PROCESS REPORT

Service Systems Design

Master Thesis by Dorina Burduja

Aalborg University Copenhagen

Service Systems Design

10th semester - Master thesis

Scope: Service Design in healthcare context

Supervisor: Nicola Morelli

Dorina Burduja

Dorina Burduja

Abstract

For the past two decades, there have been recorded massive society changes as a result of exponential growth of technology. The consequences of this phenomena could be experienced on the cultural shift of people lifestyle, which facilitated the development of chronic diseases as diabetes.

The old healthcare paradigms can't properly face it, thus it is necessary to change the approach tackling this problem from "reactive" to "proactive" and review the current blunt policy of "one size fits it all".

This project aims to address through design for a service that is striving to help its users prevent one of the most common and ignored 21st century illness: diabetes.

The service aims to be "proactive" as it will provide all the tools and information necessary that will guide prediabetes people through the maze of potentially unhealthy habits. It will do so by constantly analyzing lifestyle choices and issuing both instant health checks as well as prognostics. It will also attempt to use social engineering in order to drive users towards a healthier realm.

The "one size fits it all" is the another paradigm that this service aims to abolish. The solution is designed to be user centric. The tools it creates, will be dynamically tailored for each user, based on their lifestyle, health habits, social environment, etc.

Table of contents

Acronyms and terms

T1D	Type one diabetes A subtype of Diabetes Mellitus that is characterized by Insulin deficiency. The Disease may occur at any age, but is most common in childhood or Adolescence. (Medical Dictionary)
T2D	Type two diabetes previously was called non-insulin- dependent is a progressive disorder characterized by variable degrees of insulin resistance and progressive ß (beta) - cell dysfunction, leading to a relative and, in some individuals, and absolute deficiency of insulin secretion. (Burant 2004)
Prediabetes	A metabolic condition characterized by insulin resistance and primary or secondary beta cell dysfunction which increases the risk of developing type 2 diabetes. (Burant 2004)
Blood glucose	Is the amount of glucose in the blood. (Medical Dictionary)
Impaired glucose intolerance	Is a prediabetes state of hyperglycemia that is associated with insulin resistance and increased risk of cardiovascular pathology. (Medical Dictionary)
Insulin resistance	A state or condition in which a person's body tissues have a lowered level of response to insulin (Medical Dictionary)
Overweight	A status with Body Weight that is above certain standard of acceptable or desirable weight. In the scale of Body Mass Index. (Medical Dictionary)
Obesity	A status with Body Weight that is grossly above the acceptable or desirable weight, usually due to accumulation of excess Fats in the body. (Medical Dictionary)
Carbohydrates	The largest group of organic compounds occurring in foods and living tissues and including sugars, starch, and cellulose, typically can be broken down to release energy in the animal body (Medical Dictionary)
SSD	Service Systems Design
UI	User interface
App/apps	Mobile application

Introduction

The "Fellows" represents the master thesis project for the program Service Systems Design. Within the project it is demonstrated how the service design methods and principles as well as affiliated design fields helped to build this project.

The topic of the project it is part of healthcare environment where the author tried to embed the healthcare system and design approach for proposing a sustainable service that will support patient's health needs across the journey.

The healthcare encounters a big shift in their service system, from value chain where the old systems don't really work to solve complex problems as chronic diseases to value constellation where the user is involved in creating the offerings. As Ramirez and Mannervik pointed out, in order for a new organization to succeed in the new Service Economy it needs to learn how to mobilize users and various partner organizations to create their own value by co-producing offerings. In this context Design has the great opportunity to bring value and meaning generation at the heart of this activity. (Freire, Sangiorgi 2010)

For this reason, the healthcare environment has been chosen to work further on implementing the new shift into Diabetes world. Diabetes is the world's fastest growing chronic disease, and type 2 diabetes accounts for about 90% of all cases. The World Health Organization estimates more than 300 million individuals may have diabetes by the year 2025, but worldwide, likely as the change of human behaviour and lifestyle during the last 100 years. (Burant 2004, 6-7)

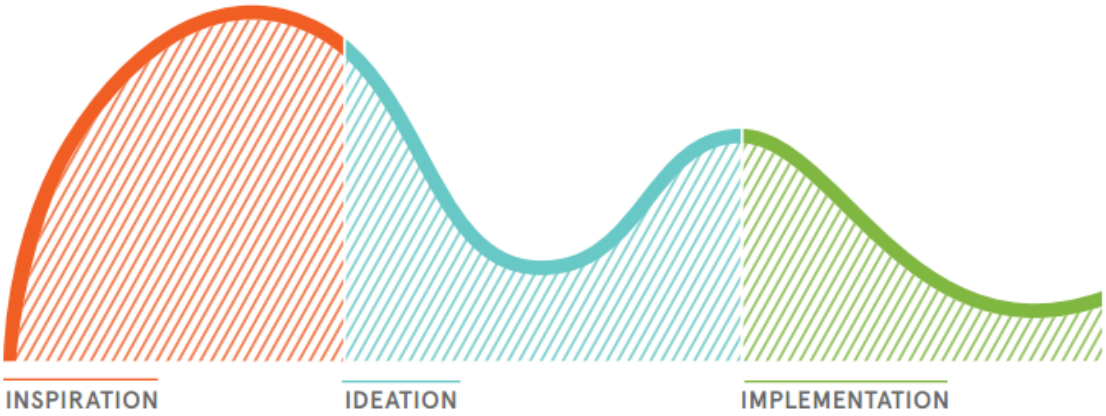
The project's goal is to come up with a service proposal that will encourage people suffering from prediabetes and type 2 diabetes to improve their eating habits and physical activities. This actions are extremely important and necessary in order to keep the blood sugar in normal range and avoid other health complications that this disease can cause. Nonetheless, the complex nature of chronic diseases requires a sustainable and comprehensive approach to prevention. The original focus on treatment it is not sufficient, as people need an ongoing support to live well with their chronic conditions. (Freire, Sangiorgi 2010) This requirement was well implemented by Wellogram and Activmobs organizations that are focusing diabetes and should be adopted by this project too.

Disclaimer

This project's development encountered some limits too. It was developed by a one person and this made the entire design process slower and more difficult. It was hard to foresee all the "angles" because of lack of debating and a second point of view; it was harder to find a solution or work with service users.

Methodological approach

This project has been developed following Human-centered design methodology proposed by IDEO. Human-centered design is a creative approach to problem solving. It's a process that starts with the people for whom the designing process is orientated and ends with new solutions that are tailor-made to suit their needs. Human-centered design is all about building a deep empathy with the users; generating tons of ideas; building prototypes; sharing what the concept with the people the design is targeted. (IDEO 2015)



Human-Centered design methodology representation designed by IDEO. (IDEO 2015)

The project consists of 3 design phases: Inspiration, Ideation and Implementation. Inspiration is about immersing in user's life, learning and understanding his needs. Ideation synthesize the insights from inspiration and creates opportunities which facilitates to identify solutions. And the last phase Implementation is about bringing the solution to life and shape its characteristics.

Alongside with IDEO's methodology, service design methods were used to develop the concept and the system that stands behind it; identify the actors involved in the service delivery; illustrate their tasks across the service journey and reveal the critical points of the service through use cases.

inspiration

"Creating meaningful solutions begins with understanding people's needs" IDEO

Diabetes - Global Epidemic

Humanity has transitioned to the 21st century with some undesired legacy. The infectious diseases have given way to the prevalence of chronic diseases: health conditions such as diabetes and obesity. It is estimated that, within the next few years, the chronic diseases will become the principal global causes of morbidity and mortality. (Burant 2004, 6-7) The consequences of its explosive growth are an intolerable burden both to the individual and to healthcare systems. (Valensi, Schwarz , Hall and others, 2005)

This "madness" is happening because of people's unhealthy lifestyle, health ignorance, and overweight. All these facts influence the health and ultimately lead to chronic disease as diabetes.

However, it is stated that choices are often influenced by environmental factors, including social structures, cultural and political conditions, physical and economic environments. Globalization and urbanization are two environmental factors that have a large influence on personal behaviour. Obesogenic environments, the availability and consumption of inexpensive fast foods high in fat, salt and calories while also reducing the reliance on local markets has increased the levels of motorized transport, urban spread, and reduced opportunities for daily physical activity within home, work and school settings. These factors encourage sedentary lifestyles and can make it difficult for people with prediabetes and diabetes to adhere to treatment. (European Leadership Forum)

Prediabetes is typically defined as blood glucose levels above normal, but below diabetes thresholds. The normal range of blood sugar is 70-10mm/dL or 3.9-5.5 mmol/L, yet this level fluctuates through the day. Although a persisting higher blood glucose value represents a risk state that defines a high chance of developing diabetes. (Tabák, Herder, Rathmann, Brunner, Kivimäki, 2012)

Type 2 diabetes on the other hand, is characterized by high blood sugar, insulin resistance, and relative lack of insulin. This condition is also called hyperglycaemia. (Wikipedia)

Diabetes it's a dangerous disease, which could cause concomitant damage to end organs, such as eyes, kidneys, blood vessels and hear if it won't be treated accordingly. (Tabák, Herder, Rathmann, Brunner, Kivimäki, 2012)

A higher risk for getting diabetes was identified to the groups of people having one or more of the following conditions including:

- *Family history of diabetes*
- *Excess body weight (high BMI) particularly abdominal adiposity*
- *Over 45 years*
- *Gestational diabetes*
- *High birth weight children*
- *Certain ethnic groups*
- *Physical inactivity*
- *Overweight and Obesity* (European Leadership Forum)

The last two factors overweight and obesity are the most common cause of the illness in the current decade. According to some studies, there is a seven times greater risk of diabetes among obese people compared with those of healthy weight, with a threefold increase in risk among overweight people. (Johnson, Martin, Timoshanko 2015) However, both prediabetes and type 2 diabetes can occur to a non-obese people especially elderly. European Leadership Forum)

Epidemiological studies have indicated that the risk of developing type 2 diabetes is increased in people regularly consuming a food made up of high proportions of animal fats, carbohydrates (especially those with a high glycemic index e.g. potatoes, white bread, sweets etc.) and low fibre foods. Exactly how these factors produce insulin resistance and/or this reduction of insulin secretion is unclear. (Valensi , Schwarz , Hall and others, 2005)

How sad this might sound, the prevalence of prediabetes and diabetes cases are increasing worldwide and not only among adults. The same phenomenon is happening with younger generations. The World Health Organization estimates more than 300 million individuals may have diabetes by the year 2025. (Burant 2004, 6-7)

Globally around 10-11% of people with prediabetes become diabetic annually and up to 70% of individuals with prediabetes will eventually develop diabetes, for China is 90%. (Tabák, Herder, Rathmann, Brunner, Kivimäki, 2012)

According to data collected by the International Diabetes Federation there are currently over 60 million Europeans with impaired glucose tolerance while the number of Europeans with prediabetes are not available at a state or county level, as well as no evidence that any difference in urban/rural prevalence exists, but based on the above, it can be expected conservatively that one in every ten people already have prediabetes. (Valensi, Schwarz, Hall and others, 2005)

Over 30 % of Europeans with prediabetes will progress to type 2 diabetes. The same way, a significant proportion of people with prediabetes will develop macrovascular cardiovascular disease e.g. schematic heart disease, myocardial infarction or stroke. (Valensi, Schwarz, Hall and others, 2005)

In Europe, type 2 diabetes accounts for between 80% and 90% of all diabetes cases. Projections for the prevalence of type 2 diabetes in Europe reveal that the number of people with this condition has increased by almost 6 million between 1995 and 2010. The prevalence of Type 2 diabetes in children is also increasing in conjunction with obesity due to environmental and behavioural changes. (European Leadership Forum)

Primary prevention of chronic diseases

The diabetes epidemic and its impact begins with a discussion on chronic diseases and the value of preventing them, which in long-term the whole world would happily benefit. Diabetes, as it was discussed in the previous section it is a chronic disease with a rapid growth of its prevalence in the world. This phenomenon be considered a happy one, because beside the damages, sufferance and costs that causes to the people, it also raises the societal expenses. The best cure for this epidemic is to prevent than treat. Thus measurement for preventing and treating it should be taken at both levels: individual and national level.

At micro level (individual) lifestyle changes and education can help, delay or prevent from becoming type 2 diabetes. The protective measurements would be: a healthy diet with high fibre, exercises and lose weight will bring the expected effects. (The Anatomical Travelogue)

Healthy food

Physical activities

Normal weight

At macro level (country) the measures to prevent, fight and avoid high expenses should be adopted norms for health promotion, disease prevention and disease management. Health promotion can include many activities, including: advocacy - through national associations, community support - through education and urban design, fiscal and legislative changes - through environmental and infrastructure regulation, engagement of the private sector - through workplace programs and responsible product and marketing practices and media support - through mass media communication. (European leadership Forum)

Successfully controlling diabetes will significantly contribute to prevention of other chronic diseases, due to their shared risk factors, underlying determinants and opportunities for intervention. (European leadership Forum)

Design challenge

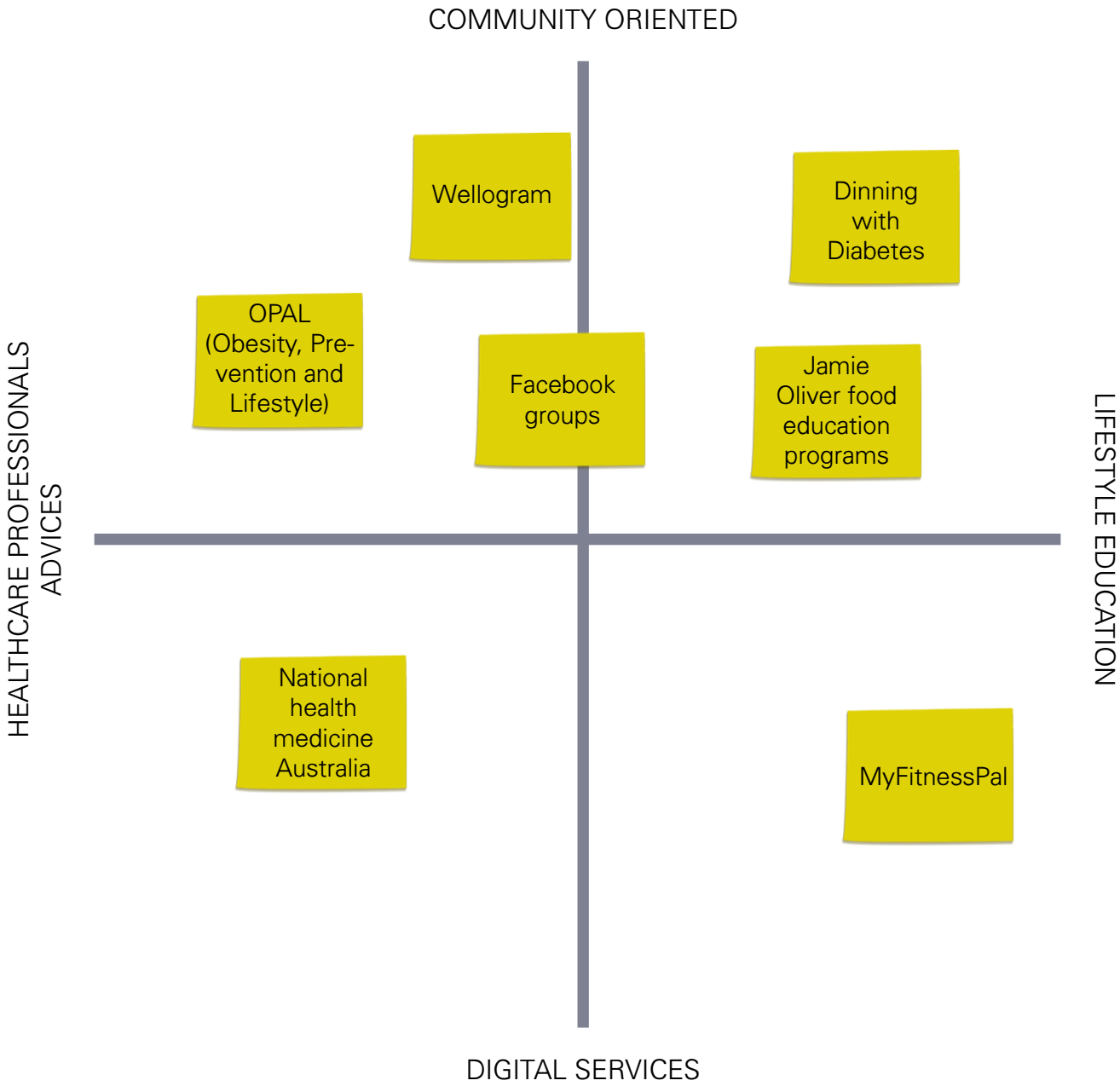
Learning about prediabetes and diabetes was an interesting journey which revealed some context about the environment chosen to explore and what are the main issues and what are the options. Before diving even more into this problem a design challenge was formulated, which will guide the entire process towards the ultimate impact.

How might we increase awareness regarding lifestyle choices for overweight and prediabetes people with a high risk of having Type 2 Diabetes?

Inspiring from

The problem of prediabetes and type 2 diabetes has been motivated many organizations to immerse in the cause of this subject and identify a genuine and sustainable solution, which would ultimately help to prevent, educate and treat the victims. Yet, the challenge for solving this cause, is not to build more hospitals or streamline administration practices to reduce waiting lists, but rather to understand what will support individuals and communities in changing their behaviour and sustaining lifestyle changes. (Valensi, Schwarz, Hall and others, 2005) It is education-awareness, decision-motivation and participation-commitment that is required, not medicine. The approach should be community based with strong social influences aiming to help peer-to-peer or expert-to-peer in a fun or gaming way.

Following these requirements, several organizations have been identified as point of reference, and their service proposal was carefully analyzed. For a better overview the entities were mapped out in a framework, aiming to pursue where their service value heads to.



The cross consists of 4 direction of orientation of the existing services, which were identified in the analysis process. "COMMUNITY ORIENTATED" are the organizations which are developing their service by promoting community values: the fellowship, common attitudes, goals and interest. "LIFESTYLE EDUCATION" are entities which focus on changing the way people live touching the eating habits, exercises, behaviour and attitudes. DIGITAL SERVICES the companies that develop its solution through mobile applications. "HEALTHCARE PROFESSIONALS" are the companies which help people to change by constantly supporting them as psychologists do in their management.

