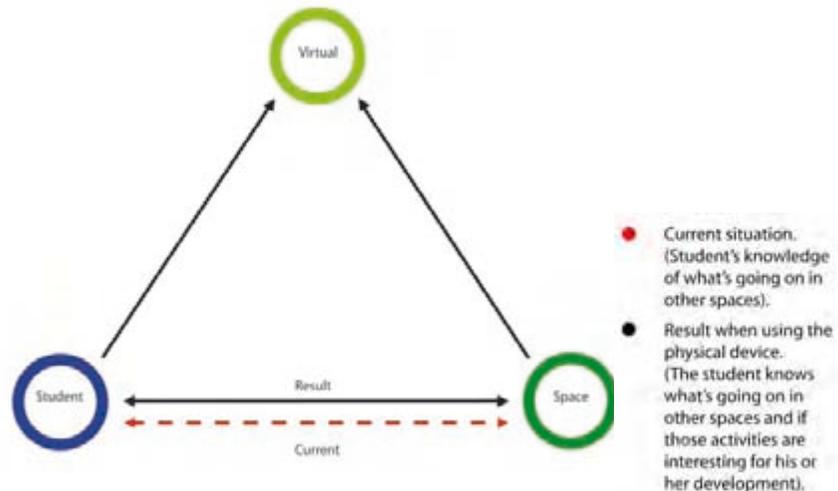

Fig. 1: model information flow
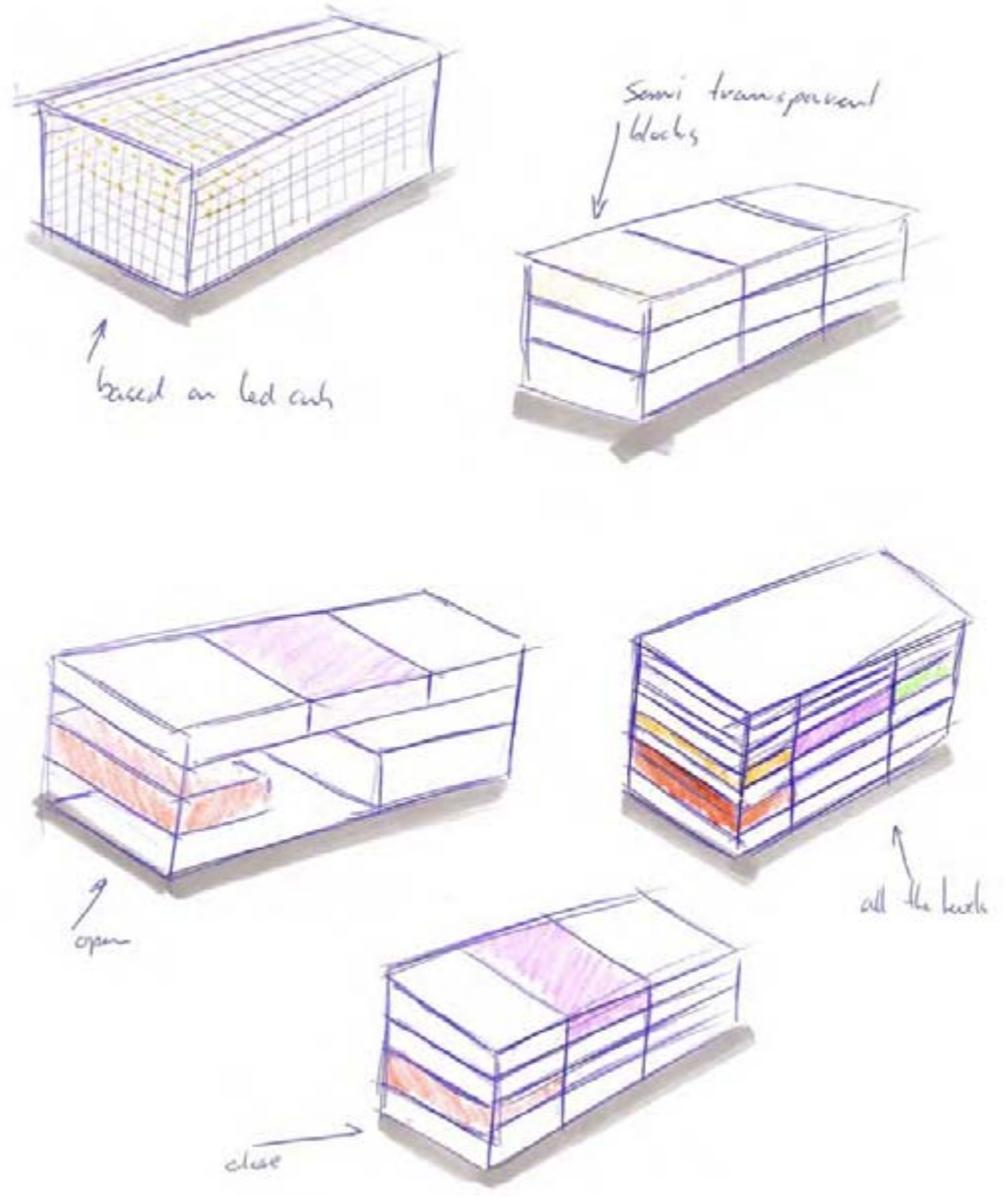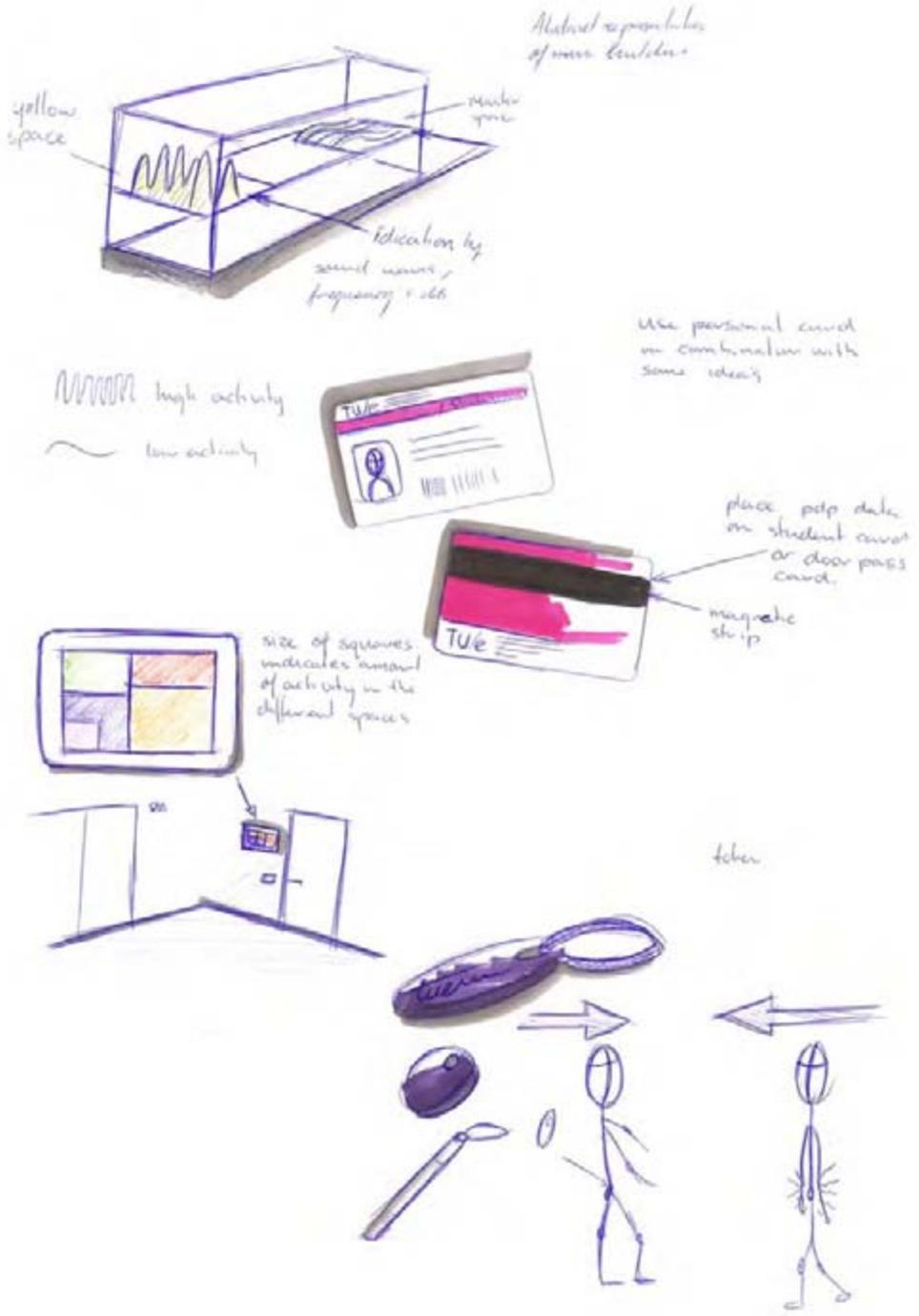
1.6| Idea selection

The idea of an abstract version of the main building was chosen in combination with the magnetic door card. The object shows only the spaces of the faculty ID, so it's stays synoptic. A main reason to choose for this idea was that it besides presenting contextual information also could function as a map for new students. Where are you located and where is the space located that is interesting for your development?

1.7| Concept

The physical contextual information object called CIO, provides the student with contextual information about activities in the different spaces and which space is useful for the student's personal development. As mentioned the object is an abstract 3D representation of the main TU/e building, which is build out of semi transparent blocks (See picture in the middle), lighted by LEDs. The CIO will be placed at the entrance of each space and is linked to the door locking system of the spaces. Each student of the faculty of ID needs a door card to enter a space. A computer system checks if the card is authorized to unlock the door by checking the data on the card The idea is that by uploading more data on the server that is linked to the card, like personal development plan or other educational related items, the card in combination with the CIO works as a guiding system for the student. When the student enters the door of a space, the lights inside the CIO are pulsating on different frequencies. This shows the amount of activity in the spaces. When the student places the card in front of the door scan, a block inside the CIO is highlighted and the other blocks are turned off. This indicates that the highlighted block is very interesting for the student's development. This can trigger the student to go to the space and talk to other students in that specific space. To make this information flow work, a digital profile of the student has to be created on a main system (An extended version of ID-Compass).

1.8| Evaluation

The main goal of the first iteration was to get familiar with contextual information exchange and how others would perceive a context. Results from the user tests showed that the shape of the object has an important influence on how people interpret the given information. The abstraction of the prototype caused that many participants had difficulties to understand the product. Understand context requires understanding of the object 's functionality and what it represents. Also some kind of background information is needed. Although the participants didn't recognize the colours immediately as ID spaces, it was clear these colours indicated a different content. The meaning of the pulsation frequencies of the lights was in general for all the participants the same, which make this a powerful way to present information. A point of critic is, that when the frequencies of the pulsations are to close to each other, it will be difficult recognize the differences. The 3D representation was very appreciated because it's makes everything very synoptic. You see in a glance were you should be.

1.9| Requirements

Feedback of the user test is transformed into requirements, which help to improve the next generation of the CIO object.
The following requirements are set:

1) Product has to be functional.
Without the contextual information, the product is still functional in use.

2) Product must work intuitive
People know what the product can do.

3) Product has to fit in the environment of the user
The place were the product is used is very important. Product has to fit in the environment were it is used.

4) Less abstraction of the shape of the product
Too much abstraction works confusing. People see what the product represents.

Fig. 2: Concept CIO

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Second iteration | Elderly – Adults

The relationship between elderly and their children is a delicate one; there is a need for communication between these two and they want to be in touch, but don't want to be there all the time. For the second iteration, the design case of the client is used, which is based on this relation (Elderly – 65+, Adult 25 – 50).
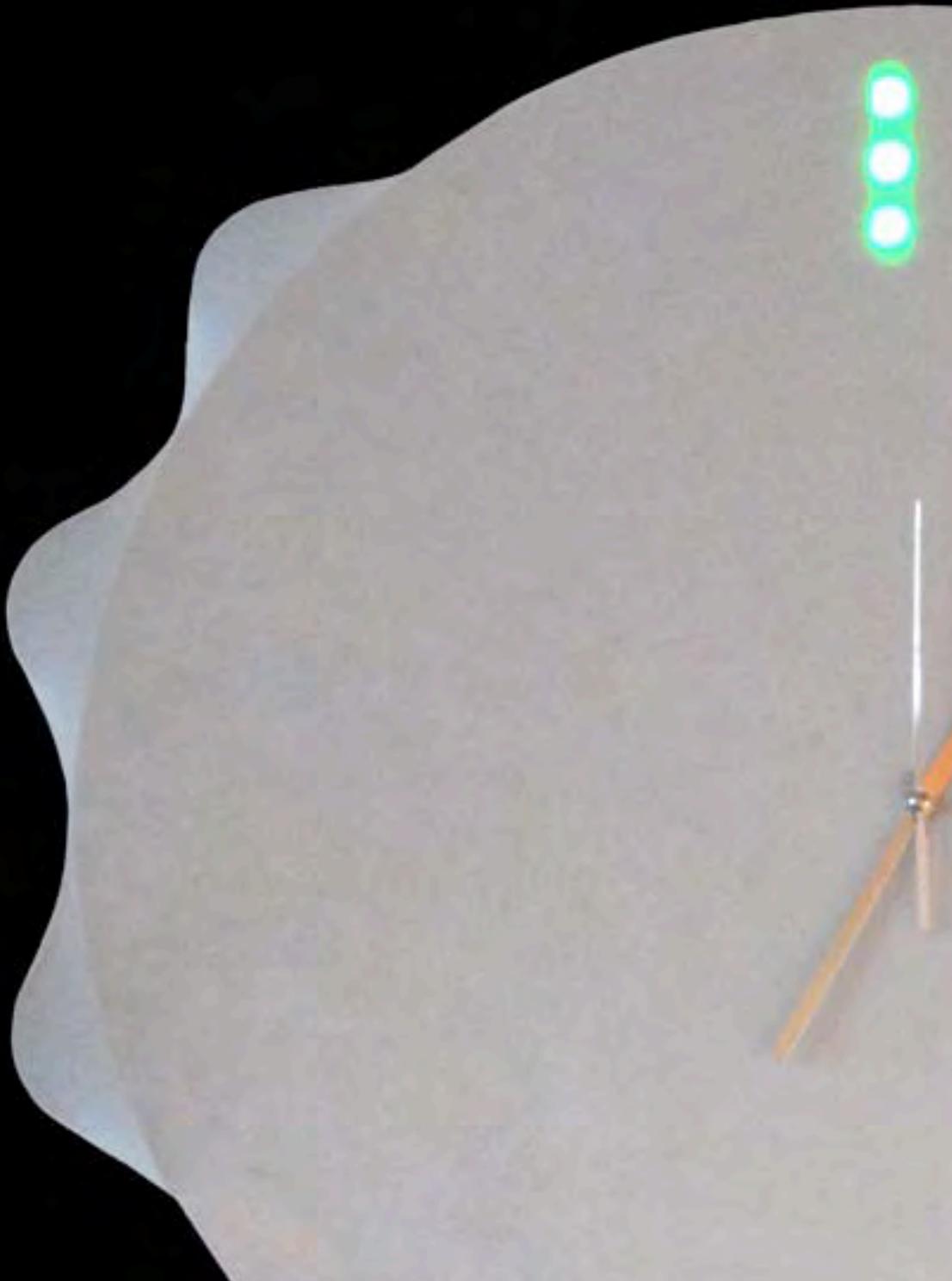
2| Second iteration

The second iteration was done in 5 weeks and based on the vision of the client, which describes that virtual worlds can be used as a vehicle for family or even other people to reach elderly. This caused that the target group of students has changed into Elderly – Adult. The client's current design case contemplates elderly care in combination with a virtual world and a simple robot that can help the elder (Autonomous assistant robot). The client who is specialized in virtual environments, mainly SecondLife, want to have a product that enlarge the appreciation of the service he can provide through this virtual world.