A detailed explanation to what the selected organizations do it is described in the following text:

National Health and Medical Research Council from Australia developed clinical practice guidelines to support the management of overweight and obesity by health professionals. (Johnson, Martin, Timoshanko 2015)

Dinning with Diabetes a research-based program offered by Michigan State University aiming to support people in accomplishing health goals. Dining with Diabetes is a fun and interactive course series targeting individuals with prediabetes, type 2 diabetes or family members interest in learning more. Participants learn how to make healthy food choices and incorporate balanced menus into the family dining experience. Classes include research-based education, cooking demonstrations and healthy recipe tasting. In addition, participants share and learn from each other and build confidence in their ability to make sustainable healthy choices. (Michigan State University)

Jamie Oliver programs: "Shaping the future through food education". This organization mission is to shape the health and well being of current and future generations and contribute to a healthier world, by providing better access to food education for everyone. They work in schools, where the Kitchen Garden Project and Home Cooking Skills resources educate school children about the joys of growing and cooking from scratch; in communities, where the Ministry of Food program inspires people of all ages to get in the kitchen and give cooking a go; and with disengaged young people, where the Fifteen Apprentice Program provides inspiration and support to those pursuing a career in the food industry. (Jamie's Ministry of Food)

OPAL (Obesity Prevention and Lifestyle) is a program that supports children, through their families and communities, to be healthy now, and stay healthy for life. OPAL is coordinated through local government and works with communities to create opportunities to eat well and be active. OPAL has established communities all over the world and gives people support through the following programs: Life looks brighter outside; Give the screen a rest. Active play is best; Make it a fresh snack; Think Feet First - step, cycle, scoot to school. (SA Health)

Participle's Wellogram service is a wellness service that aims to help people make changes to live well and stay well, by focusing on action and the development of the capabilities that will support sustained lifestyle changes. Wellogram also helps to explore a new way of looking at health: a focus on wellness as opposed to illness and action over education. Members attend a face-to-face consultation with a Guide for one hour or 30 minutes for follow-ups. Additional follow-ups may also happen over the phone or via email, an arrangement that is agreed between the Guide and Member. (Participle)

Activmob "We create the environment where people can change". is a social enterprise that has developed a unique approach to engage with people and connect them to resources through activity. It helped link people up and get them to help each other in being active in their everyday lives, realizing that they could still be active even if they were not comfortable with more formal activities, like going to the gym or to fitness or exercise classes. Activmob allowed community members to suggest an activity 'mob', and then supported them to run and organize it themselves

.

My Fitness Pal

My Fitness Pal is a free smartphone app and website that tracks diet and exercise to determine optimal caloric intake and nutrients for the users' goals and uses gamification elements to motivate users. The user may enter the name of the food or scan the barcode to find the item in a large database of over 5 million foods or may select foods from a list of most frequently eaten foods. MyFitnessPal has different exercises. The user enters the number of minutes spent exercising and the calories spent is calculated. The calories spent on the exercise is added to the total number of calories that the user should eat per day. MyFitnessPal can also be linked to a FitBit as well as Jawbone account allowing activity to automatically be calculated into daily calories allowed. This service is one of the best on the market.

Synopsis:

This handy tool used for analysis of the current market, made it easy to structure the organization's values, determine the strategy and emphasize the key relationships between them. What it became clear after mapping out in the framework, that wasn't clear enough before, is that at the bottom line of business models of these organisations stays the combination of EDUCATION and COMMUNITY which each of them promotes it in its own way.

Also this exercise emphasize an empty spot in the orientation for existing services, which is the lack for digital services. This fact represents an opportunity for the current project.

Embracing empathy

In the process of immersing in the field, the researcher was trying to understand the user's experience of what it's like to have prediabetes: what is changing in the daily routine and how do patients feel like once they have been diagnosed or have this health issue for a while already.

Looking to develop resonance with the target group by embracing their experience, for one week the designer pretended to be a patient with diabetes and followed the recommendations how to change the lifestyle and moreover implement them.

Before starting the exercise, several rules of have been established for become a genuine patient:

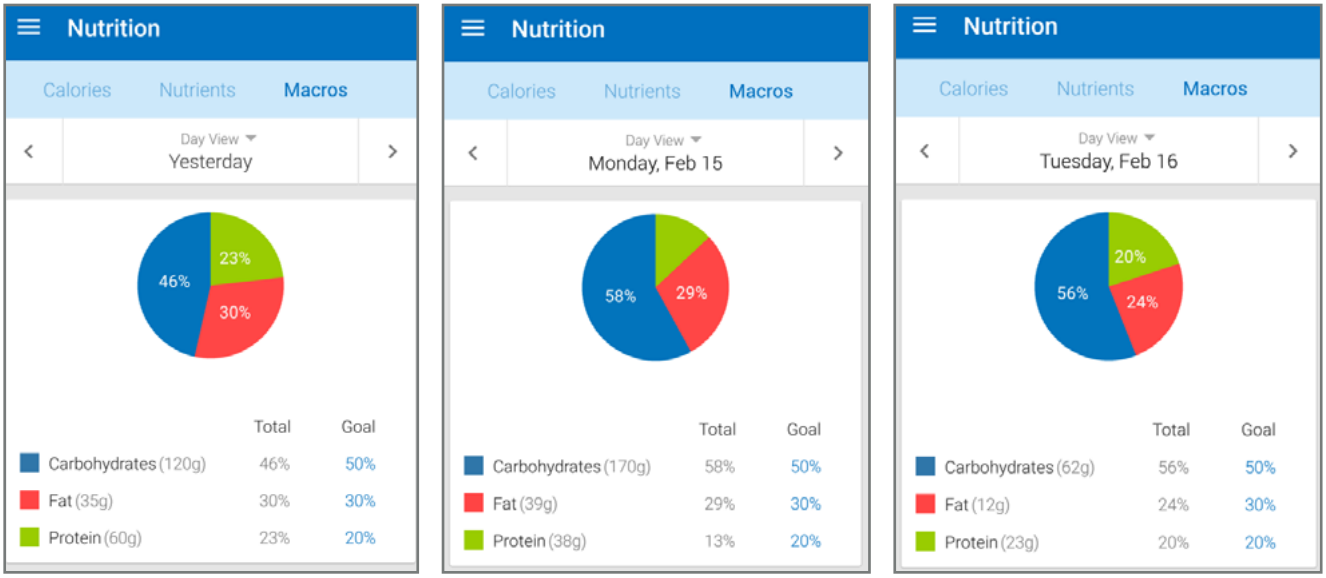
- Keep a diet and reduce the carbohydrates intake
- Eat regularly and follow a fixed schedule
- Do moderate physical activities
- Record the food and activities in a mobile application
- Track the experience in a diary

"--After one week--"

One week was good enough to catch the experience that people suffering from this health condition are encountering every day.

The feelings and thoughts have been captured below:
"I am a person who never really kept a diet. I always ate what I wanted and mostly whenever I wanted. Same goes for physical exercises. Engaging myself in a new lifestyle approach was new and hard. First off all, it was unusual and difficult to make food decisions (as I should choose the less carbs food). I was even more surprised to learn that most of the fruits and vegetables are full of carbohydrates. Even though the medical experts state that these are "good" carbohydrates, still, their intake has to be monitored as they are transformed in sugar in my vascular system as fast as "bad" carbohydrates, which are mostly the processed food. And on the first day I had only vegetarian meals because I thought that's a winner solution to tackle this challenge. I have obviously failed.

Second point was that I found it annoying to record the food and exercises. I have always had to make time to do it. This leads to the immediate conclusion: if you are going to do it, then you need a better tool for it. Maybe, I also reacted as other people do when they have to face something new."



The ultimate result of this test was to see what is like to wear user's shoes before talking and thinking about design and innovation.

The annoying anti-diet feeling, always craving for the prohibited apple and the enormous amount of time needed to register the data in that mobile application, provided a rich experience that told a tenfold bigger story than a sole reading of countless studies about this problem. And all that, in one week! Quoting the authors from: "Empathy on the edge" paper: "Remarkable things can happen when empathy plays a key role in problem-solving." (Battarbee, Suri, Howard 2014)

The insights and learnings from this test will be validated later in the same chapter.

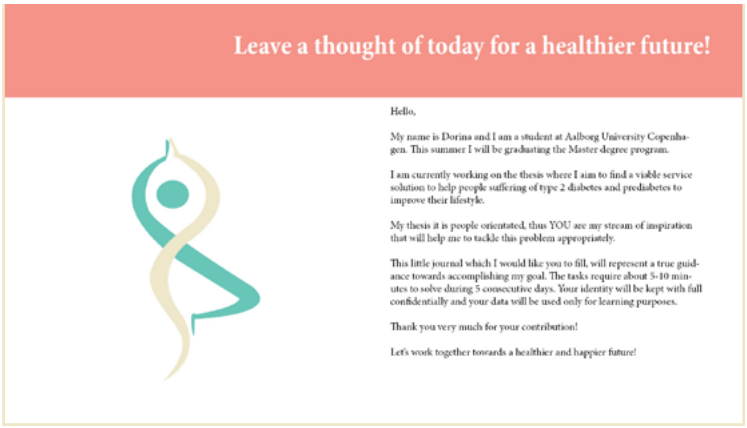
Cultural probes

Knowing the user's universe, expectations and thoughts represents the primary objective of user-centred design methodology. Only through empathy, the researcher will be able to design a sustainable solution.

"Cultural probes" tool was used, aiming to pursue empathy and uncover aspects of user's life like values, emotions, behaviour with reduced involvement from designer's part. This tool provides a way of obtaining information about people and their activities, preferences, used to collect data about users with minimal interference in their daily life. (Viana, Alder, Lucena, Russo 2012)

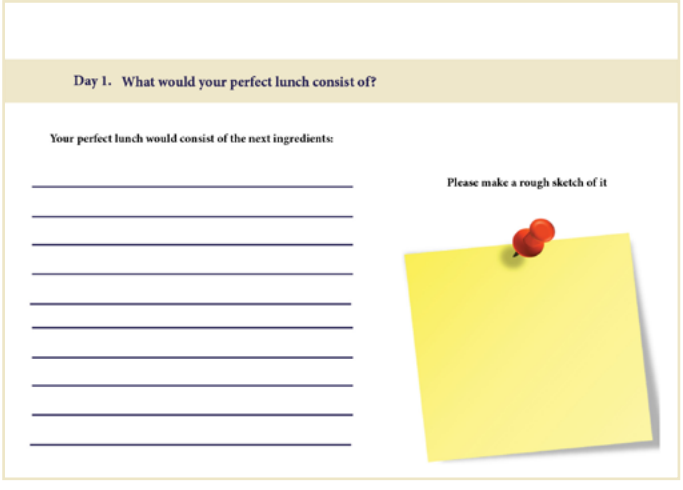
Considering the above, a booklet with 5 activities was created, which should be filled during 5 days by the participants. The booklet was set up in way that participants don't spend more than 5-10 minutes to do an exercise, and, at the same time, to provide enough context for the designers. (See the Appendix 1). The participants should fill the following activities:

On the first page, the participants were asked to provide some general information about them as age, gender, health condition: diabetes, prediabetes, none. Subsequently, this information would help to analyze the information and create patterns.



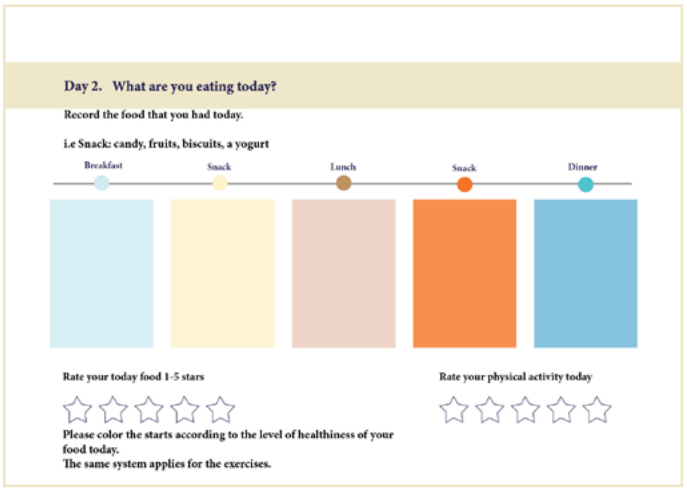
What would your perfect lunch consist of?

On the first day, the participants were asked to share what would be their perfect lunch and how often they are having it. The goal for this activity was to find out how often participants enjoy their preferred food and determine how healthy it is.



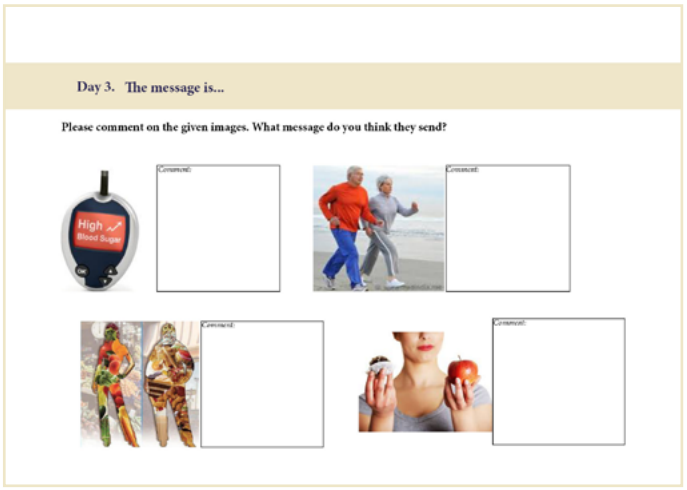
What are you eating today?

On the second day, the participants were asked to record their meal and physical activity for the whole day. This exercise is supposed to provide insights about the food and its quantity. Also check the balance of the physical activity they did vs how rich their meal was for a day. A second goal was to establish if the participants can appreciate whether or not that was a healthy meal.



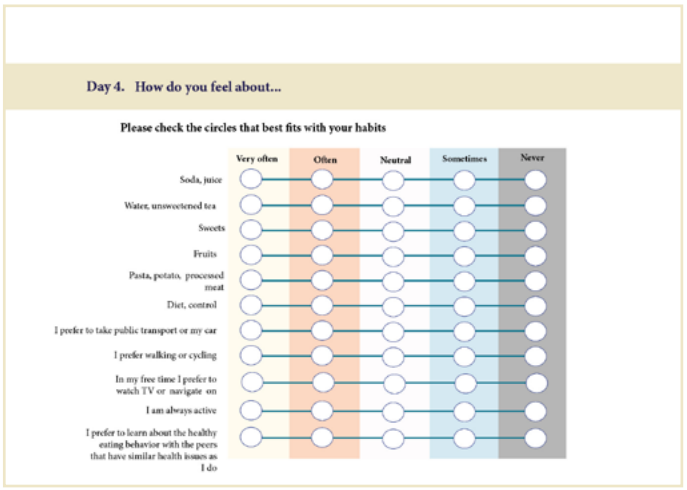
The message is?

Several images were selected for the 3rd day, which participants were expected to comment according to what they think when they look at the image. The designer wanted to check the level of awareness regarding lifestyle: food and exercises choices and if they understand the consequences.



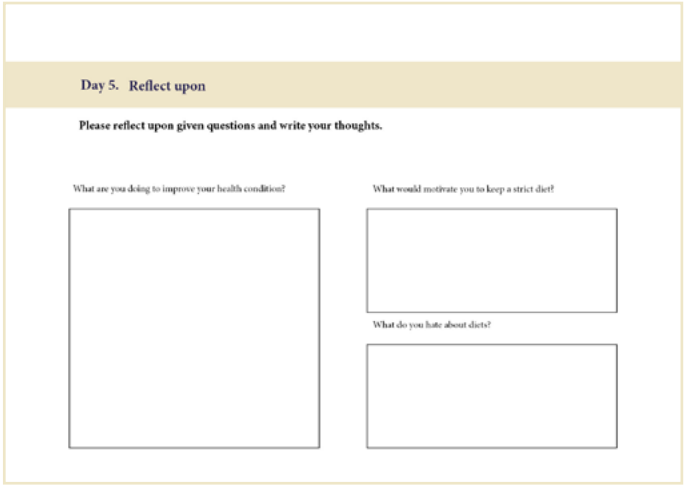
How do you feel about …

A list of food and activities was proposed to the participants on the fourth day. They were expected to mark the circle that fits their preferences best. The purpose of this exercise was to dive in even deeper into participant's food choices, activities preferences, in order understand each participant's universe.



Reflection

There were given 3 questions, which the participants were asked to reflect upon on the last day. The purpose behind the questions was to discover their attitude regarding diet and lifestyle: whether they are engaged in a diet plan, how they feel about it and what motivates them to keep a diet or not.

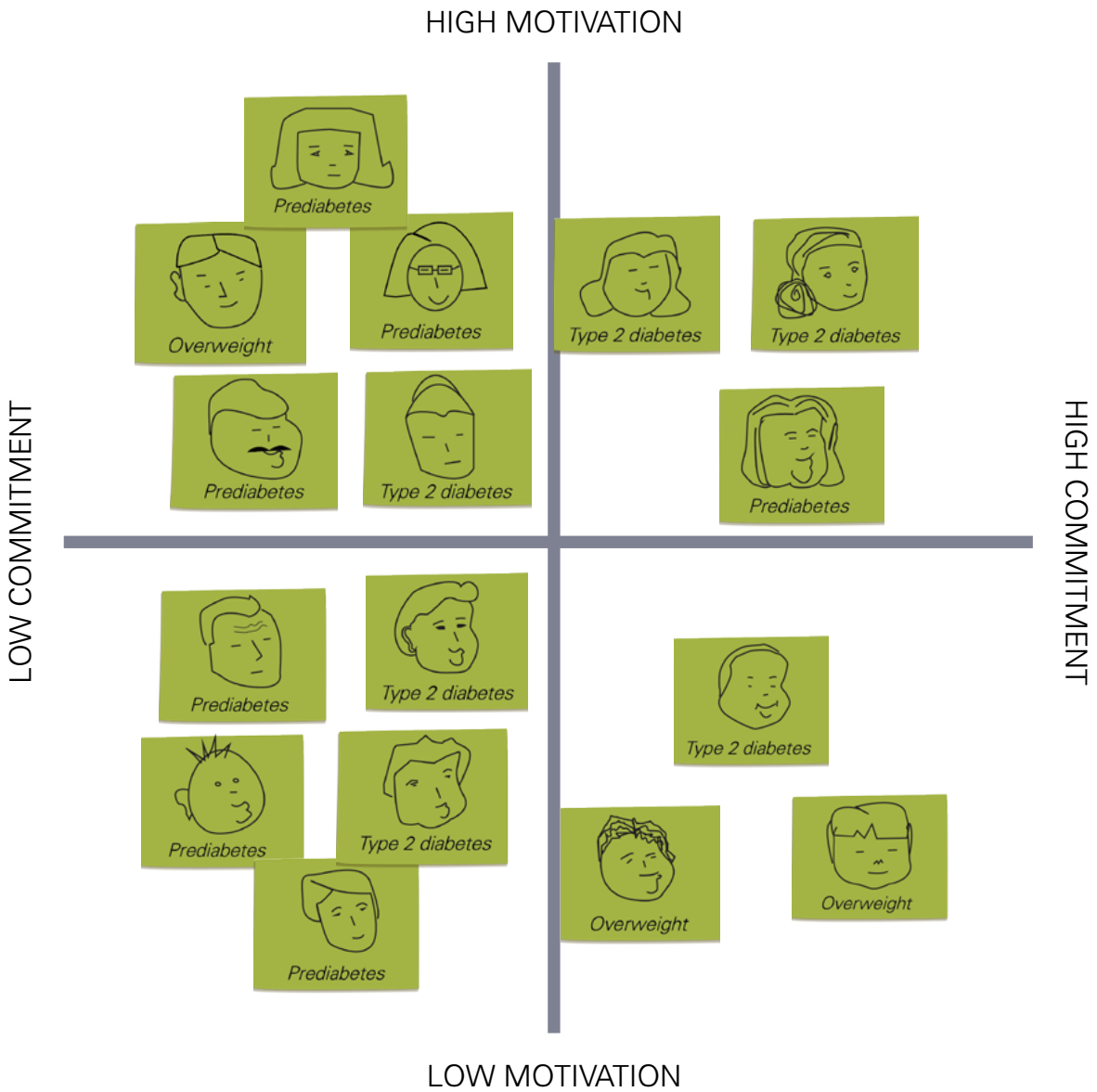


Cultural probes analysis

Cultural probes activity helped to easily immerse into user's life and receive deep understanding of user's aspirations and environment with minimal interference.

The diary has been field by 16 participants: 7 with prediabetes, 3 overweight, 6 with type 2 diabetes. The collected data has been analyzed and compared between the groups of representatives: prediabetes, overweight and type 2 diabetes.

In order to receive a better overview of the categories, the participants of the diary have been mapped in a framework.



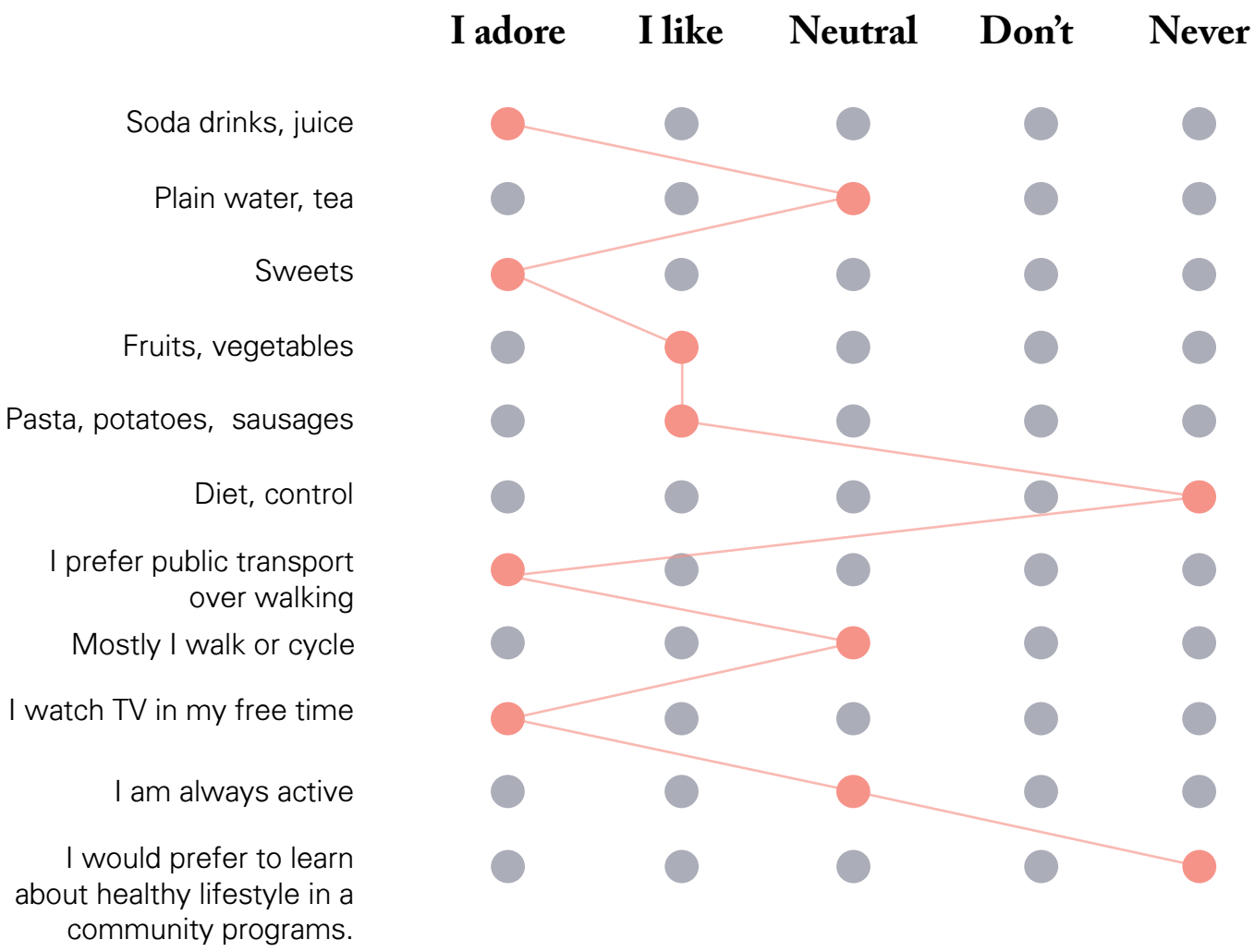
This framework presents two characteristics that are recommended in order to improve the health condition of prediabetes/diabetes and overweight people: "motivation and commitment" in embracing a healthy lifestyle. People with high motivation and high commitment are usually very successful in following diets, being active, losing weight etc. People with low motivation, but high commitment are less successful. These people are able to follow certain rules, but as their motivation is low they do not set themselves strict diets or workout plans. People with low motivation and low commitment are usually not able to improve their lifestyle and therefore their health condition at all. People with high motivation, but low commitment set themselves high goals, but usually fail in achieving them since they do not have control over themselves.

After analyzing the materials from this activity was concluded that prediabetes people are more likely to have an unhealthy lifestyle even though they are more or less aware of the disease consequences. Some of them are trying to keep diet, but it is not strict or not for a long time. They didn't face hard health problems and the only threat is doctor's warning. The overweight people are even more neglectful, they think that they are totally fine and that they can always lose weight. Quoting one of the participants: "Diet are for women that want to look good" and they might engage in a diet, but only for a bet or a reward. On the other hand, people with diabetes are more into control. They confronted many unpleasant effects of this disease, they know what is following with it, and thus they are employed into maintaining a healthier lifestyle. Nonetheless, some of them are still sins, stubborn and ignoring their condition.

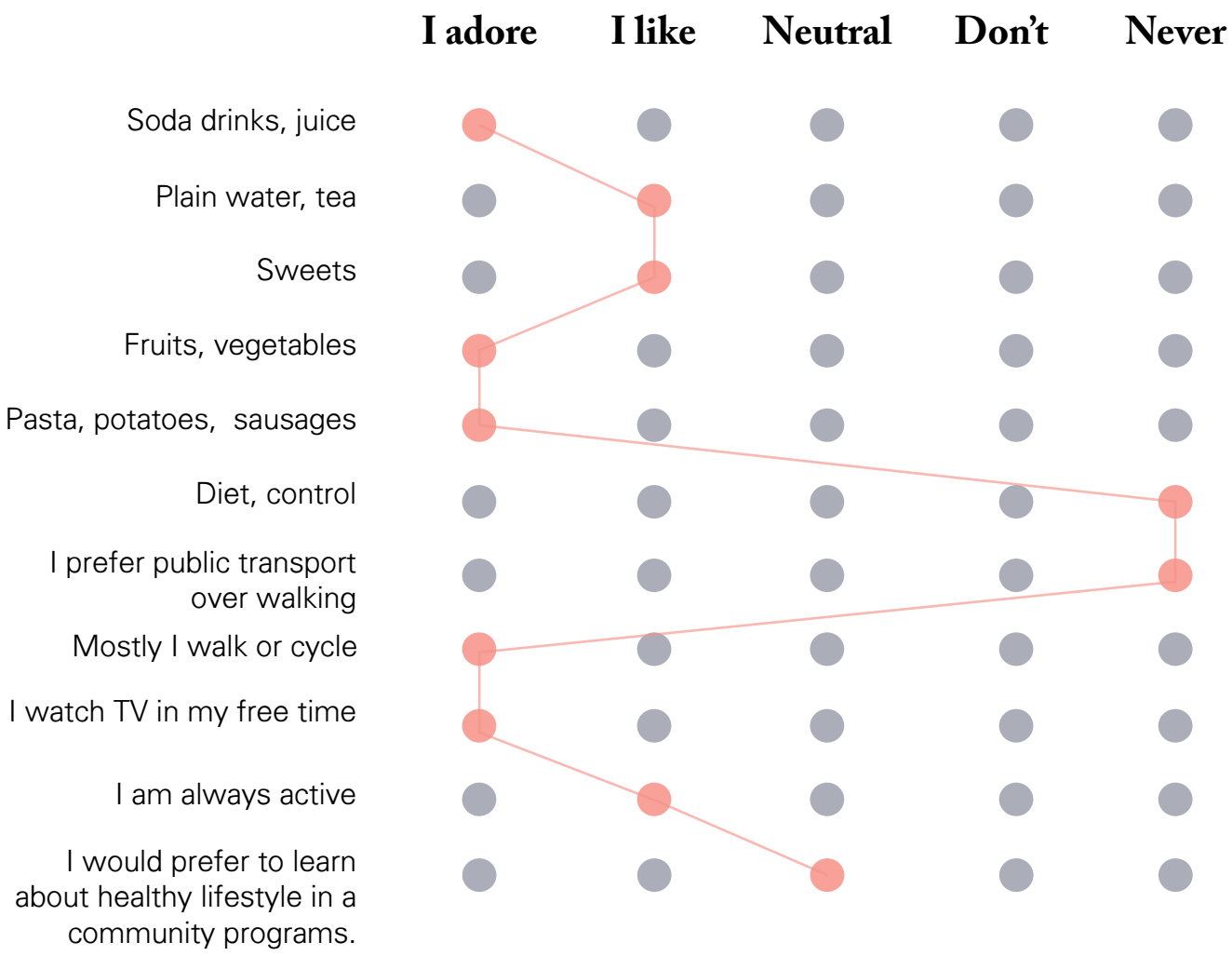
Another interesting page presented "The message is..." on day 3 where participants should comment 4 images. Most of them emphasized the importance of fruits in the daily menu and exercises, yet they aren't ready to engage in this type of lifestyle.

Furthermore, other information that represented big interest for researcher was the Activities Preferences, which as well introduced valuable learnings. The information for all participants was individually analyzed and then grouped the same in 3 categories: overweight, prediabetes and type 2 diabetes results. The following graphs are showing the average results of each category separately. To visualize the individual results, please see the Appendix 4.

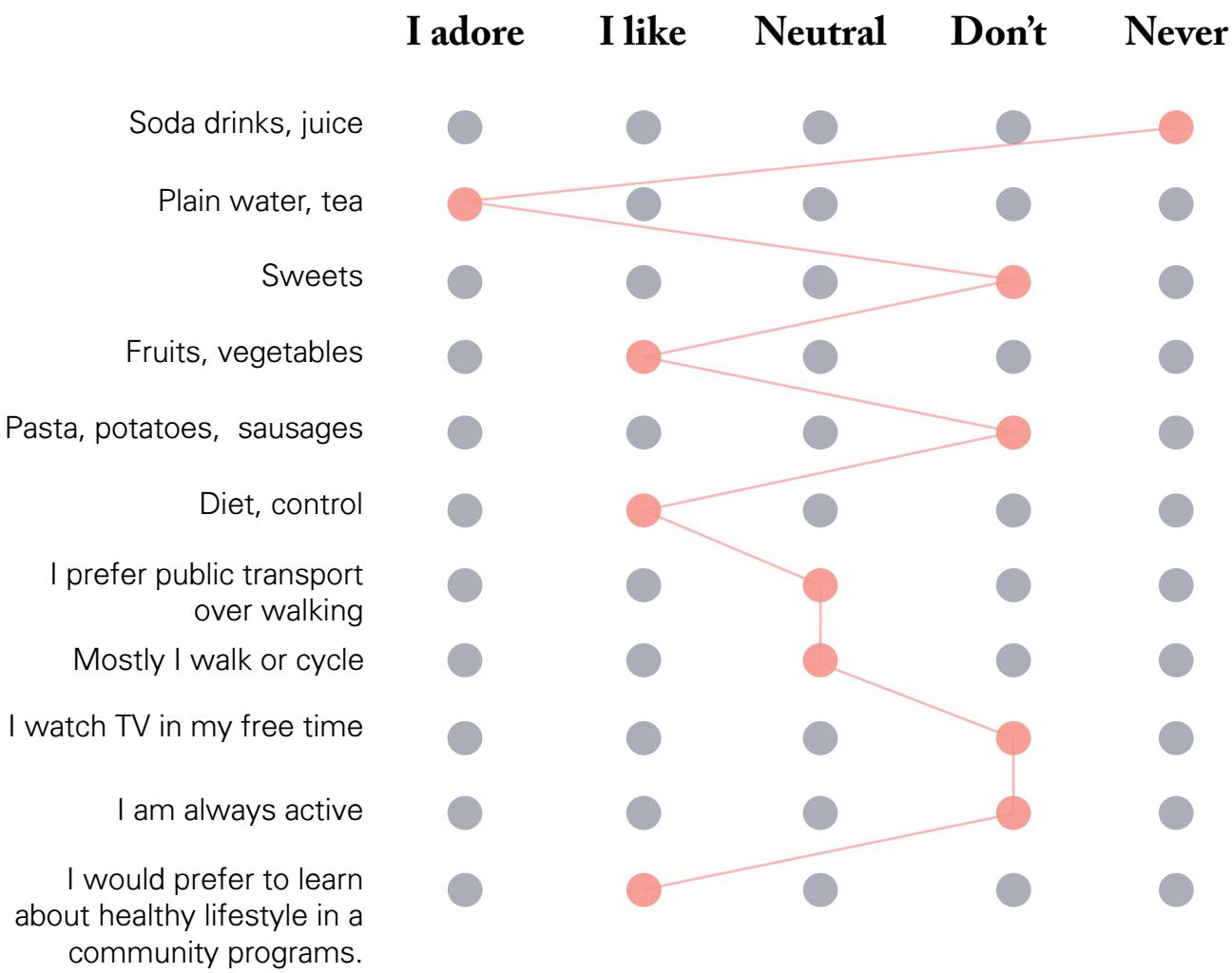
General Overweight patients



General prediabetes patients



General diabetes patients



These graphs illustrate the very same conclusion that was deducted in the previous framework analysis. Overweight people are the least aware and ready to commit change, followed by prediabetes that are a bit more likely to commit change and type 2 diabetes that are already engaged in committing change.

Synopsis:

"Cultural probes" was a great tool to use, which helped accomplishing the following:

- Collect valuable information about user's universe in a short time and minimal involvement from the author side.
- Overpass the language barrier and have remote participants and get the same results mentioned in first statement.

By using this tool, the designer encountered some limits too:

- Diabetes, prediabetes, overweight represent a sensitive topic to discuss with the users. The designer always has to be very careful not to offend anybody and find the right words to make people participate.
- It was hard to recruit people as many of them don't like to talk about it, half of the participants refused to get involved.
- Another issue was that people found it to be too much hassle to write sentences (not even in digital version). This happened especially with overweight representatives.
- The last issue for this tool is that the participants usually cannot be monitored closely, so problems may not be picked up during the course of the activity. And the material has to be accepted the way it is, except if the designers are planning a focus group or a de-briefing interview.