2.1| vision

The relationship between elderly and their children is a delicate one; there is a need for communication between these two and they want to be in touch, but don't want to be there all the time.

By using a virtual or physical product connected with Secondlife, the users are kept informed about each other's activities and are triggered to respond to certain "critical" events. When a user is triggered due to some recognition or knowledge about an event, the call won't be seen as ordinarily "check up".

In general the product allows for a more meaningful relation between parent and child. Both are not irritated by constant calls and check ups, but are comforted by the thought that someone looking after them.

2.2| Target group

In the design case we have two different target groups, namely the elderly and adults. To create insights in their life research is done and interviews were held. Results show that the target group sees each other on regular base (Most of them once a week) and that they experience their relation as positive. Common ground for contacting each other contact is the exchange of information about their activities and wellbeing. An interesting outcome was that most elderly would not want to be more involved in the life of their children due to privacy while the children would have a safer feeling if they were more involved in their parents life, because the vulnerability of their parents

2.2.1| Elderly (Age 65+)

Health

With advancing age, the body tends to slow down and becomes less efficient. Elderly people are prone to a few age-related health issues. Although this is a normal aspect of life and one cannot help it, it still can be for some very problematic during regular tasks. Think about physical strength when opening a conserve can. The level in which these problems occur differs from person to person. In fact there are also elderly who are very vital with or without these health issues.

Social life

It's obvious that there are different types of elderly. This is also the case with the social life of the elderly. While some are very active and have a busy social life, others are less active or lonely. Some are volunteers at sport clubs or activity centres, while others just come to an activity centres to play cards, do gymnastics or a computer course. In the end al the planned activities is about having and maintain contact. This applies certainly to maintenances of the relation between family members.

Interest in technique

Some elderly are very interested in the development of technology while others are more conservative. Outcomes of the interviews show that many elderly try to learn or are already familiar with electronics. Often the elderly are underrated when it comes to knowledge about electronics. Small groups of elderly try to learn the modern technologies. Computer courses are given at activity centres, were they learn to use a personal computer and e-mail applications. In fact one of the interviewees had a mobile phone and a personal computer (Age 71). But although the majority still struggles with electronics, especially with electronics that have many functions and (sub) menus, they will use more and more electronics.

Often a combination of cognitive disabilities and personality play a key factor when it comes to learn electronics. Some people just don't want to learn and use electronics while others can't use electronics because they find it to difficult to remember all the information.
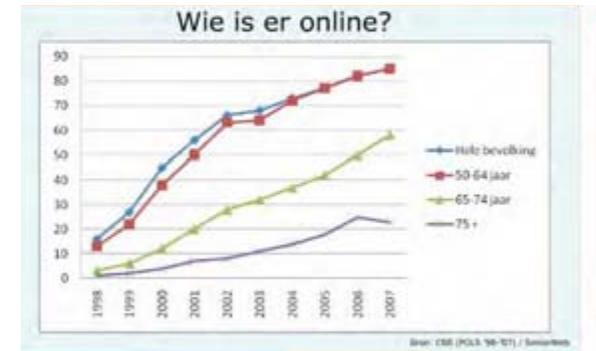
Fig. 3: Percentage of Internet use under the Dutch population (www.seniorenweb.nl)

2.2.2| Adult (25 - 50)

Health

This target group is very aware of their health status. They try to live as healthy as possible. Staying in shape by eating healthy food and sporting. A lot of them are member of a sport club, going to the gym, take a long walk, ride on their bike or doe exercises at home.

Social life

Most adults have an active social life. They are member of a sports club, see their friends on a regular base, have their colleagues at work and

some of them have children who need also a lot of attention, especially in the younger years. So it's obvious that this target group has a lot of social contact during the day as well in the evenings and weekends. Nowadays also more and more (young) adults have also a social life in the digital world. Through this digital world they maintain several social contacts. Think about SecondLife, Hyves, Twitter, Facebook and MSN. These networks are popular due to the fact that it's very easy to maintain contact, but also because these networks make it possible to have a "peak" in somebody's life.

Interest in technique
The interest in technique is high. The younger as well the older generation adults have a lot of electronic devices in their homes. Think about (mobile) phones, television, computers, electric kitchen equipment and more. It's obvious these electronic products are integrated in their daily lives. In fact many of them can't even without them.

Work
Besides the few younger adults who are still studying, most adults have jobs. People spend 20 – 40 hours a week or even more at their job. So a large part of their social life takes places at work. Work is also important for people because it gives satisfaction.

2.3| SecondLife
As mentioned in 2.2.2, the digital world has become an important way of maintaining social contacts. People created a social life in real life (first life) as well in the virtual world (second life). Because the client is specialized in SecondLife (SL), a research on this virtual world is done. Also an interview within SL. is done to figure out what drives people to play this "game".

2.3.1| What is SecondLife
The name of the game explains the concept of SL. People create a second "anonymous" life in a virtual world, were they can express themselves differently than in real life. The possibilities, which SecondLife offers are tremendous. People can create their own virtual character, which can differ from a "normal" appearance to a robot or a fantasy animal like a dragon. In the last decade SL. really became a part of some people's life and for some this virtual world emerged with the real world.

2.3.2| Users SecondLife
People of different ages from all over the world play SL. I self played SL. and I met people from America, Australia, Europe and Asia who where "relaxing" on different locations in the game (HotSpots). During a chat, a person helped me to modify my avatar (Virtual representation of me in SL), by giving me access to new items. This is what SL is about: share and makw new friends.

Although most of the people separate their first life from second life, some give you access to their personal profile from the real world. These profiles contains information like interests, age, where they live. The profiles showed that the users have an age between 18 and 40+, but in what extend this information is reliable, is not clear. In fact, everyone can live the life of a person he or she wants to be.

Roughly there are two different kinds of users in SL.: creators and consumers. The consumer mostly purchase items form stores inside SL, while creators are focused on creating new things and sell them. That virtual worlds can emerge with the real world was confirmed by one of the profiles in SL. The person was in real live a DJ, but this person was also looking for a job as DJ in SL. These kind of users spend a lot of their time in this virtual world and that makes this game really a part of their life and social network

Fig. 4:   My avatar in SecondLife at one of the many Hotspots.

2.3.3| Motivations

General motivations for playing SL. are the creative possibilities, "sharing" experiences, social networking and entertainment. Users meet new people from all over the globe. They extend their social network with new friends and have a laugh with them. A user told me that she found SL. addictive because it's exciting to talk to strangers and it is funny to change from identities.

Profiles of users show that these little chats can grow into a friendship, but also into virtual relationships. There are SL. users, which have a relationship and live together in SL. Something what in first life maybe wasn't possible.

A fact is that people can be very lonely and SL. gives them the opportunity to socialize with the comfort of being at home. Because the possibilities are endless, SL. also can make dreams come true. Live the life you always wanted.