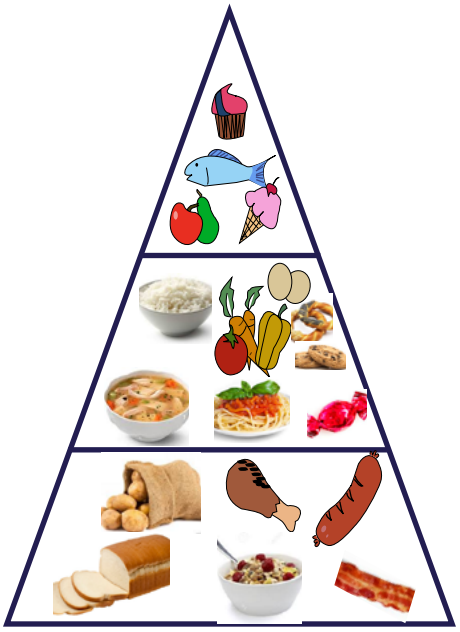
User interview

A de-briefing interview was conducted with the same participants, in order to supplement and validate the information gathered for cultural probes. The main areas where the researchers wanted clarifications were:

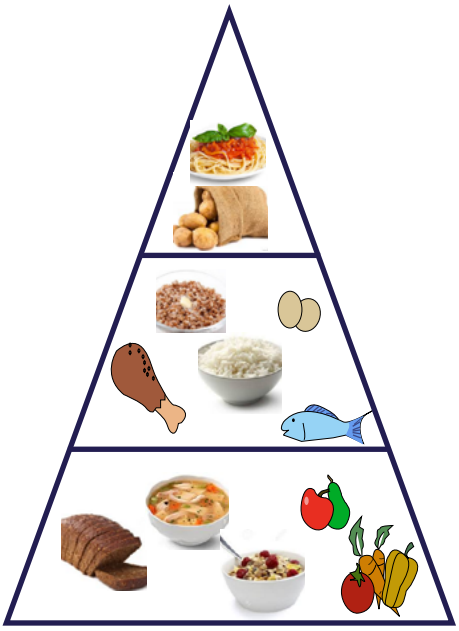
- A second confirmation why prediabetes are more careless than type 2 diabetes
- Get detailed list of their weekly food choices and exercises

In addition to that, to help identifying what's the hierarchy of the most consumed food was used cards sorting method. The cards also supported the interview process and helped receiving valuable information. The interview questions can be visualized in Appendix 3.
At the interview participated 11 people.

The interview generated new insights and learnings which contributed to the rebuilding the food pyramid for prediabetes together with overweight people and diabetes. The food pyramid is structured in a hierarchy levels: the bottom level represents the food the participants are having 6-7 times per week. Second level the food which is taken 4-5 times per week. The upper level is the food participants are having 1-3 times per week.



Overweight and prediabetes people food pyramid



Diabetes people food pyramid

The images for constructing the pyramids were half designed locally half are pictures taken from Internet.

The outcome from this activity validated the result from cultural probes and make a clear idea of the entire picture.

One more time it accentuated the fact that people with prediabetes and overweight are neglectful of diets and resistant to change. While the diabetes patients are complacent to the new way of living and are trying more to eat accordingly.

On the other hand, the average of physical activity for both categories was more or less at the same level - 3-4 times per week. The most common activities are and walking cycling.

Experts interview

While continuously looking for more inspiration, and other people's points of view, several meetings were arranged with some experts. Expert interviews are about a person's special knowledge and experiences which result from the actions, responsibilities, obligations of the specific functional status within an organization/institution. (Madrigal, McClain 2011)
For this project, 4 experts in different fields agreed to share their knowledge with the researcher.

I was weighing 130 kilos and I have type 2 diabetes for 6 years. Even with my diagnosis I was following an unhealthy lifestyle. I was doing too little to improve my health condition, until I started to feel very bad. That was my wake-up call, I have to change my life, be happy again enjoy the time with my kids. I went to a dietitian, they gave me a plan to change. It was very hard at the beginning, always the hunger feeling was haunting in my brain, but I showed resistance and desire to commit and my family always supported me, so I did it.

Julia, a household

"In school we conduct many lectures where we teach kids about lifestyle, food education. Moreover, we try to shape a healthy orientated lifestyle by engaging the kids in different activities like cooking classes, discussions and posters about the importance of food and exercises. But the problem is that kids learn mostly about this topic from their parent's day-by-day and normally they tend to behave the parent's way."

Ana, High School teacher.

With every year the number of people diagnosed with prediabetes and diabetes is increasing in Germany. Most of the diagnosed cases are because of the unhealthy lifestyle. There are some support programs to inform these people about the importance of healthy food and exercises in their life, some cooking classes, but people don't really attend these support programs.

Matthias, family doctor.

To change the life style it is not something impossible. It is true that is a slow process, where patients have to adjust to the new way of living. But beforehand, they have to convince themselves that this is good for them, this is what will make them feel better, be better and stronger. We always will provide support, encouragements, advices, diet plans, but we can't force somebody to change unless they truly want this.

Elsa, dietician

Interviewing the experts provided an extremely valuable experience regarding multiples aspects such as: the users need, problem area and environment. Also the Experts interview exposed a second point of view over the problem.

None of the interviewee participated further in the design process.

Target group

Why prediabetes? Earlier in this project it was stated that 1 out 10 people around the world have prediabetes, and nobody knows how many people don't know they have it including the overweight individuals.

There's nothing more alarming than not knowing or be blind about your health risk. This is of paramount importance, especially in this stage, because it is much easier to prevent or at least to postpone the onset the disease.

Another small part of the target group represents people with type 2 diabetes. The focus is not over the patients that worked out the disease and became experts in the field. The attention is over the newbies and the people that ignore their health problems and through the service it could determine them to change this negative attitude.

The second important characteristic of the target group is the age. Returning one more time to the statistics, it was stated that people suffering from prediabetes and type 2 diabetes are mostly mid age and up. Nonetheless, another point well stated was that lately there are many kids and young people diagnosed with this condition. Thus the service will be addressed to, in the first place, people 40 - 60 years.

Service value constellation

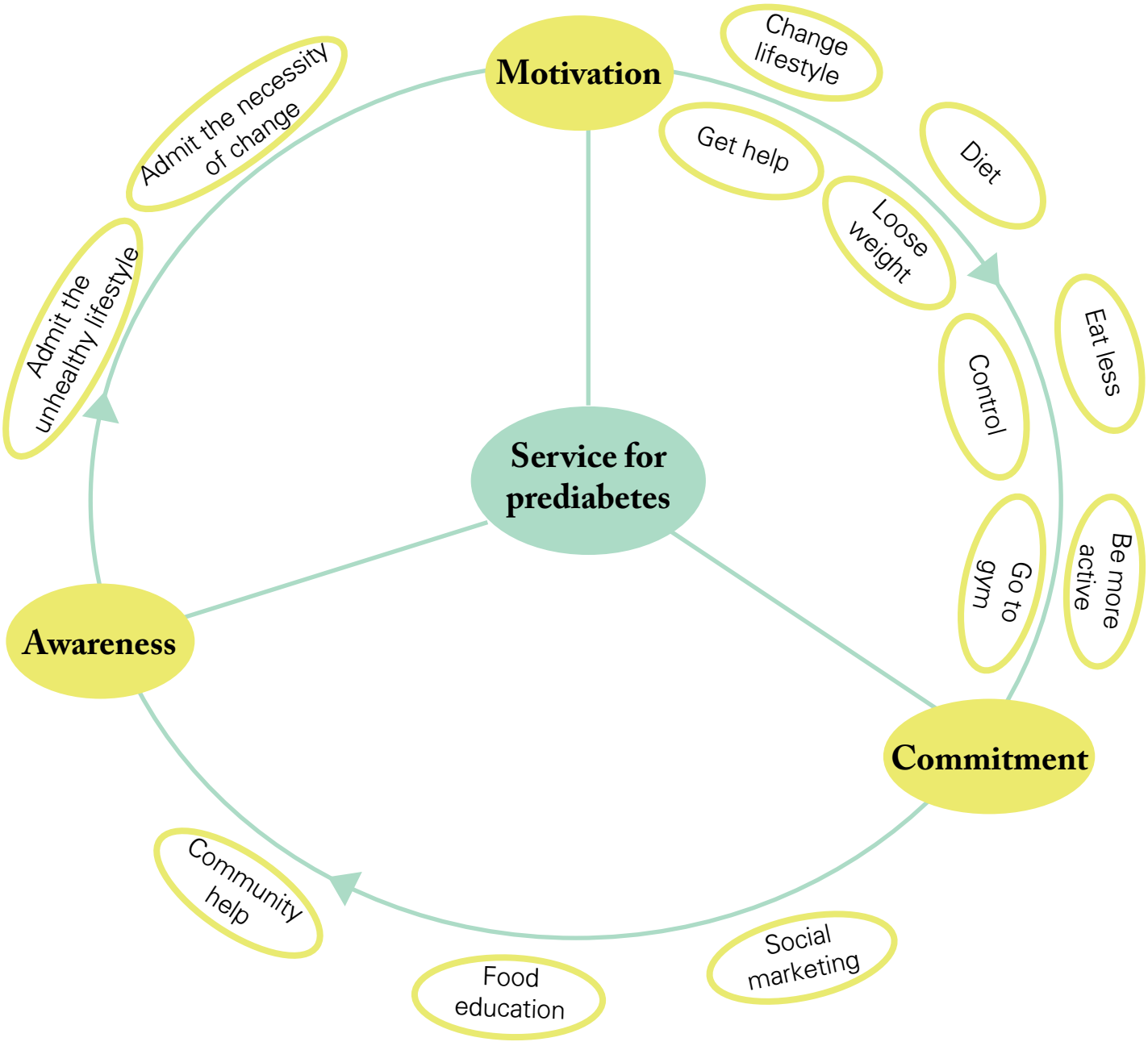
Every new business should come with a well-defined business model and a set of values which they want customers to retrieve it through their products or service. Following this logic, 3 main values were selected as the project pillars: **Awareness**, **Motivation** and **Commitment** (followed by additional secondary values which contribute to realization of their master values).

Before adopting a healthier life style, a person needs to be aware and to admit the severity of this situation and the repercussions in the absence of corrections. The awareness can be achieved by community help, food education and social marketing. If the person admits that needs to change the lifestyle, finding motivation for doing would be the next step.

Nonetheless, sole motivation is not enough to guarantee an action. To make things actually happen, it is essential to have the third value commitment. Commitment "the act of dedicating, pledging or engaging oneself." Commitment will make to lose weight, keep control, going to the gym.

This value constellation is presented as a circle to point out that all three key points are related to each other. Without awareness there is no motivation, but motivation is not sufficient to improve the health condition in long term perspective. Commitment is the value that makes things happen and getting somewhere.

The value constellation role here is to present the environment of the future service, which is formed out of 3 main parts. These parts are necessary to deliver the best service experience to the users and to the future stakeholders. But, at the same time these values should empower all the actors in the system to unite themselves alongside with the user and help to co-design the value. This is the second reason the "Value Constellation" chart is designed in a circle, aiming to represent the continuous "deliver and receive value" in the service system.


Motivation
Change lifestyle
Get help
Diet
Loose weight
Eat less
Control
Go to gym
Be more active
Commitment
Social marketing
Food education
Community help
Awareness
Admit the unhealthy lifestyle
Admit the necessity of change
Service for prediabetes

Persona

For this project 4 Persona were conceived: Jimmy, Steve, Tina and Marta. The persona were developed using the learnings from Cultural probes and Interviews. This is an engaging perspective type of persona because its characteristics and the guidance for creating it were based on a person met before. (Nielsen) The researcher decided to stay closer to the real users personality because of the complexity of the project scope. By mirroring the real user as close as possible, was expected to influence the design process and solution development.

Every persona is unique and has its personality and features. The persona's characteristics are coming from positive extreme to negative extreme and something in between. The persona characters can be visualised on the next page.

Synopsis:

Persona played an important role in the current project. It represented the user echo because all the further design tools were reflected through persona personality and believes. This characteristic made the project more user-centric.

Also, persona always reminded the researcher what are the users goals and what accomplishments the service solution should meet. Thus persona tool was seen, at least in the current project, as an "approval point" or "an infrared scanner".

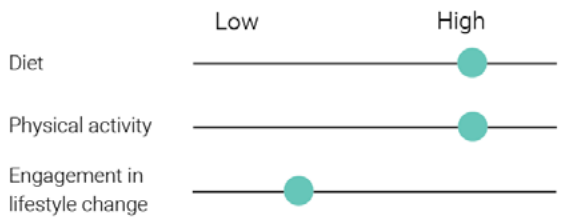
Name: Marta
Gender: Female
Age: 37 years old
Height: 170
Weight: 83
Profession: Office assistant
Education: Bachelor degree
Hobbies: knitting, cooking, drawing
Personality: friendly, organised, determined

Profile type: Ideal

"If you want an ideal health you need to overcompensate and keep diet"

Marta was diagnosed with prediabetes some time ago. Since than she became very motivated to cooperate and change her lifestyle. She reduced the sweets and carbohydrates, adopting high fiber food and more vegetables. She hikes 5 km twice per week. She knows what it's like to have diabetes from her best friend and this drives her to avoid it as much as she can. Her sugar values are almost in the normal range now and this makes her extremely happy.

Key attributes:



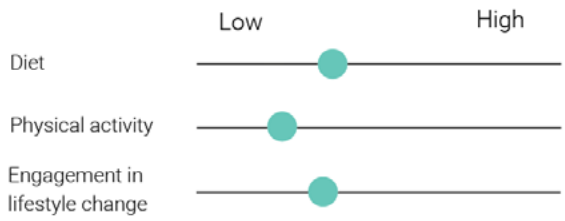
Name: Tina
Gender: Female
Age: 43 years old
Height: 164
Weight: 54
Profession: Mathematics teacher
Education: Master degree
Hobbies: To read books, online surfing, solve sudoku
Personality: knowledgeable in different areas, socialble

Profile type: Risky

"I know I should eat less sweets, but it's so hard to control myself"

Tina adores candies and cakes. Sweets became part of her breakfast, lunch and dinner.
On a recent blood test, the doctor told her that her sugar level is a bit higher than normal. She is not overweight, but her daily sugar intake it's just too much, this fact facilitated to develop prediabetes. The doctor warned her to avoid sweets as they might to lead diabetes.
The news alarmed Tina, but didn't scare, she still eats sweets everyday, but she reduced a bit the quantity especially before doctor visits.

Key attributes:



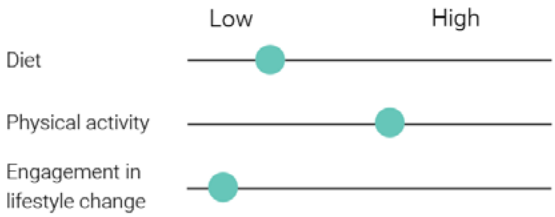
Name: Steven
Gender: Male
Age: 49 years old
Height: 175
Weight: 104
Casual drinker
Profession: Security staff
Education: College
Hobbies: To work in the garden, to play cards, loves horses
Personality: friendly, not very talkative, stubborn

Profile type: Careless

"As long as nothing hurts why should I be alarmed?"

Steven loves food especially white bread, potatoes and pasta and normally should come in big size. The doctors prevented him to control carbohydrates intake and to reduce the meal quantity. He already has prediabetes for 1 year and it is a matter of time before this condition will turn into diabetes. But he is not motivativated to do anything about and treats the health issue is a joke. "As long as nothing hurts why should I be alarmed" says Steven.

Key attributes:



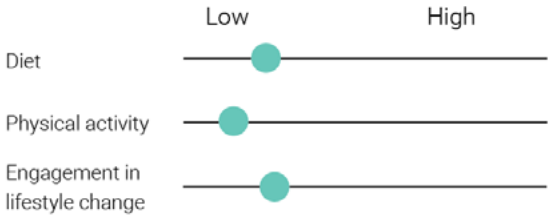
Name: Jimmy
Gender: Male
Age: 32 years old
Height: 167
Weight: 95
Casual drinker
Profession:Web designer
Education: Didn't finish his batchelor degree
Hobbies: play video games, listen to audiobooks
Personality: interesting and funny guy, lasy, careless,

Profile type: Lasy

"I am happy with my body weight and that is all that matters"

Jimmy is an overweight funny guy and super lazy. He loves food and eats it in big quantities. He is also not a sporty guy, he plays soccer from PlayStation at home, otherwise he'd have to make extra movements. His daily physical activity is to move from fridge to couch and then to bed and always takes the elevator at work. But Jimmy is also not concerned at all about his body weight and never kept a diet and not even acknowledges that he needs to engage in one. "I am happy with my body weight and that's all that matters says" Jimmy.

Key attributes:



ideation

"The best way to predict the future is to create it"
Peter Ducker

Conceptual map

Conceptual map was used to organize data from the field and from secondary research in problem and cause. This is a visualization graphic built to simplify and organize the data at varying levels of depth and abstractions. Its purpose is to illustrate the links among different items of data. (Alder, Russo 2012)

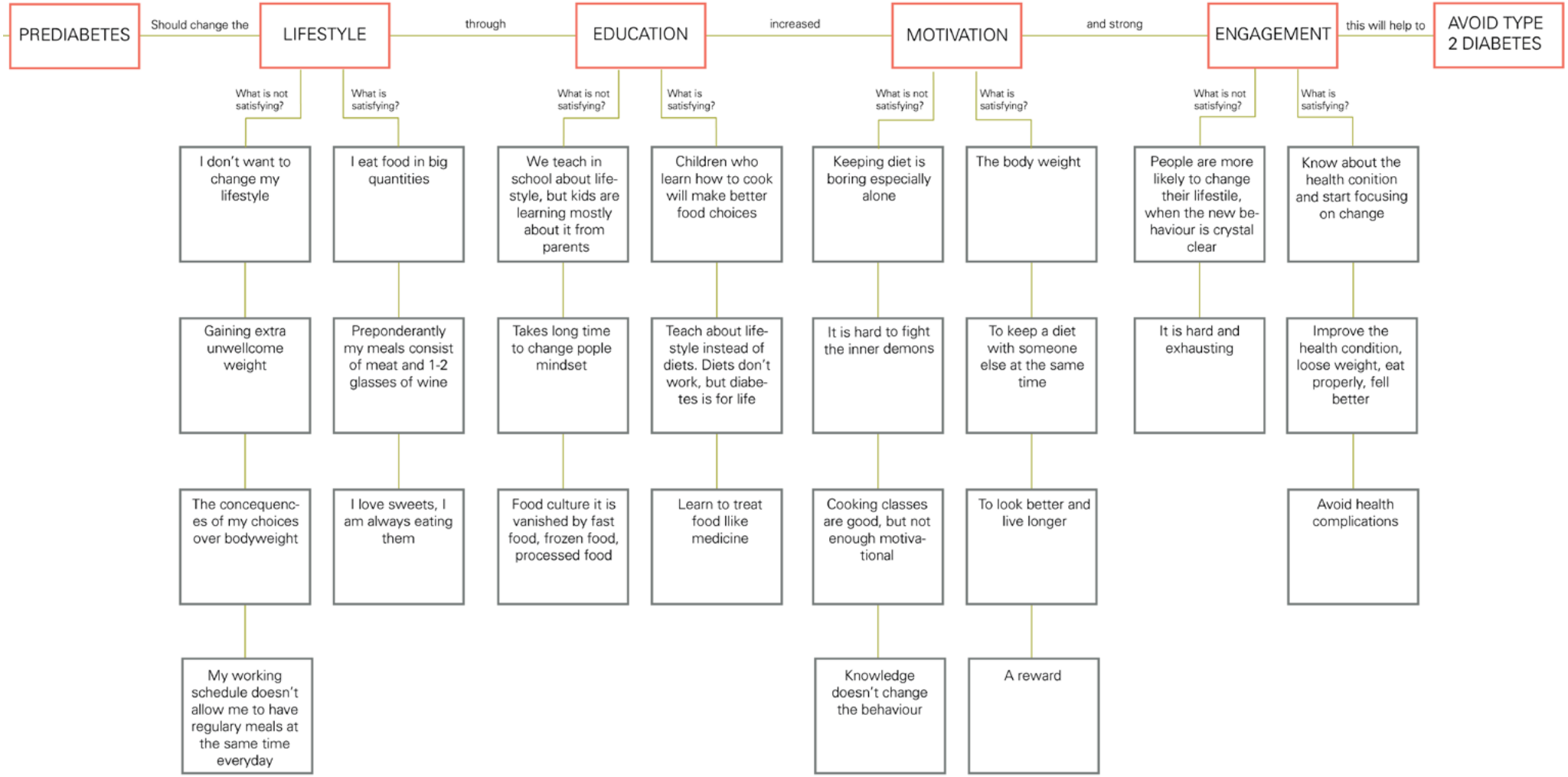
The process begins with choosing words that are part of the core universe of the research. Then a mother-sentence is fashioned that synthesizes the core action and the players involved in the theme. This sentence will form the basis for ramifications and elaborations, based on the data gathered in the Ideation phase, and may be modified or improved over the course of the process. Thus allowing new meanings to be extracted from the information gathered initial stages. (Alder, Russo 2012)

Following this logic, firstly were identified the words/themes: Lifestyle, education, motivation and engagement. Then the "mother-sentance" that comprise the themes was produced: "Prediabetes people should change the Lifestyle through Education, increased Motivation and strong Engagement, this will help to avoid type 2 diabetes." And the last step was to cluster insights according to the context they depict.