2.3.4| Activities inside SecondLife

Second life is like the real world. You can have a chat with other users you can visit events like concerts, go to clubs, shopping, manage your own company and much more. In SL. users are able to spend LindenDollars (virtual money, which they buy with money from the real world) on clothes, vehicles, houses and other items. The opposite is also possible. Users can sell items and make profit. If they want, they can change their LindenDollars for money in the real world.
(Hu, J. & Offermans S. "Beyond. 2009)

Fig. 5: Me having a chat in SecondLife

2.4| Idea generation

Requirements of first iteration are used during this idea generation. Started to sum up different objects worth exploring, think about objects like lamps, table's clocks and even walls, these objects were used in the idea generation. For these different objects we simply produced different ideas about how to implement a context and how to express different activities. The best ideas were distilled and transformed into concepts. The given example is the idea generation of the clock
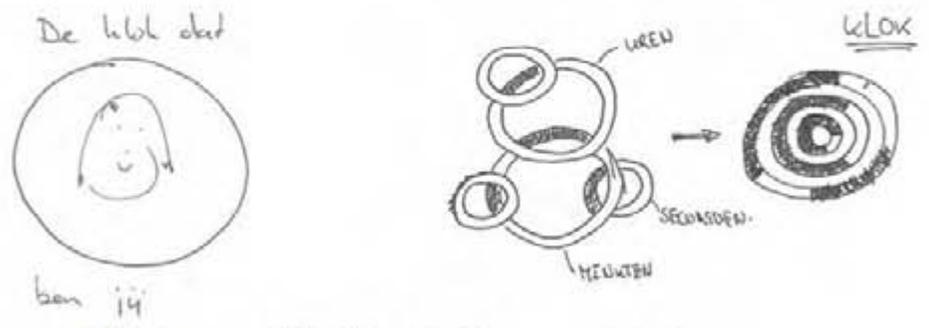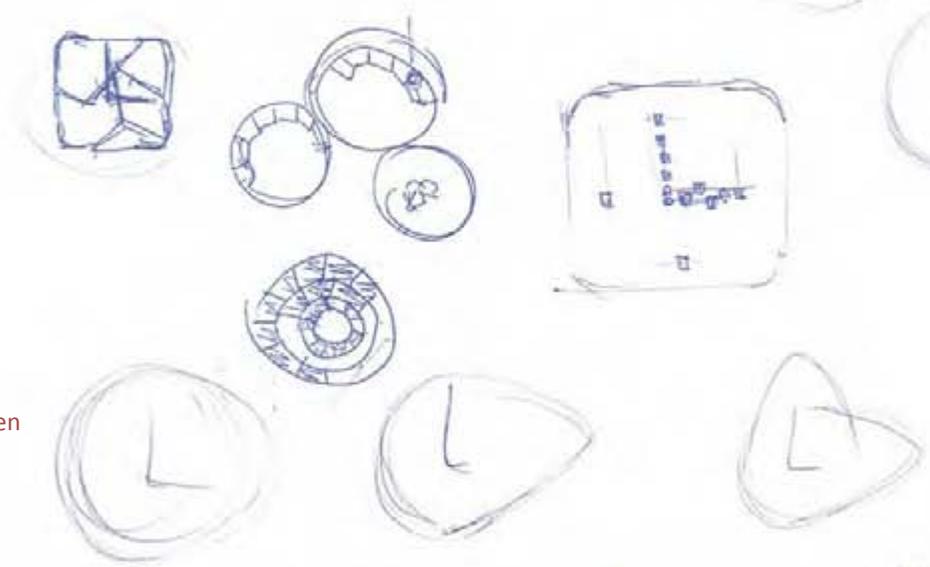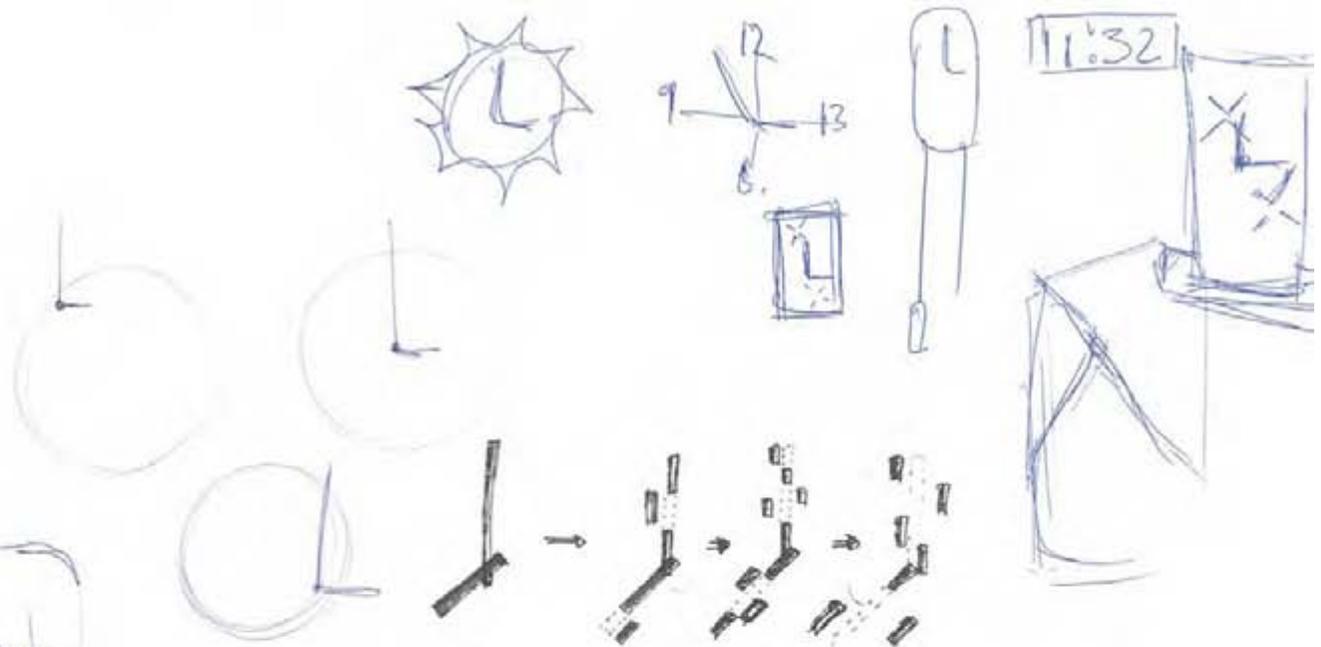
Chosen
Idea
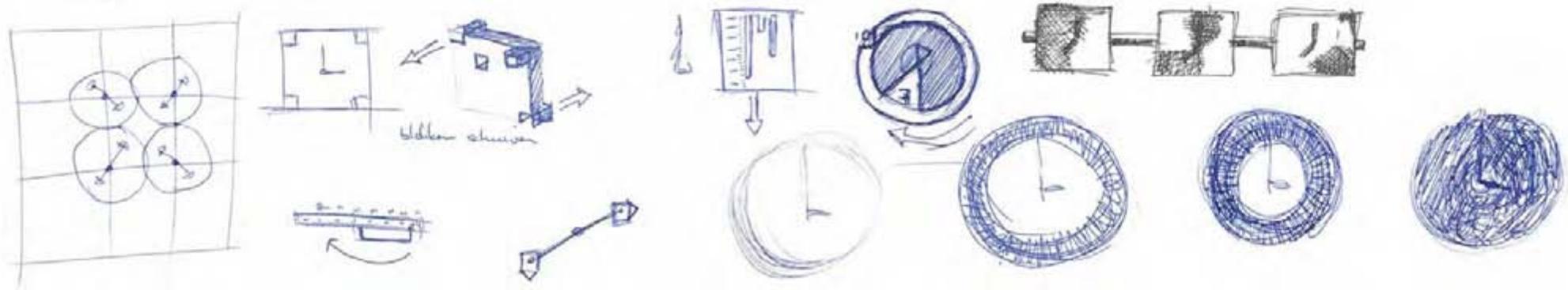
2.5| Idea selection

2.5.1| Category selection

The different ideas were categorized in the categories: lamps, wall, clock and furniture
Based on the requirements, which were set in the first iteration a pre selection of the categories was made. Eventually the idea of the morphing-clock was chosen and transformed to a concept.

Lamps

The category lamp was rejected because lamps have a big influence on the home environment. Some ideas would create shadows or the light would be projected into another direction. This has a negative influence on the on the functionality.

Wall

The category wall wasn't chosen either.
Although we found the morphing walls really great, our walls didn't really fulfil a function. Also the product has a big influence on the environment caused by the large surface. This won't be appreciated by a lot of people

Furniture.

It's clear that furniture has a function, but it has also a big impact on the environment. Besides that people don't change that often from furniture. Some people have their furniture ten years or even longer.

2.5.2| Chosen idea

In the category clock there is chosen for the clock, which changes shapes on the sides. This ensures that the clock will be functional when the shape changes. We don't want to change the core function of the clock, which is indicating time. The analogue time framework is always clearly readable. There is chosen for the analogue framework from the perspective futuristic meets traditional.

2.6| Concepts

Two versions of the morphing clock are designed.

Version #1

In the first version, the generated shapes are directly linked to the time. This means that when an event takes place, the shape will appear at the specific time.

Advantage?
An important advantage is probably that this clock works more intuitive in comparison with version #2

Disadvantage?
Twenty-four hours after the last event the clock will reset to its original shape. This means that the after twenty-four hours the context isn't visible anymore.

Version#2

In the second version the generated shapes will appear, at randomly places when an event has takes place. The LEDs indicate the time of the event.

Advantage?
The lights will attract the attention of the user much faster.

Disadvantage?
Maybe people will still link the shape's position to the time of an event, will only the LED's indicate the time when an event takes place.

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2.7|

The morphing-clock. Why the clock? A product has to be functional and has to fit in the environment of the user. The clock fulfils already the function of indicating the time and many people have already a clock in their home. Add an extra function to the clock and it can communicate more time-related items. For the design case of the elderly and adult two identical clocks are designed. One clock is placed at the adult and one clock is placed at the elder(ly).
The clock at the adult's place will inform the adult about the activities of the elder and the clock at the elder's place informs the elder about the activities of the adult(s).

Due to privacy reasons, the clocks only display events that are seen as "critical". Users don't want to have the feeling of being monitored all the time and by sending only information when needed, the privacy is kept.

To measure "critical events, the clock scans the environment for a change of volume. Although the clocks constantly monitor the environment, the connection with the other clock is only made when a certain volume border is exceeded.
If the border is exceeded, the clock measures the duration of the event. The duration determines the shape that appears at the other clock. For example, a short loud noise will generates a sharp-edged shape while a long loud noise will generates a more friendly round shape. The round form indicates that the "critical" event is probably in harmony with the activity.

The shapes appear on the side of the clock at randomly places, which gives the clock a playful interaction. To indicate when an event took place, green LED's light up at the specific time. (See right picture) Twenty-four hours after the last event, the shape of the clock will slowly transform back again to its original round shape.

Besides a physical representation of the clock, there is also a virtual representation of the clock in SL. This virtual representation of the clock is linked to other physical clock.

To create identical shape the physical and virtual clock are synchronized. When an event takes place, the physical and virtual clock will have identically shapes. The owner of the clock is able to check the morphing clock in SL. form every place in the world.

In contrast to the physical clock the clock in SL. has the function of playback. In SL. the owner of the clock can listen to the recording of the event. When somebody wants to know more about the displayed context of the physical clock, they can choose to login in SL. and get more detailed information by listening to the recordings.
Depending on the presented context they will choose to call immediately, to check recordings in SL. or do nothing at all.

Fig. 6: Concept of morphing-clock

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2.8| Evaluation

The clock's interaction was first validated during the mid-term exhibitions. Sadly enough there wasn't any time left to evaluate the product with the actual target group, but still the gathered information gives a clear picture on how people did receive the contextual information.

It became clear that people linked the position of the shape automatically to the time. So when a shape appears at nine o' clock, people think that the event takes place at nine. Seeing a shape at a specific time works more intuitive than see a light as indication. Only after explanation of the idea, the LEDs became clear. This means that concept number one works more intuitive. Because most people did needed some explanation about the LED and shapes, the power of context was a little bit lost.

Another point of critics was that it would be logical to do something with time manipulation, because of the product's core function. People expected that something would happen with the time instead of the shape. However, in our point of view we didn't want to change the core function of the clock. Instead, we wanted to communicate the context on a playful way so the clock looks still as a "funny" clock for outsiders.

From the two types of shapes, which the clock can produces after an event; only the sharp-edged shapes were clear at first sight. The round shapes needed some explanation, but people need some background information to understand a context. When people know what the shapes mean, they understand the given information immediately.

Although the idea of a virtual representation will work in theory (Users can also check the clock's state at the office), the concept probably will be used without it. The virtual representation is now only interesting for people who already use SecondLife or a similar 3D virtual world. Because SecondLife only counts 1 million active users worldwide the amount of potential users is very low. Also SecondLife is more based on living a fantasy life than sharing your real life with somebody else. Other available social networks have much more active users and are more based on sharing information of the real world. These social networks must be taken in consideration for the next iteration. In the case of SecondLife the concept is partly lost.

2.9| Requirements

The list of requirements, set during the first and second iteration, will be used for the final iteration. The following requirements are set.

1) Product has to be functional.
Without the contextual information, the product is still functional in use.

2) Product must work intuitive
People know what the product can do.

3) Product has to fit in the environment of the user
The place were the product is used is very important. Product has to fit in the environment were it is used.

4) Less abstraction of the product's shape
Too much abstraction works confusing. People see what the product represents.

5) Context must be easy to understand (Intuitive)
In case of the clock, position of shape represents the time when an event takes place or has taken place.

6) Product has to be integrated in a virtual world
Product works only in combination of a virtual world.

7) Alternative for SecondLife
A different virtual world than SL has to be taken in consideration.

8) Reduce the amount of variables in the product
In case of the clock, round shapes are less interesting because it often is linked to a pattern (Like dinner from 5 – 6).

**9) Core function virtual world needs to be considered**
Use the core function the social network.

Final iteration | Elderly - Grandchild

The relation between grandparents and grandchildren is like the relation between elderly and adults, a delicate one. Grandparents want to see their grandchildren as much as possible but the grandchildren visiting their grandparents only once or two times a month.

With the information gathered from previous iterations, the grandchild will be provided with contextual information about the activities of the elderly, which helps to reduce the generation gap between them and increase the amount of visits.

Because there is chosen for another social network, the target group has changed into elderly – grandchild. This doesn't mean that adults can't use the product or service. In fact, the chosen social network becomes more and more popular under the adults. But for this design case there is chosen to focus on the grandchildren

3| Third iteration

The third iteration is done in 8 weeks and was focused on the implementation of a virtual world into a product of service, because in the previous iteration the virtual world was more an option than really a core communication factor.

After a quick research about social networks, it became clear that most active users have the age of 17-24. Searching for new possibilities a new design case was set. As mentioned, this design case is between elderly and their grandchildren. How often these grandchildren see their grandparent(s) differs a lot. The majority mentioned that they see their grandparents once or two times a month. The most common thing they want to know from their grandparent(s) is how they are doing and if they planned some activities.

3.1| Vision

Although the vision is relative the same as the second iteration, the focus lies now more on reducing the generation gab between grandparents and grandchildren. Reducing this gab means that the communication flow between the two must be improved so both parties are aware of each other's activities. A virtual/physical product/service, connected to a social network can help to reduce this gab and trigger the users to respond to certain "critical" events. ".