Synopsis:

The foremost attribute of the conceptual map is the opportunity to visualize data faster and in a global way. Respectively, it helped to easier comprehend complex information at one glance. Also, the conceptual map allowed besides grouping the similar insights together, also to structure the data into problem and cause, building this way a logic behind it. Thus, the author finds this tool more powerful than the "Themes" tool proposed by IDEO, which is based mainly on clustering the insights that share the same idea.

Conceptual map



Insight statements

The next pitch in the synthesis process is to write insight statements, which represent succinct sentences that will point the way forward. The insights statements will help to develop the "How might we" questions and give shape and form to subsequent Brainstorms. (IDEO 2015)

A critical moment of this activity is to select the right insights from the themes identified in the Conceptual map that will promote the derivation of the service solution in the upcoming steps.

Thereby, keeping the earlier defined themes: Lifestyle, Education, Motivation, Engagement, several insights were identified form each theme as most relevant and with them insights statements were build.

Theme: Lifestyle

- *People are more likely to change the lifestyle when the new behavior is crystal clear*
- *People are more engaged in keeping diet when they are competing with another person*

Theme: Motivation

- *People would keep diet if the reward will be more tangible*
- *People are more likely to keep diet when they are competing with another person*

Theme: Education

- *For long term perspective, people should be taught about lifestyle education instead of diets*
- *Children who know how to cook are more likely to make better food choices*

Theme: Commitment

- *People eat big quantities of food because they like it*

How might we

Identifying the key insights shaped the path for creating opportunities for design. The next step was to re-frame the insights into generative questions using "How might we" activity.

From the previous created Insight Statement, only some were selected for further exploration.

Insight: *People are more engaged in keeping diet when they are competing with another person*

How might we create a competitive diet environment for the users?

Insight: *People are more likely to change the lifestyle when the new behavior is crystal clear*

How might we develop a good rewarding system that will encourage people to change

Insight: *People eat big quantities of food because they like it*

How might we dismay people to eat large meals?

Insight: *For long term perspective, people should be thought about lifestyle education instead of diets*

How might we teach people about lifestyle education?

While analyzing the questions of "How might we" two requirements for the future solution have emerged: "Lifestyle education" and "Diet trigger". These demands were taken to the further design process: idea generation.

Idea generation

Through brainstorm session lots of ideas for the project have been generated. This was an iterative creative process, which role mainly was to make sure that enough ideas will be conceived.

Afterwards, ideas that shared the same patterns were grouped in themes.

A round of concept synthesis was performed to sort out the concepts. This way, only 3 concepts were found to be inspiring enough. Aiming to choose just one of them, was created 3 customer journeys.

Educational game

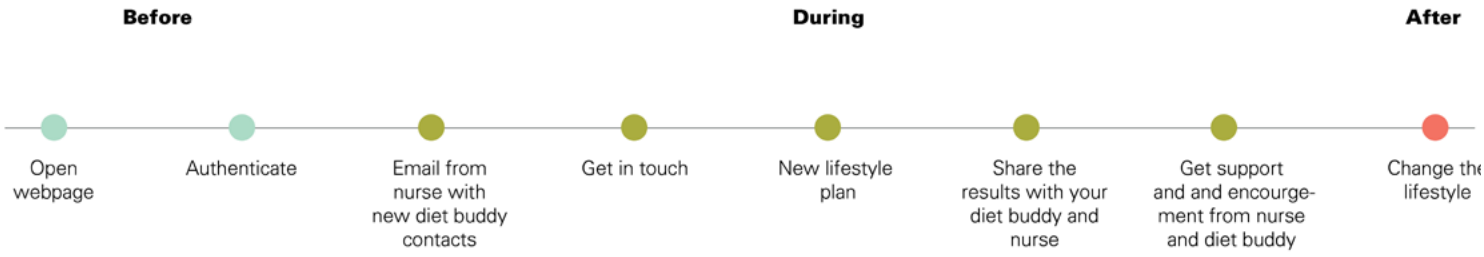
The first concept promoted the idea to create an educational mobile application where players will have an avatar, will feed it, do activities and at the end of each round the system will provide feedback showing how these activities influenced its general health.

Educational mobile application

Concept 2 is similar to concept 1. The idea is to have a mobile application and record food and activity data. At the end of the month, the users will receive a doctor "diagnose" explaining how their habits and behaviour influenced their body health.

Combine 2 in 1

The third concept illustrates a service idea where 2 persons challenge themselves to engage in keeping diet for a limited time through a service (app). Behind this concept stands the insight: "Keeping diet alone is boring". Across the journey, they can also receive medical assistance and support.



Synopsis:

The User journey mapping in the given context is focusing on telling the idea at high level without going into too much details, but rather helping to envision the story behind it and asses the idea potential.

Service concept

Analysing the journey maps and looking for a final service solution, was decided that a sustainable concept would be the combination between the first and second ideas. This is how the *Fellows* service was born.

The *Fellows* it is an educational service that will help the target audience to change their lifestyle so they will avoid or postpone the onset of the diabetes complications. The service has 2 separate components: an educational game which will simulate the reality and a mobile/web/desktop application which will operate with real data. Both the application and the game are aiming to increase awareness by showing how the bad decisions of food, vices, not doing sports influences the body and health. As in the game and in the real life, the goal is that once people will visualize the consequences of their behaviour would become aware and will to take actions to change.

This service should be seen more like a tool that people will use in order to change. This concept is very alike to an old quote: "Give the man a fish and you will feed him for one day, teach how to fish and he will have food for entire life."

The game:

The idea around the game is to simulate the real life activities with a special focus on food and sports. Each player will have its own avatar which needs to be fed, make it do physical exercise and maybe some extra activities which normally are happening during a day. Every round will end with doctor's check-ups where the players will receive analysis informing how their avatar well being has been changed during the past round. The analysis will be accompanied by diagnoses and dietician advices how to do better and improve. The game will be played on Facebook social network.

The application:

The mobile application principle is the same as for the game, but will operate will real data. All that users have to do is to introduce their food and activity data. The service will collect it and will send a detailed feedback explaining the changes that have been occurred in their body during that time interval.

Lifestyle changes are a process that take time to adjust, understand and behave in a new way. The difficult part of this is committing and following through. The key to success is to prepare a plan how should the change occur. Careful planning means setting small goals and taking things one step at a time.

The game and the mobile application will provide a direction to change, which will be shaped by the users themselves after receiving the feedback from the game and mobile application as well as hints and advices from the service how to do better. Quoting the authors from "How to change, when change is hard" book: "If you want people to change, you must provide a crystal clear direction". (Heath 2007) which hopefully will be acquired in this service and the direction will be shaped by the users themselves.

2 in 1

It is necessarily to have both products in one service because this way, a totally new service is born that can fulfil the market demands and it will be distinguished from the many exciting fitness, sugar control services.

The game represents the support for the "Fellows" service, will promote it and rise the brand identity and awareness. Additionally, the game role is also to transform the players into app users and grow younger generations into potential users by gaining their confidence as a viable service which helps people to be aware and commit changes for a better lifestyle and happier life together with entire family.

The core of the service constitutes of Fellows mobile application. Where the users will log their data and receive authentic feedback that will trigger the behaviour change. The service has way more features and intelligence than the game proposal and it aims to be the diet friend of the users.

An important point touched by the service is to increase the automation level for data introduction and save users the valuable time. This means that the application will support the option to connect to external fitness, health, food apps that provide open APIs or are interested in a partnership. The external apps data will be store it in service provider's cloud.

The collected data from external and internal suppliers will be used to make accurate statistics and diagnoses. In this way, the role of the service covers data input service, and a "hub" that connects other apps and delivers a higher value to its users.

The concept of linking different apps in one place and giving the user a whole new service is relatively new, but many organisations are striving now to build this kind of service. And authentic example would be Apple Kit, where the service provider proposes a platform for developing apps with open API's, which would be easily connected between other services.

Generalizing the service main activities, were identified the following ones:

Collect data

Connect external services

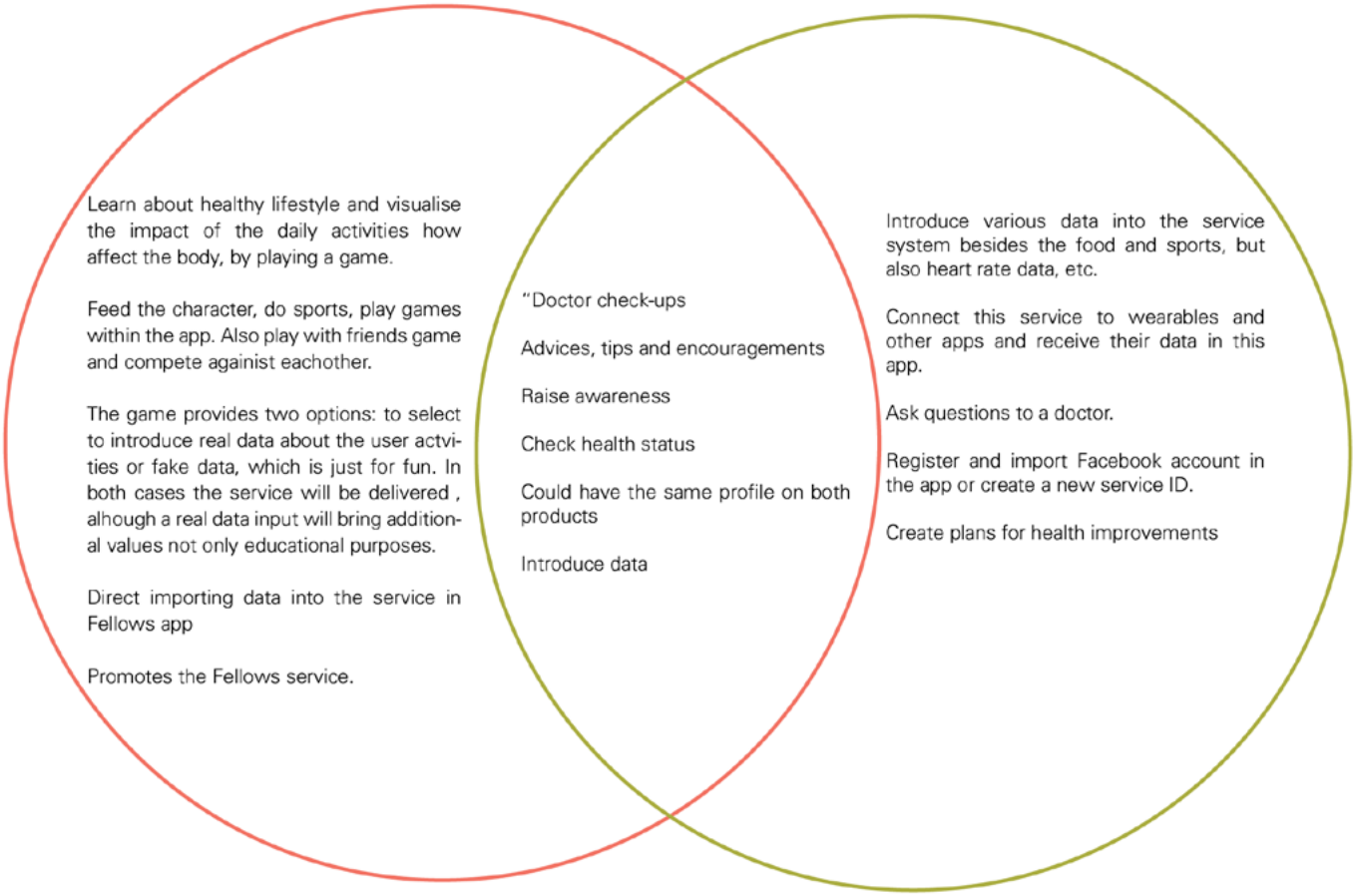
Analyse data and evaluate the health threats

Help users to engage in maintaining a healthy lifestyle

Venn diagram

Venn Diagram represents a schematic diagram used in logic theory to depict collections of sets and represent their relationships. (Wikipedia) Venn diagram attribute is to distinguish the particularities of the Game and Mobile application in the outer circles, and determine the which details are alike where the circles overlap providing a nice and easy to read overview.

The game operates with real or fake data while the app provides real time and suitable feedback of the data that has been introduced. However, both game and app as logic are alike and aim to produce the same impact: make people aware of their lifestyle behaviour and determine them to commit the change.



The existing similar services

The current service solution, represents something in between the dietary apps, like: "My fitness Pal", MyNetDiary" (these services have been mentioned in the 1st chapter, under the subchapter: "Inspiring from") where the user aims to keep control over their body weight by recording their food and activities data. And the gamification side that also focuses on data input, but in a game way, very alike to the "Pou" game, also mentioned in the first chapter.

Nonetheless, Fellows service has a different business model. Fellows is not only a calorie counter, but a data interpreter and health risk analyser. The service would provide a much simpler and convenient way to educate about the risks, track the live status and issue warnings and advices, simplify the communication between the users and medical experts.

A major difference makes the fact that this service aims to connect other services and apps to this one, which will facilitate the creation of more accurate reports, by having access to various user data, and abolish the manual data input.

The potential service owner

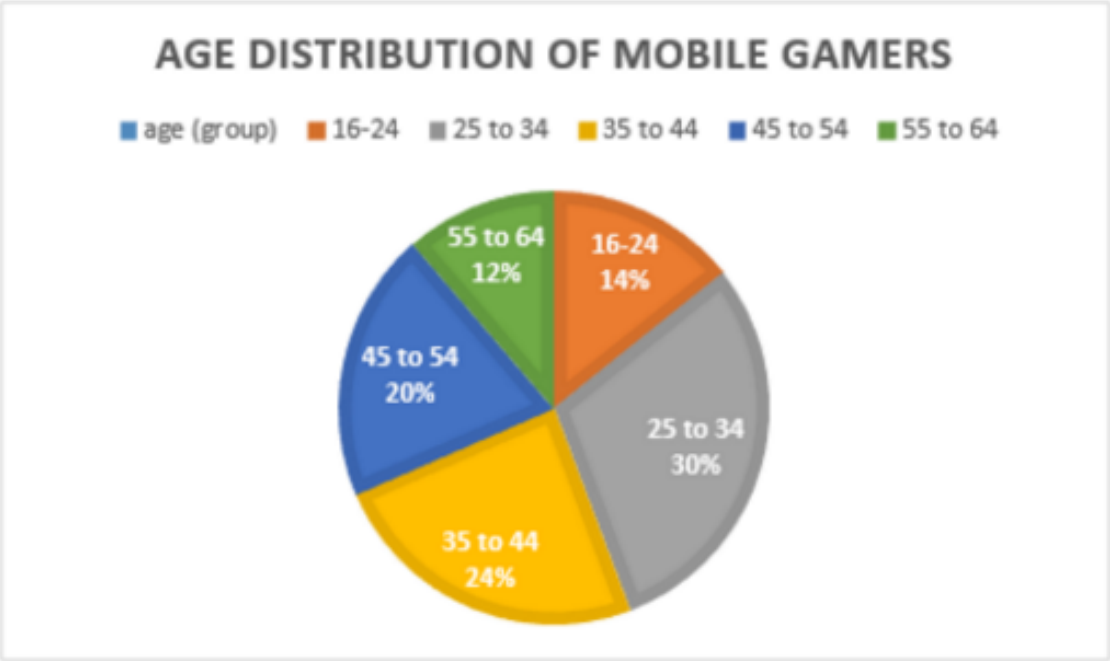
This service would have several potential markets and interested parties.

Government controlled healthcare system: A healthier society means a more active and productive society (a bigger contribution to the national budget). A healthier nation would also lead to a smaller burden to the healthcare system (less expenses with treatments might also allow bigger budgets for healthcare research, etc). Also, this service would make the existing healthcare system more efficient, as it would reduce the need for the patient-doctor visits.

Health insurance companies: A healthier client has a smaller risk to claim an insurance coverage for medical expenses. Also, this service would make the existing healthcare system more efficient, as it would reduce the need for the patient-doctor visits. This would be very beneficial for both parties (insurance company and its clients): bigger profits for the company, lower premiums for the clients.