3.2| Social networks

The term social network is an umbrella term that defines the various activities that integrate technology, social interaction and the construction of words, pictures, videos and audio. (wikipedia.nl) Social networks are very popular because it's a cheap and easy way to maintain contact and make new contacts. Also social networks are used to compare yourself with somebody else, to relax and for entertainment. There are many different versions of social networks available on the web. Some are designed as a 3D world, as we seen in the second iteration (SecondLife), others are a simple pages with movies, pictures and text (Myspac, Facebook and Hyves). There are also networks based on short messages services (Twitter).

Although users prefer different social networks, they have all a common thing. They are engaged to this way of communication. The level of this engagement differs from person to person.

A basic structure for engagement: (1) Identification (most basic level of engagement, (2) Belonging (Share values and common experience) and at last (3) commitment (People who are passionate enough to devote time and/or money). (Source: Mark de vries, Hyves 2008)

3.2.1| Alternatives for Secondlife

According to research the most popular networks are Facebook, Twitter, MySpace and in the Netherlands Hyves (source: Rapleave). Daily million users check their profile for new developments, short messages or mails. The problem with SecondLife is probably that the environment isn't really synoptic. The 3D world is immense and it takes some time to get use to the navigation. Also SecondLife is more about creating and live a fantasy world than have a look in other people's life. Focused on the Dutch elderly, there is been chosen to use the Dutch Hyves network.

3.2.2| Hyves

Hyves is a Dutch version of a social network where people can share experience, write messages make new friends etc. in the 5 years that Hyves exist, Hyves has grown to 10 million users who send daily more than 1 million messages to each other.

Monthly more than 4 milliard profiles are visit. Therefore the main activity of the users of Hyves is obvious checking profiles of other users. The average age of the users is 27, but currently the category 17-24 years seems to be the most active. In this category the majority is women. (Source: Mark de Vries, Hyves 2008)

3.2.3| Environment of Hyves

The Hyves environment has a lot to offer. Users are able to personalize their profile by changing the background (colours/pictures), upload movies, pictures and videos and embedding Java games and YouTube movies on their page with the gadget function. Also people can subscribe to special Hyves communities inside Hyves, like a company profile or a profile of a football club. The whole picture makes Hyves a multifunctional media product and therefore very usable for the design case of the grandparents and grandchildren.

3.2.4| Target group and Hyves

The amount of time spend online differs for each user. A small questionnaire was done under 30 users in the age of 17-24. Results showed that thirty percent checks his or her profile more times a day, twenty percent once a day and 30 percent once a week. The rest only check their profile when they receive a notification of Hyves that the have a new message. During the time the people are online, they like to "pimp" their profile, check if they have a messages (or send one) and check other's profiles. The users indicate that the easiness of maintaining contact with old friends or people, who they don't often see, is an important reason for using Hyves.

3.3| Technique

Youtube movies and Java games are placed under the section "Gadgets of Hyves. Web developers are able to design games or other applications that can be embedded in this section. Hyves does not host any gadgets, but cache them every day. Only the developer/owner can add the gadget to the live-environment of Hyves. When this is done, other Hyves users are able to add the gadget to their own profile. This protocol is based on OpenSocial and API based technology. A negative point of OpenSocial is that a lot of Hyves users receive mail from gadgets, which work with OpenSocial. Research showed that people find this very annoying.

3.3.1| OpenSocial

OpenSocial defines a common API (Application-Programming Interface) for social applications across multiple websites. With standard JavaScript and HTML, developers can create apps that access a social network's friends and update feeds. For example it's possible to know who is viewing the gadget placed on your Hyves (the so called Viewer) and depending on this you can get the available social data. (Source: Wikipedia, HowStuffWorks, Hyves)

3.3.2| API

An API is a set of programming instructions and standards for accessing Web-based software applications. An API allows a software application to communicate with a remote application over the Internet through a series of calls. When a software company releases its API to the public, other software developers can design products that are powered by its service.

An API is a software-to-software interface and not a user interface. The interface defines the way in which two entities communicate. With APIs, applications talk to each other without any user knowledge or intervention. For example: When you buy movie tickets online and enter your credit card information, the movie ticket Web site uses an API to send your credit card information to a remote application that verifies whether your information is correct. Once payment is confirmed, the remote application sends a response back to the movie ticket Web site saying it's OK to issue the tickets. As a user, you only see one interface (The movie ticket Web site), but behind the scenes many applications are working together using APIs. This type of integration is called seamless, since the user never notices when software functions are handed from one application to another. (Source: HowstuffWorks, http://vimeo.com/2165050)

Fig. 7: API based gadget: Buddy Poke

Requirements

Based on the information of the first, second and third iteration, requirements are set. The final product has to meet al these requirements. Some requirements descriptions are changed.

1) Product has to be functional.
Without the contextual information, the product is still functional in use.

2) Product must work intuitive
People know what the product can do.

3) Product has to fit in the environment of the user
The place were the product is used is very important. Product has to fit in the environment were it is used.

4) Less abstraction of the product's shape
Too much abstraction works confusing. People see what the product represents.

5) Context must be easy to understand (Intuitve)
In case of the clock, position of shape represents the time when an event takes place or has taken place.

6) Product has to be integrated in a virtual world
Product works only in combination of a virtual world.

7) Alternative for SecondLife
A different virtual world than SL has to be taken in consideration.

8) Reduce the amount of variables in the product
In case of the clock, round shapes are less interesting because it often is linked to a pattern (Like dinner from 5 – 6).

9) Core function virtual world needs to be considered
Use the core function the social network.

10) Effective ways of enabling users to navigate through the given information
Use similar navigation as in the used social network.

11) Application uses OpenSocial
Service or product communicates with the OpenSocial protocol

12) Application uses API interface
API interface has to be used.

13) Grandchild is able to make friends with his grandma on a social network
Grandchild is able to find his grandmother and add him to his or her friend list or community.

14) API rectifications only after agreement
Service only sends emails after subscription.
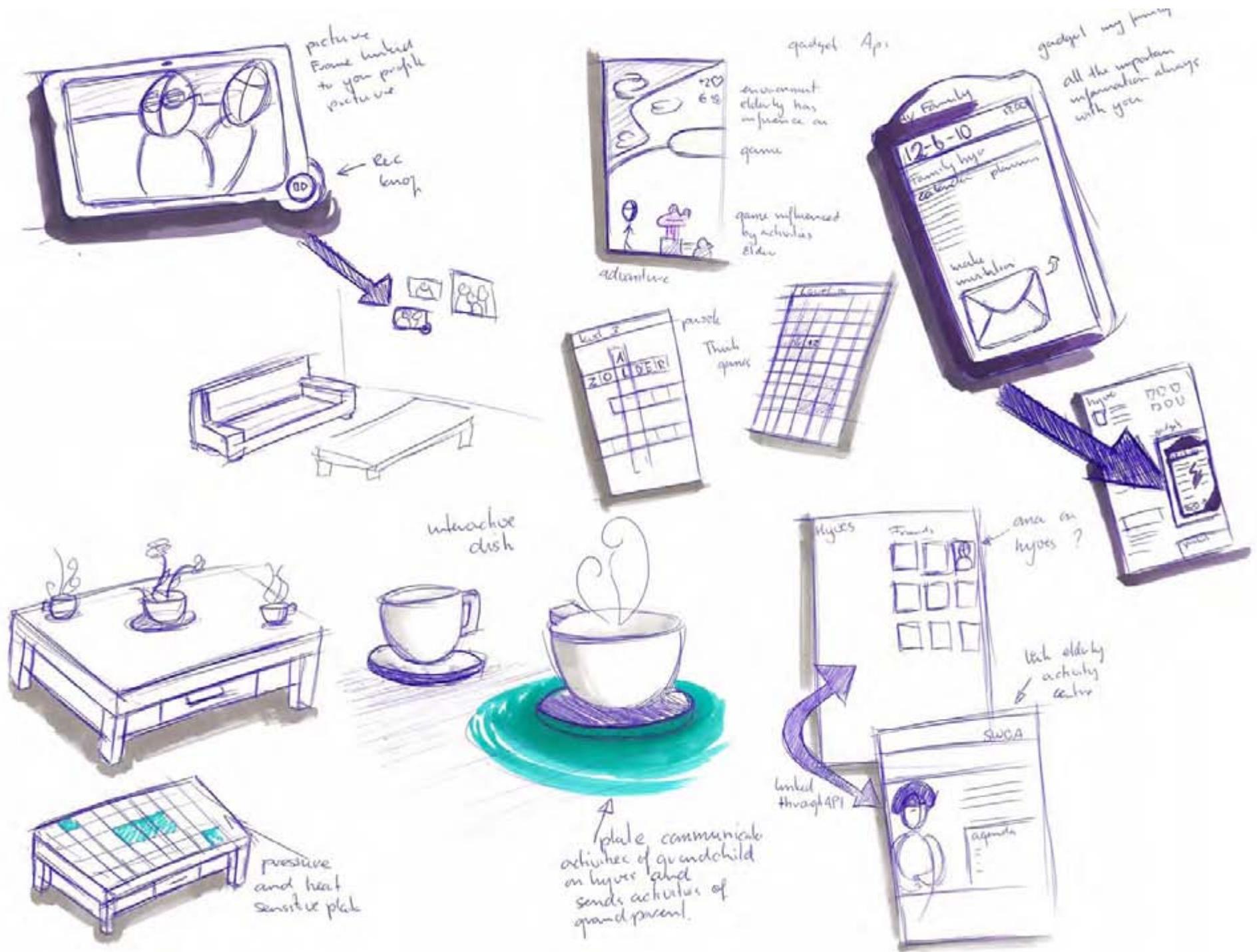
3.6| Idea selection