Concept validation with target group

Fellows gamification side and target group correspondence, is justified by the fact that mobile games industry it rapidly changing – and so are mobile gaming demographics. People are spending more time and money on gaming, and new consumers are being attracted by games which appeal to broader audiences. So is the educational apps industry. Youngsters are not the biggest consumers of mobile games and apps. The 16-24 age group represents a mere 14.2% of mobile gamers, while people older than 45 years make up nearly a third. The significance of the older gaming consumer is further reinforced by research from a study that reveals a direct correlation between the amounts of money spent on virtual goods within social gameys and gamer age – the older the gamer, the more they spend. Based on the study, 70% of all the gamers over 45 years bought virtual goods. (Reality mine, 2015) Below is an age distribution graph of people engaged in playing games and using apps.



The chart has been designed by Reality mine. ((Reality mine, 2015)

Prototype 1st round

In order to validate the service idea and elaborate its details a paper prototype for the game has been produced. This is a low fidelity prototype which is more like a conceptual representation needed to define initial logic of the game, features, characters and interactions.

This game concept promotes four groups of daily activities: food, exercises, some random activities and vices. The player should go around these rounds and try to maintain a balance of the calories intake and burned calories.

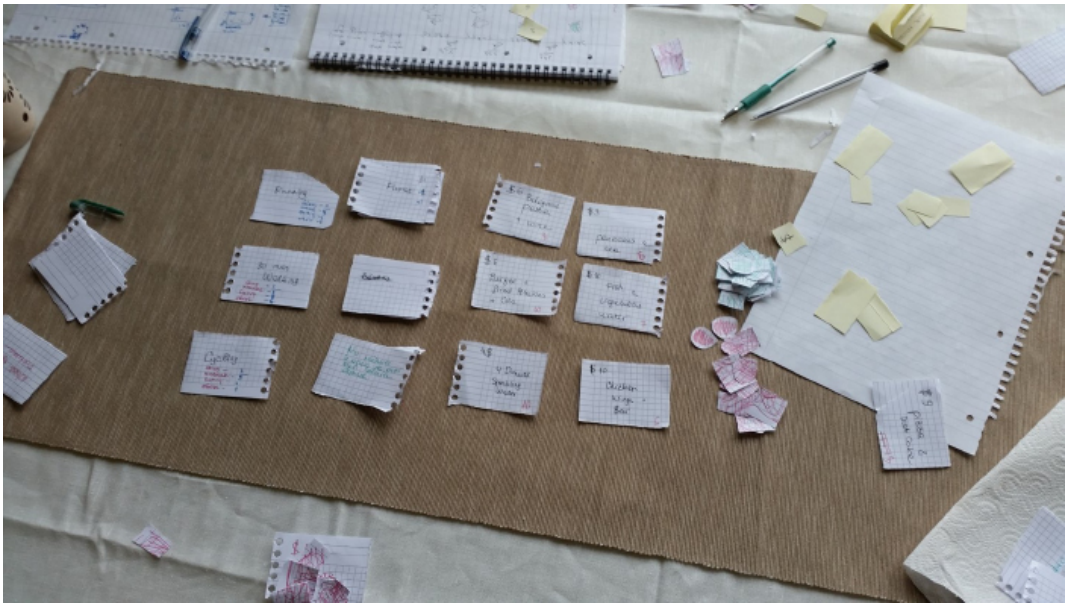
Below are listed and depicted the life-cycle categories:

Food items with calories label

Physical activity each type of activity will have a label of how many calories this exercise will burn.

Fortune wheel will be responsible for producing some disaster in the game by giving to the player random activities

Vices player can receive during his lifetime.



Prototype 2nd round

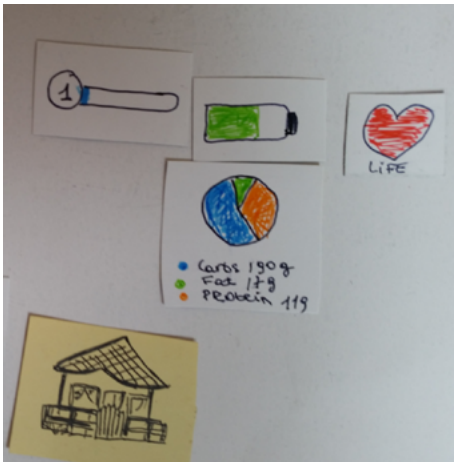
The inceptive prototype has been taken to the second level where the refinements and experience from first one were incorporated. This is a higher fidelity one, and in order to understand the concept better and envision how it will be placed in the real world, was used the scenario design tool.

Scenario: "*Jimmy opened the Facebook page and selected the Fellows game from the Games and Apps list. He opened the game, created an avatar and begin playing. When the game page was generated he started to analyse the game field. He saw that his avatar is hungry and low in energy; the avatar health is full; and there is a bounding circle suggesting to tap on it. Jimmy tapped on it and the activities list opened. Jimmy selected "Food icon" and a list of food items opened. He selected several and then fed the avatar*"

With this scenario in mind, the designer tried to build a new prototype.

The avatar is hungry

Tap on "Activities shop" in order to get food pick an exercises, receive a random activity



Health status indicators

Workshop

A workshop session was organized to define the final game and mobile application features. The game concept obviously needed outside inputs for improving it and make it more likeable and addictive. And the app needed to test if the current features are good enough and will provide a good customer experience.

At the workshop participated 8 people that came with different background: 2 prediabetes people, 1 developer, 1 biologist, 2 marketers, 1 healthcare representative and 1 pharmacist.

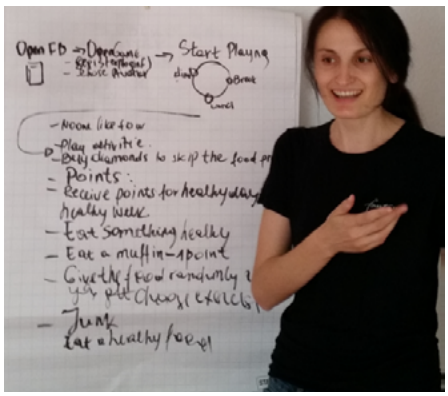
The background variation of the workshop participants was selected on purpose because for developing a creative game it is necessary diverse creativity perspectives. Which results could've been achieved under other circumstances that successful as it was for this case.

Icebreaker 15 min

The first activity was introduction of the participants. To stimulate the creativity and get comfortable to each other, the facilitator proposed to play a creative game. The game consisted of 20 circles and they suppose to draw in 5 minutes objects that are coming in round shape. This activity generated a friendly atmosphere and engaged everybody with positive energy.

Introduce the concept: 15 min

The second phase of the workshop was familiarizing with the service concept. Firstly the designer/facilitator talked about the service concept game and application. Then demonstrated the prototype how it works so far and pinpointing the pain points. Then the participants were asked to share their thoughts about it.



Discussion and proposal 40 min

A friendly discussion emerged among participants and everybody was proposing solutions. The facilitator was writing down all the ideas that were suggested.

The next step was to filter the ideas and select the features that will make the game desirable and interesting. Afterwards, using the new features it was created a User Journey to help visualise the entire concept.

For the application a list of requirements also were generated. A part of them will be implemented in the final product mock-up.

Synopsis:

The workshop role was to help defining the service boundaries and get critics and suggestions how to improve the service concept.

The workshop was organized following Design thinking methodology, so participants came with various backgrounds and everybody used their expertise to contribute to the solution polishing.

The design thinking approach give the opportunity to see the problem from different angles and generate valuable discussions of how to integrate them in the new service. It also encourages the innovative thinking and assures that customers needs are incorporated into the service concept.

If the workshop would have been organized with the majority of participants would represent the target group users, then, most likely it could cut out of from the creative critics and suggestion. The result could have been narrow and reflect just one side of the problem.

Prototype 3rd round

In the third round of the prototype were implemented the requirements from the workshop which facilitated to shape the final concept for the game and mobile application. This activity finished with building of mock-up for the game and some screens for the app.

The final game concept:

"Jimmy found about the Fellow game on Facebook and he decided to try it out. He opened the game, signed in with his Facebook account. He chose an avatar to represent him. Then the game home page was triggered. Jimmy noticed that he has 200 points and his avatar health status are 100% full. He decided to feed the avatar, went to the game shop, selected some food and he noticed that he pays with points for the food. Then he gave some food to the avatar and again noticed that for a banana he got 20 point and for a burger only.

Later he decided to play an entertainment game with the avatar, so he selected the games icon from the activity list and chose to play a game."

Synopsis:

Prototyping represented a fun and handy activity, which resulted with a big impact for the project. The activity started with the low fidelity prototype that illustrated the conceptual idea, towards middle fidelity depicting the aspects of the solution and finally migrating towards high fidelity where the idea "mock-ups" were conceived, completing this way, the entire life-circle of the prototype.

Since the concept was complex, walking through these phases allowed to sketch the solution better and better, give a tangible form and sense, as well as to provide validations.

In building prototypes a great aid came from the scenarios that accompanied them. The scenario supported the way the prototype should be developed and ensured the inclusion of the details and features wanted to have in the prototype.

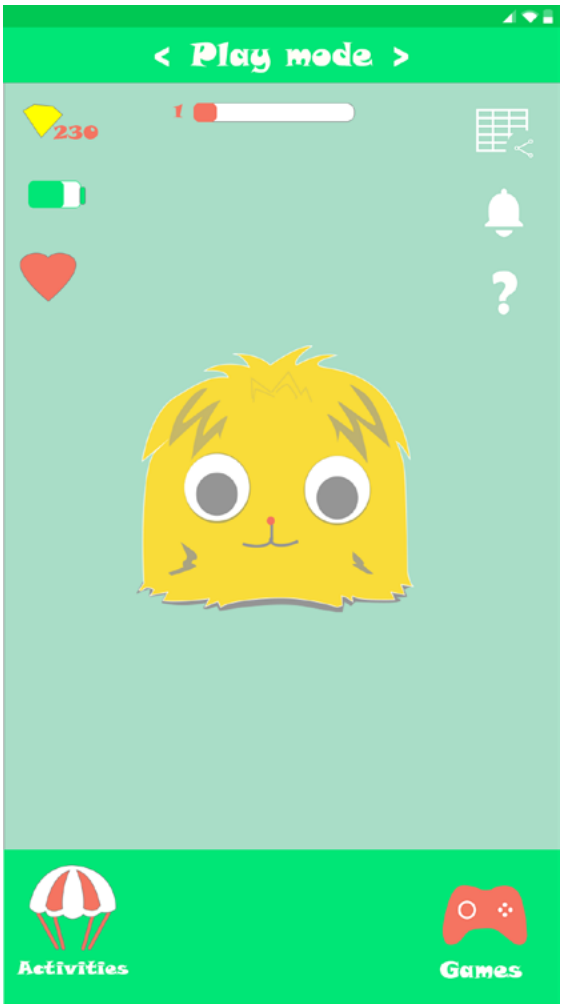
Solution mock-ups

Fellows

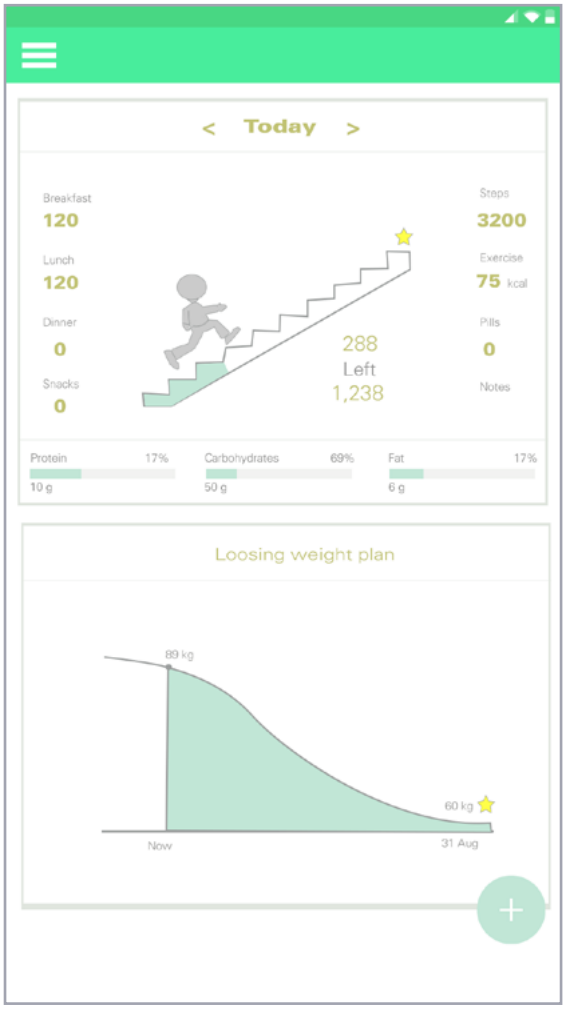
Examples of the game avatars.

Home screen mock-ups

Game home screen



Mobile application home screen



Example of feedback

Earlier in the project, was stated that the system feedback suppose to trigger the behavioural change. In order to get tangible approach and envision an example of feedback, a scenario was elaborated.

Scenario: Health status evolution prediction (negative scenario)

User profile: Persona profile Steve

Steve

Day 1: Monday

8:00 User records breakfast: double egg omelet & bacon, and a long coffee latte

12:00 User records lunch: Large pizza & diet coke.

17:00 Records a snack

21:00 User records dinner: Steak & large beer

During the day, system also records several smoke breaks, and no physical effort.

A pertinent conclusion cannot be drawn yet as this day might be an exception due to unscheduled work related stressful events. The system however records the negative points.

The situation repeats itself until Friday with minor variation in food and drinks type (on Wednesday and Friday had second coffee and extra sweet tea).

Next day: user records 6 beers and several other alcoholics intakes for the previous day (as it was inconvenient or impossible to record them immediately).

The system is preparing to issue an immediate and severe recommendation but based on the current status postpones it (the user is likely to ignore the recommendation due to hangover).

Day 5: Friday

8:00 User records a heavy breakfast anticipating a delayed lunch due to important work related stuff.

13:30 User records a bigger than usual lunch due to overestimated hunger: A soup bowl, salad with cheese and medium portion of fried fish & chips. Finishes the meal with a soda. (the large meal is also due in part due to upcoming party with some friends where the user expects only snack and alcoholic beverages)

Day 7: Sunday

10:00	User records a light breakfast based mostly on cereals
12:00	User records a "hike" activity (3 km)
13:00	User records the lunch: barbecue (family friends) and soda
19:00	User records dinner: Steak with roasted potatoes.

User decides to check the health status. The system is presenting it with a read warning sign in the upper right corner with following summary:


Food: Improvement required


Drinks: Improvement required


Activities: Improvement advised


Other: Improvement required (covers vices)

Any of the summary entries can be expanded for further explanations and recommendations. The system will try to present all the downsides of the unhealthy food by analyzing all groups of food. It will also attempt to tailor a customized plan for this particular user. The user can choose the plan's aggressiveness (easy steps, medium, or aggressive). A high level example for this scenario.

Your food analysis

Issue:

- *Heavy breakfasts based on eggs, bacon, milk, etc*

Details:

- *Eggs present a rich source of proteins and vitamins. However it has been shown that an increased intake of eggs can lead to an increase in cholesterol levels (One whole large egg contains 186 milligrams of cholesterol).*
- *Bacon has been shown to have more downsides than benefits (a rich source of polysatured fats which have been proven to badly impact the blood vessels and the heart)*

Recommendations:

- *Replace heavy animal based breakfast with cereals and fruits. This will bring an immediate boost in energy along with longer term health benefits.*

Action item:

- *Replace the egg & bacon on Monday and Wednesday with cereals with milk & honey followed by a fruit of choice (banana, orange, apple, etc).*
- *On the remaining days, remove the bacon and keep the eggs (replace the bacon with a fruit of choice). Keep in mind the long term goal to have the omelet only twice a week and then once a week.*
- *Would you like to add the notification of this replacement to your wake-up alarm?*

Your drinks

Issue:

- Drinks containing high level of carbohydrates and acids

Details:

- *Soft drinks are known to contain a high level of sugars. This will usually lead to an increase of sugar level in blood. A prolonged high level of sugars in the blood, is proven to lead to severe health conditions (as diabetes).*
- *Some soft drinks are known to have high acidity levels. Prolonged intake of these drinks has negative impact on several digestive organs (including teeth enamel, throat tissue, stomach wall, etc)*

Recommendations:

- *Replace the soft drinks with unsweetened (or partially sweetened) tea or natural fresh squeeze drinks (please note that some fruits have also a high level of sugars like fructose or glucose and even plain sugar)*

Action item:

- *Would you like me to add an warning every time you consume a soft drink to help you remember to avoid it next time?*
- *Would you like to add tea or a fresh squeeze drink to you next breakfast?*

Your activities

Issue:

- General lack of sports

Details:

- *It has been shown that the lack of sport activities increase the risk of cardiovascular issues. The lack of sport activities was also linked to the increase of the body mass and the reduction of body's efficiency.*

Recommendations:

- Gradually introduce the sport activities in your daily routine.

Action item:

- *Would you like to add an activity of 30 minutes walk per day? If yes, would you like me to find a suitable spot in your calendar?*

Customer experience journey

The Customer journey map is an oriented graph that describes the journey of a user by representing the different touchpoints that characterize his interaction with the service. (Service design tools)

For the *Fellows* service has been developed 2 Customer journeys. One for the mobile application service and respectively one for the game. The current customer journeys has a strong focus on experience too along with user's steps and touchpoints. The customer experience journey was built following an existing template (I-scoop) and adopted to this service.

The idea was to go beyond the usual customer journey and show the emotions and thinking the users might encounter through the service. The experience is what matters especially when the solution aims to accomplish behaviour change.

For mobile application, was identified five stages necessary for the customer to reach the service: Discover and Investigate, Account set-up, Data input, Connect other applications, Feedback and goals. The game has 4 steps: Discover and Investigate, Account set-up, Play, Feedback and goals.