Because there weren't that much ideas in the last iteration there were no categories made.

Photo frame

The idea was that the picture, visible on the photo frame, is linked to the profile picture of the Hyves user. The grandmother could make a picture or a small photo by pressing the button in the lower right corner. The photo will be send to the profile of the grandchild as a message. This idea isn't chosen because sadly enough this idea is already available in combination with the network of Flickr. Although the picture function is new, the grandparents probably forget to use it. A regular Hyver changes every month or more from his or her profile picture. After 20 pictures, the grandparent won't react anymore or don't notice the picture has changed.

Java game

The idea is that the grandparent(s) influences the Java game of the grandchild with his or her activity. For example, when the grandparent is really active during the day, the characters in the game will be also active. If not the opposite occurs (The characters will be slow). The idea isn't chosen because people can be annoyed after a while, when the characters will be slow all the time. Besides that, people are often really quick bored by a simple Java games. (Source: questonaire) To make the game alternating, it will probably be to big and to complex for Hyves.

Interactive table

An interactive table, that interacts with a Java game on Hyves. The table reacts on pressure and heat. With these two variables it can influence the java game. This idea isn't chosen either because of the things mentioned in "Java game", but also because furniture is something personal and has a big impact on the environment. As mentioned in the second iteration people also don't buy quickly new furniture.

Interactive dish

Same idea as the table, only now it's more mobile. The idea is rejected because of the same arguments in "Java games".

Profile of activity imbedded in Hyves.

This idea is based on a service instead of a product. A lot of elderly have an active life. Some of these active persons go to community centres were the play cards, following a computer course or have a meal. Often these centres are managed by professional organisations, Like SWOA in Arnhem. This organisation administrates who subscribe for what activity. The idea is to create a simple user profile of the person who is active in the community centre. This simplified profile is linked to the administrative database of the organisation and to Hyves. When elderly subscribe him for an activity this will be processed in the administration database and in the user profile. The grandchild is able to check this profile in Hyves. This idea is chosen because the grandchild is able to check the profile page of his grandparent. There he can see what kind of activities his or her grandparent is going to do. This idea uses the core function of Hyves, which is checking profiles of others. On the page a context of the activity is given.

3.7| Final concept

The coordinating organisation of the elderly activity centres (SWOA) generates automatically a basic social network profile for his clients. This basic site contains information about the activities of that client. How many different activities he or she has planned and when. The information is linked to the administration sector of SWOA. Visitors of the profile can leave a message on the profile. Also a message or a quote can be place on the profile by the person behind the front desk, when people don't have a computer. Visitors of the digital profile are also able to send a physical postcard. This function is sponsored by the coordination

organisation (SWOA) as an extra way show their appreciation to the clients.

The grandchild – elder connection

The grandchild, who is interested in his grandparent's life, submits the profile page, created by the SWOA, to his Hyves. The grandchild has now the profile site of his or her grandmother in his or her friend list. The grandchild, who likes to check other profiles, is now also able to visit the profile of his or her grandparent(s). On the profile they can see contextual information about the activities of their grandparent. The grandchild is able to send a physical postcard. For instance, the grandchild want to let the grandparent know that he or she is proud on her grandmother and that he or she is thinking about her.

3.8| Result

Through this service the grandchild gets to know more about his grandparent and their activities at the activity centre. Because his grandparent doesn't have Hyves, the grandchild can visit his grandparent more often to show the website and the messages. The grandchild can now share the experiences of his or her grandmother. This makes the generation gab between the two smaller.

Although there is already a function in Hyves to send a postcard, the function on the profile of the grandparent is free and directly addressed to the location of SWOA where the grandparent is active. This means that the grandchild don't have to remember all the information.
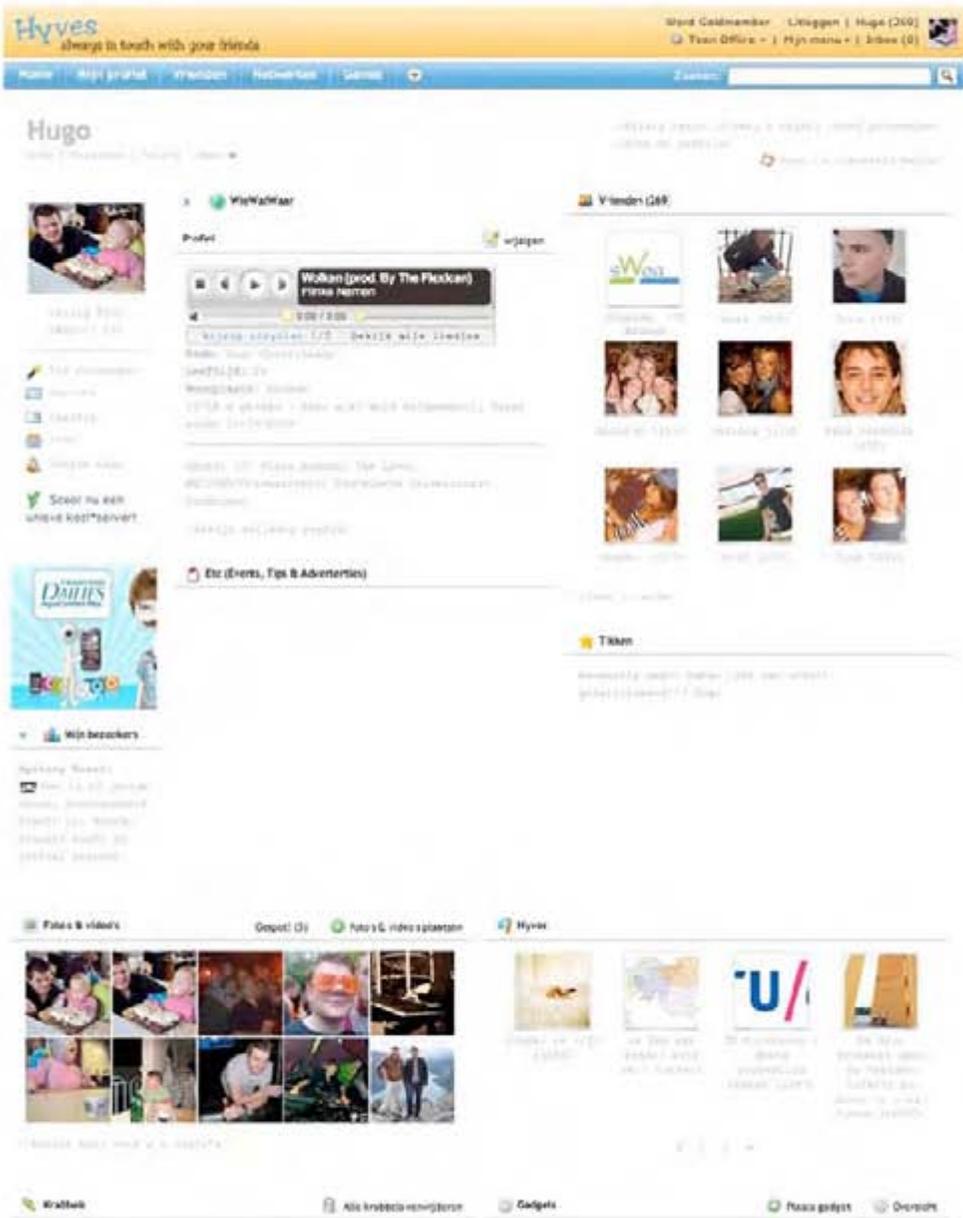
Fig. 8: Concept of profile SWOA embedded in Hyves.