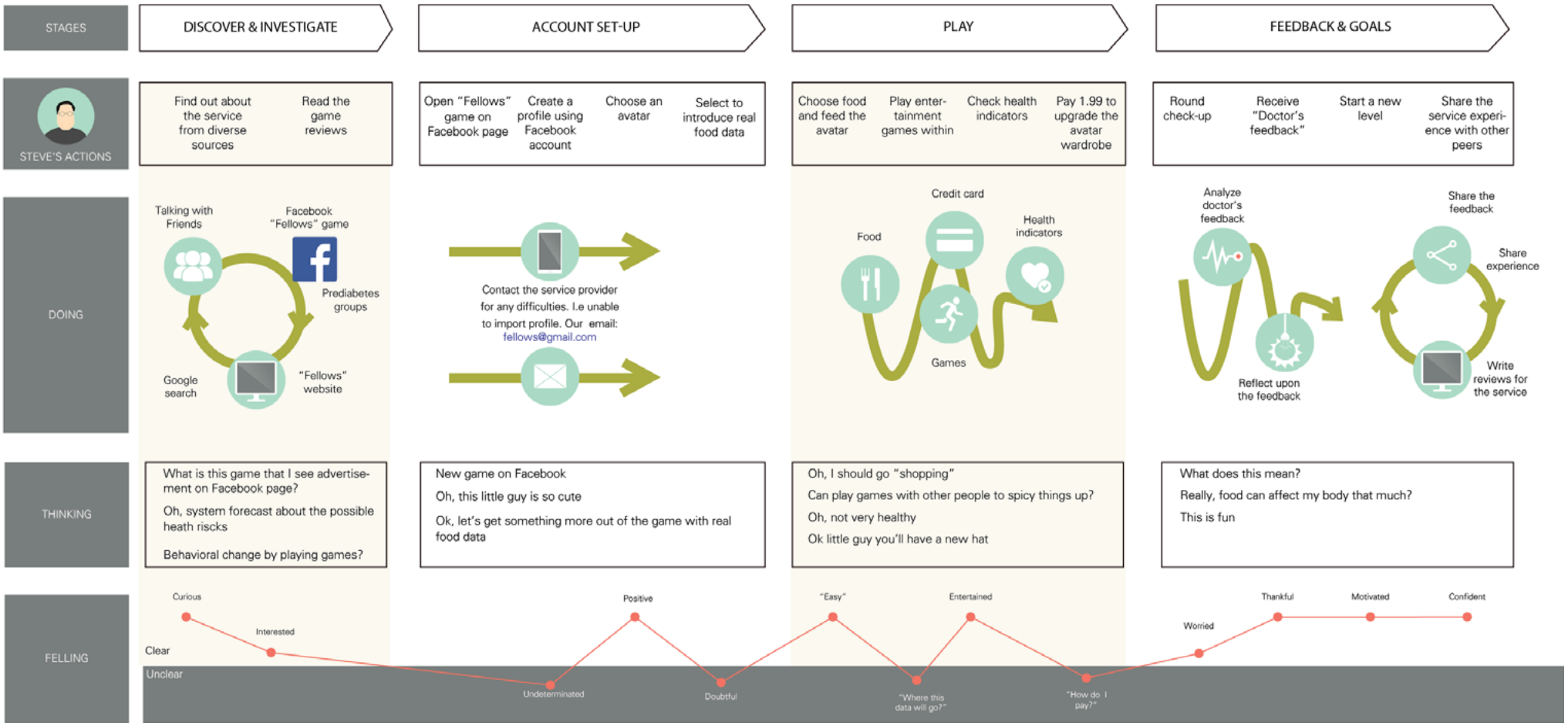
Each stage includes the description of user activities marked with appropriate icons, touchpoints, thoughts and feelings. The "Feelings" and "Thinking" are purely subjective opinions of the researcher and were mapped according to the previous encountered experiences.

Synopsis:

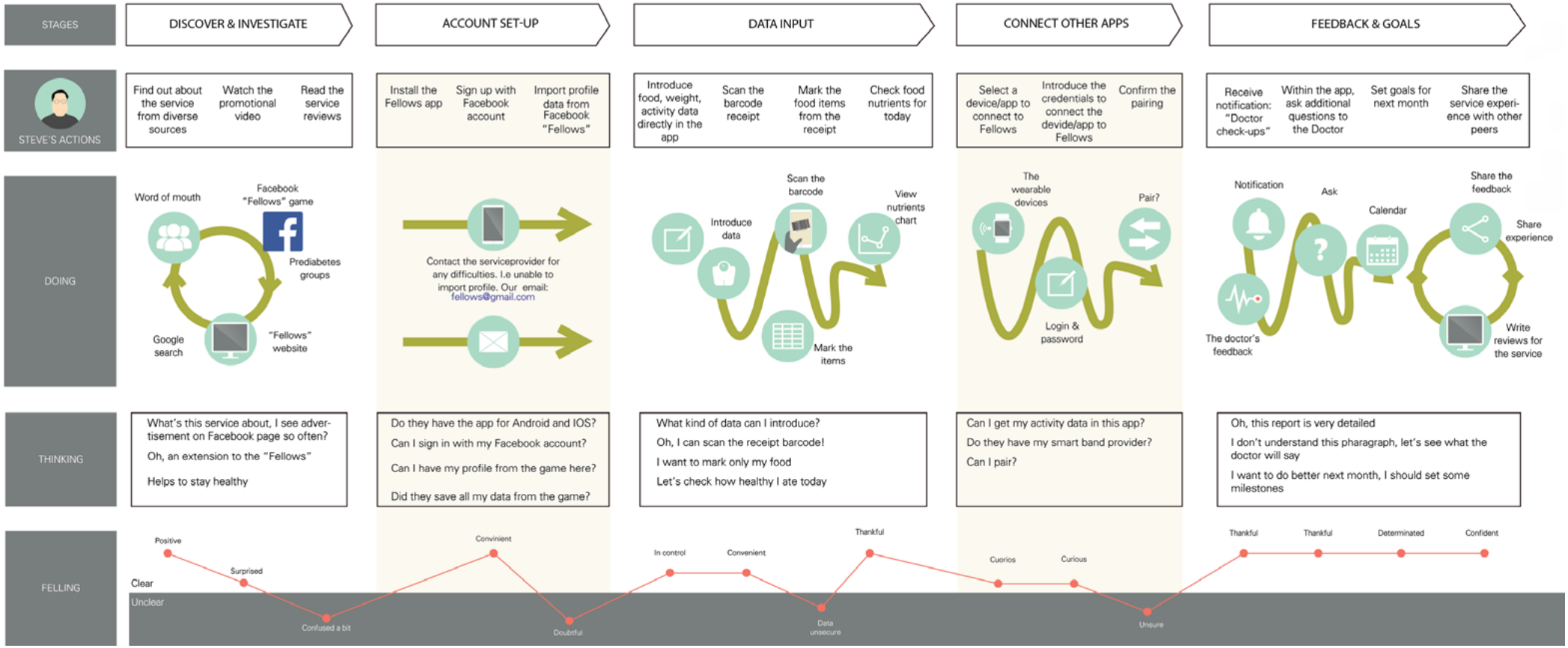
Using this template for building the customer journey revealed many valuable insights. The emotional satisfaction flow outlined some possible pain points in the system marked as "unclarity". So it is likely that the user can ask the same questions and feel the same too. Thus the designer can work more on those steps and improve them, by thinking on better interactions and flow or quickly test them out and validate them or not.

Another point worth to mention is that in the current projects two types of customer journeys have been used. The basic Customer journey that describes the 3 different concepts at the beginning of Ideation phase and the Customer experience journey. At the bottom line, both types are focusing on telling a story aiming to make people to understand the solution logic. Nonetheless, a major difference between them is the extra information mapped out. The Customer experience journey depicts a bigger picture of the users needs, by providing an overview of the user experience. This way, it is easier to get closer to user's universe, embrace empathy and distinguish the possible gaps and painful points in the system.

Customer experience journey for the Fellows game



Customer experience journey for the Fellows application



Use cases

The user experience journey reviled the overall experience of the user across the entire service journey. Further, the service delivery process across touchpoints, actors, front and backstage of the service will be analysed. This will be achieved through blueprint use cases.

The design use case are used to describe the most critical instances and occurrences in a scenario and represent a description of events which customers are likely to use the system. Use cases are described in a diagrammatic way and with a plain language description of the flow of events, actors involved, pre-and postcondition for each use case, alternative paths, and other relevant elements. (Morelli 2002)

Following the mentioned requirements, several use cases have been produced for the game and mobile application service. Each use case consist of a series of user actions necessary to take, in order to fulfil a need. The actions can be divided in one or several phases. A phase represents a task, which is taken to execute a part of the action. Furthermore, each action has a precondition, which is what the system will ensure that is true before the use case starts. A postcondition represents the status of system after the action has taken effect. Additionally, within this project, the use cases are accompanied by a visual representation - blueprint, which helps to communicate better the service components and the actors involved.

The *Fellows* service blueprint on the first level illustrates the touchpoints, which for most of the use cases are the smartphone/tablet and personal computer. Besides the listed touchpoints, in some use cases, the credit card as service touchpoint.

Tina's actions are the steps taken by the user in order to complete a task.

The Facebook UI represents the frontstage of the service, what Tina will see.

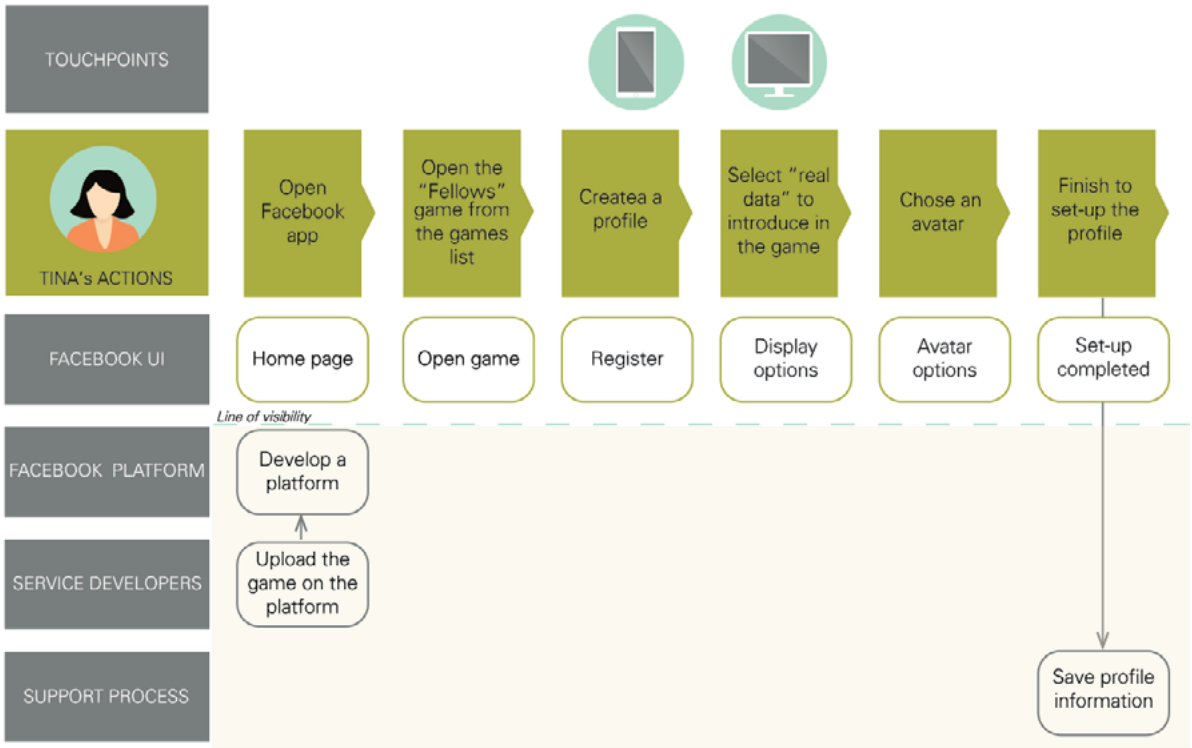
The service backstage, consists of a list of hidden actors and interactions which make the service delivery possible:
The Facebook platform has several roles in the service. Firstly constitute a "pool" for uploading games. Second role is basically a tool that mediates the service provider's actions and user interactions with the service. The third role is a data provider facilitator for the service developers.

The service developers are the team which created the service and managing it and validate the reports.

The Support process is responsible in the current project for saving the user data, analyse data and create reports.

Use case 1: Account set-up

Actions	Actors
Phase 1: Sign-up	
Tina wants to create an account for the game. In order to do that, Tina use her Facebook account and introduces the login name and password. The system will do the authentication. Alternatively, Tina can create a new account by introducing her email address and a password. For this case, the system will send her an authentication email to verify the identity.	*Tina, service persona*
Phase 2: Type of data	
Tina selected to introduce her "real" food/activity when she will play the game. This means: i.e. when the avatar will be hungry, she will feed it with the type of food she actually had. In this case, the reward is bigger for Tina, because the system will provide feedback based on her data. *Alternatively, she could introduce whatever food she wants, and the system will provide feedback, but it won't have much relevance for Tina. Nonetheless, the information will serve for education purposes.*	*Tina, service persona*
Phase 3: Chose avatar	
Select an avatar from the option list. The system will assign it to Tina's account. Alternatively, Tina can skip this step now and select it later from the game settings.	*Tina, service persona*
Precondition: *Have a Facebook account*	
Postcondition: *An account for the game is created and associated with Facebook account*	

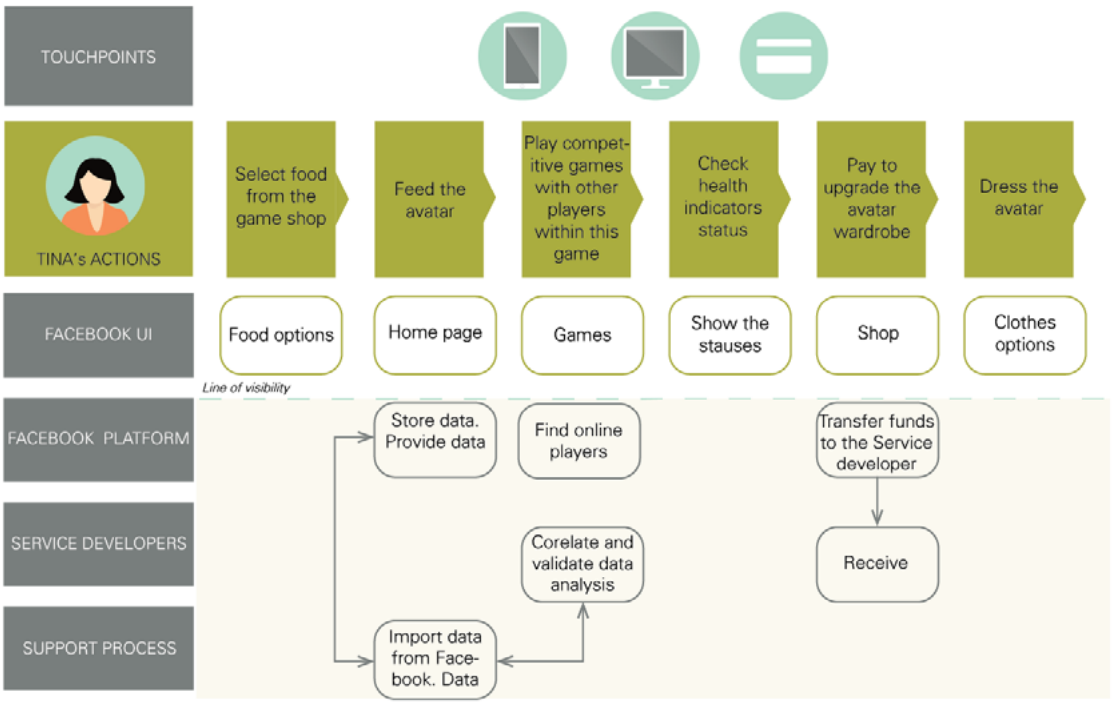


Use case 2: Play

Actions	Actors
Phase 1: Choose food	
The energy level is very low which means that avatar is hungry. This actions consist of feeding the avatar. According to food type, the system will reward the player with points. The food type will influence the health indicators too, so it will increase or decrease, suggesting the level of	*Tina, service persona*
Phase 2: Play games	
Tina can select to play alone with the avatar. In this case she can decide what kind of games she wants. The system will display the available games list. *Alternatively, Tina can chose to play with other people, in this case, the system will search for other players and propose a list with the available multi-players games. She can join a game.*	*Tina, service persona*
Phase 3: Check health indicators	
Tina wants to visualize the avatar's health indicators. She can drag down the from the game page top bar and a page with all the status information will be displayed. *Alternatively, she can do this action accessing the game menu.*	*Tina, service persona*
Phase 4: Pay	
Tina selects some extra accessories for her avatar that are not available yet in this round. She selects to pay for them using Facebook payment system. She has already registered the credit card information there. *Alternatively she can pay as a normal procedure via card or can buy in advance from specialized stores, Facebook game cards and use one of them for this procedure.*	*Tina, service persona*
Phase 5: Dress	
Tina selects the available outfit and dresses the avatar. The systems display the accessories associated with her account so she can chose which one she likes.	*Tina, service persona*