Software model

As mentioned the concept uses APIs to share specific information. The model on the right illustrates how the two websites are communicating with each other.

The coordinating organisation (SWAO) generates automatically for all her clients, who are subscribed for an activity, a personal website. This website will be visible inside the Hyves environment.
How does this work?
When an elder subscribes its self for an event, like a computer course, this information will be processed and sent to the main office of SWOA. The information contains the person's name, the activity, the data of the activity and other information about the client. This information will be stored in the database of SWOA. Specific information like time, date and kind of activity are linked to the personal website of the client and transformed into contextual information (Clock). The other information is private and not available on the website. The data flow between the database of SWOA and the client's profile is protected, which means that this information flow isn't accessible for outsiders.

At this point Hyves doesn't have any access to the information yet. When the grandchild wants to submit the grandparent's profile to their Hyves, they search for the specific site and submit the profile to their friends list. To make this work, Hyves sends an API request to the SWOA server, which will be confirmed by SWOA sever. The SWOA server gives permission to the Hyves server, who has now access to the contextual information and the postcard service on the personal profile of the grandparent. A small icon of SWOA with the name of the client is added to the friends list of the grandchild. When the grandchild wants to visit their grandparent's profile, they only have to click on the icon. For each visit the information of the SWOA site will be cached on the Hyves server.

The API makes it possible that the two servers can communicate to each other according the API documentation. This documentation tells the servers what the can share and what the certain conditions are.
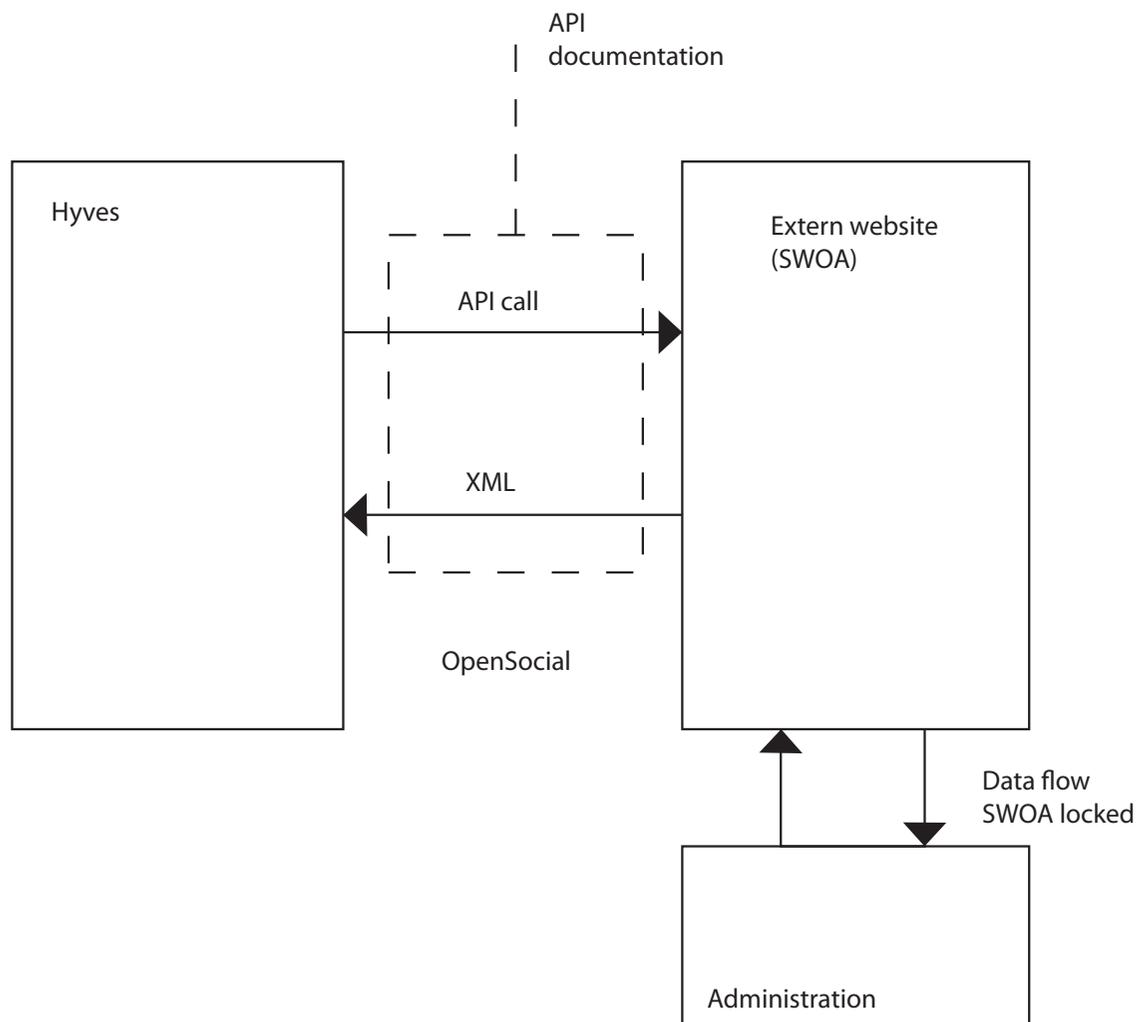

Fig. 9: Software model

3.10| Evaluation

Due to time issues this final product isn't evaluated by it's potential users. Still, some conclusion can be made about the service and the effect of this way of sharing information.

After evaluating this product, some positive and negative points occur.

The positive effect is that the grandchild is better informed about the activities of their grandparent, which will reduce the generation gab between the two. This can "improve" the relationship between the grandchild and grandparent, so the grandchild will visit his or her grandparent more often.

Also grandchildren who don't live nearby can still communicate with and check how their grandparent is doing, without making a phone call.

From another perspective, there is also a negative effect. Because the grandchild is better informed about his grandparent, he or she will visit their grandparent even less. They know how their grandparent is doing and what kind of activity she does during the week.

This means that in the end the decision of visiting the grandparent still lies with the grandchild.

So a user evaluation is really needed to get more feedback about this product for making adjustments or adding some items so this service has the wanted effect.

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