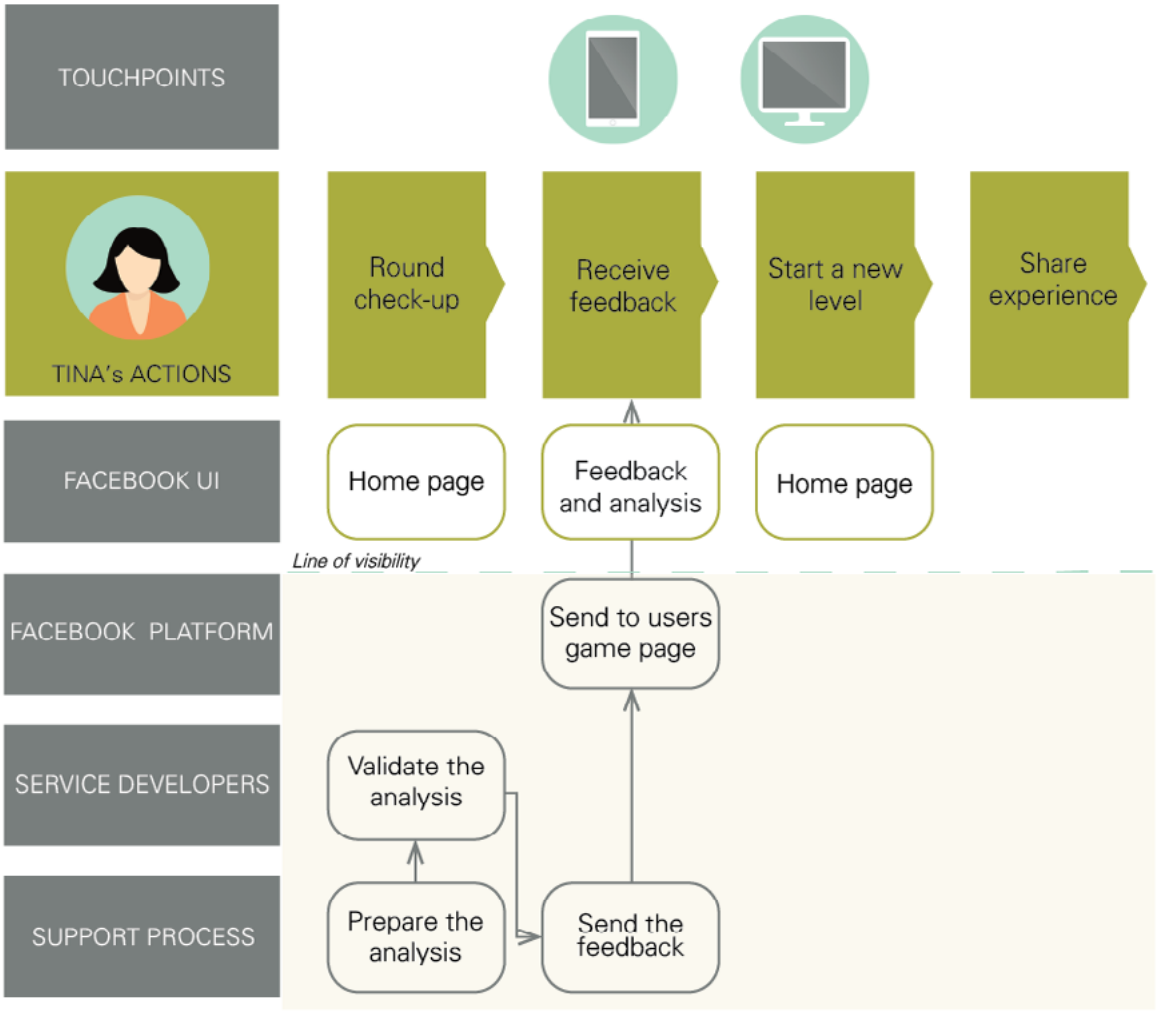
Precondition: *Have a game account*

Postcondition: *New data about the user is harvested*



Use case 3: Feedback and goals

Actions	Actors
Phase 1: Feedback	
When the round is about to finish, Tina receives on the game page the feedback from the system. She can see how her actions during one round influenced the general health condition. The system will also issue possible health risks and will provide educational advices. The feedback was generalized by the service provider's team.	*Tina, service persona*
Phase 2: Start a new round	
Tina starts to play the next round immediately. *Alternatively, she can close the game and start playing the next round later.*	*Tina, service persona*
Precondition: *Have played a completed round*	
Postcondition: *Feedback provided*	



Use cases mobile application

For the mobile application, has been conceived 5 use cases.

The service touchpoints are similar to the one mentioned for the game, except for the store receipt which is valid only for mobile application service and it is present in use case 3.

The service frontstage is depicted by the Fellows UI.

In the backstage of each use case there are 5 actors that are interacting with a system whenever the case is:
The Facebook platform provider - verifies the identity of the new user (when Tina selects to sign in with Facebook account); and to provides access to Tina's information for the service developers.

The Wearables provider - places at disposal open AIP's which will make possible the data transfer between the Fellows and the wearable devices.

The Doctor - supports with meaningful information the users and to validates user data and helps composing relevant reports for the user. A user can always ask questions to the doctor, but this interaction it is presented in use case 5, assuming that after Tina will receive the monthly feedback she would want more interpretations in case she will have questions.

Service developers - the service provider's team composed of: developers, mathematician, dietician, doctors, engineers, etc. Besides, continuously developing the service, they are also the data and system supervisors across the user journey. So whenever the system will detect unusual cases or require more attention, the team will be there to make the necessary adjustments. And at the end of the month the team will validate the user report the system created.

Support process - is responsible for data analysis and creation of the reports.

Synopsis:

When there is a complex service system as it is in case of *Fellows*, it is hard to visualise and understand the whole picture at a glance. Breaking the holistic blueprint into several smaller blueprints based on macro use, the use cases seemed to be a good approach. By doing so, the chances of making gaps in the system was eliminated. It also aligned together all the parts involved, focusing on the important issues and making sure that a good service experience will be delivered at all levels. In the end, the same blueprint was is created, but orchestrated in smaller "acts", smaller modules which are easier to manipulate and work. This reminds of the rule of dealing with complicated systems: "One way to manage the complex system is to break down the system into manageable modular parts".

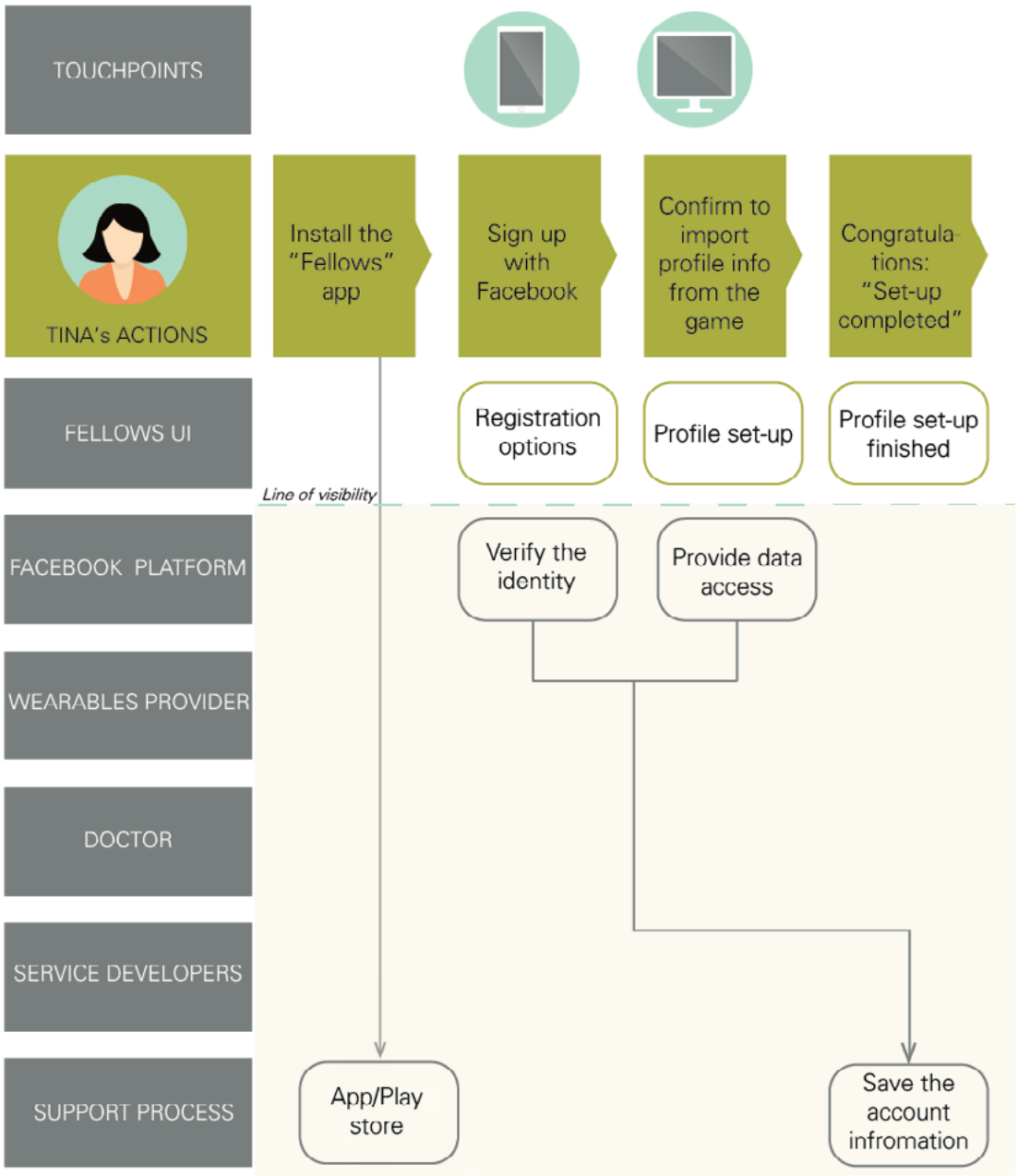
The design use cases are also coming with a small scenario that describes the module and its alternative paths. The scenario helps envisioning the situation and build the user flow over the service. The alternative way is important for taking in consideration other options by which the user can achieve the same result and making sure that they will be designed.

Use case 1: Account set-up

Actions	Actors
Phase 1: Sign-up	
Tina wants to create an account for the Fellows mobile application. She selected to register using her Facebook account. In this case, Tina has to introduce the Facebook login name and password. The Facebook system will authenticate her identity. *Alternatively, Tina can create a new account by introducing her email address and a password. For this case, the system will send an authentication email to verify her identity.*	*Tina, service persona*
Phase 2: Import account information	
Once Tina signed in with her Facebook account, the system identified that she already has an account for the Fellows game and is asking her if she wants to import the game profile in the application and skipping the introduction phase. *Alternatively, she can introduce manually the necessary data and create a new account.*	*Tina, service persona*

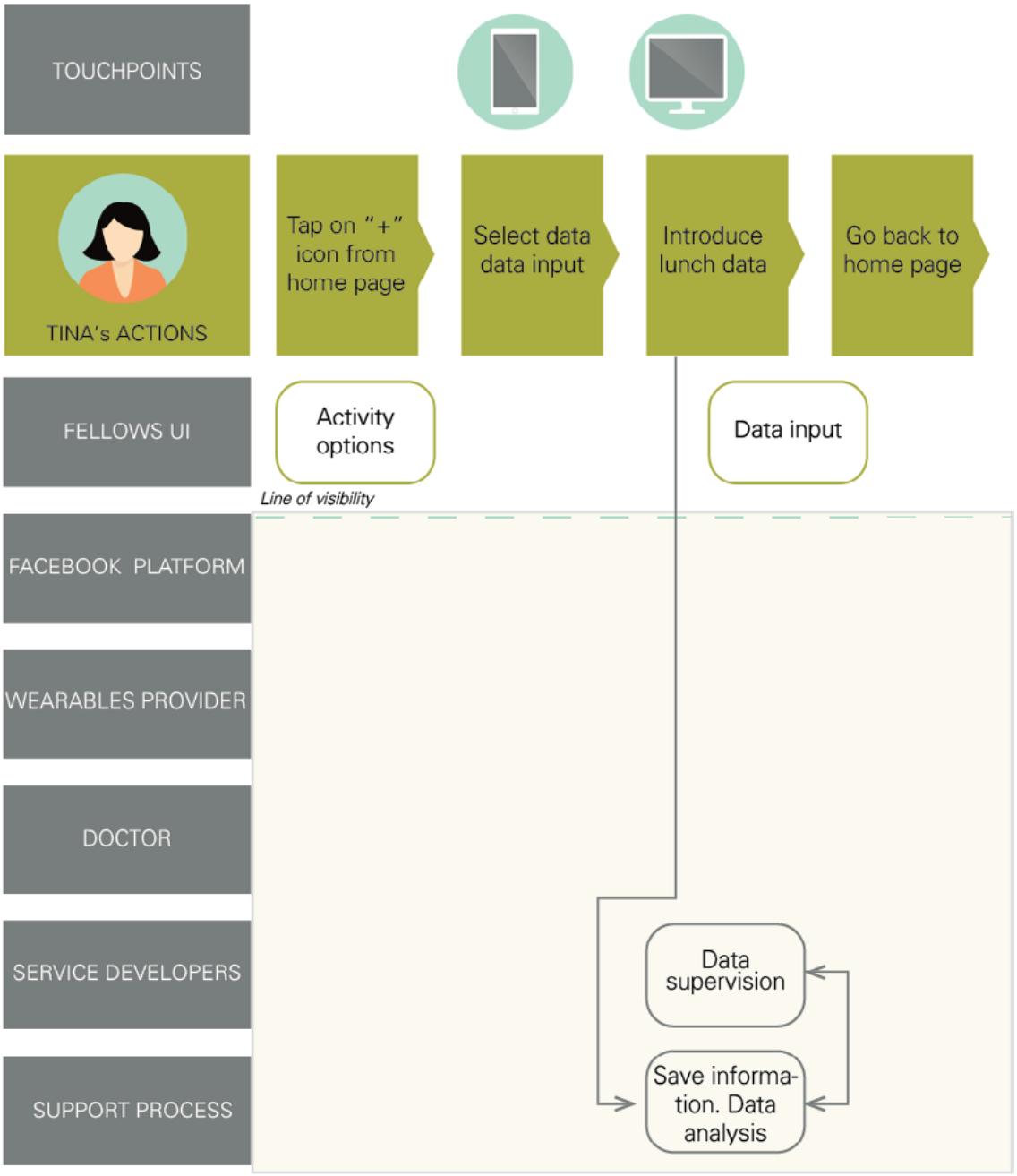
Precondition: *Have a Facebook or email account*

Postcondition: *Account ready and accessible*



Use case 2: Data input

Actions	Actors
Phase 1: Choose the food	
Tina can tap on "+" icon and select to introduce her today's food. The system will take her to the food input page. *Alternatively, she can achieve the same result by selecting to introduce food from the menu list.*	*Tina, service persona*
Precondition: *Have an account*	
Postcondition: *Data updated*	

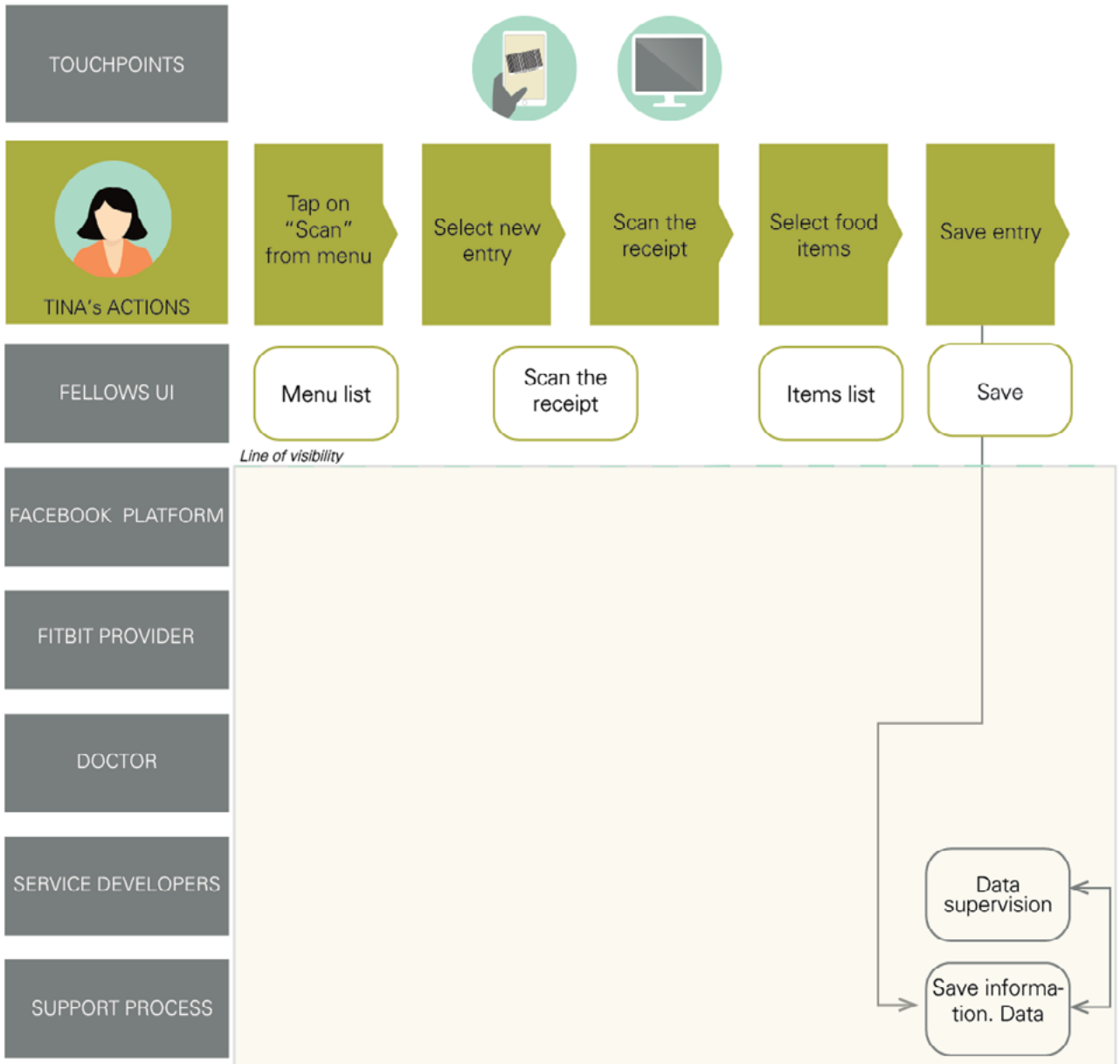


Use case 3: Barcode scanner

Actions	Actors
Phase 1: Scan the receipt	
Tina wants to scan the lunch receipt. She opens the scan page from the app and the system automatically turns the phone camera on. Tina scans the receipt. Then the system reads the barcode information and generates a listed items from the barcode. Tina can select the items she had and save the entry. The system will move the food to the today lunch and will calculate the nutrients.	*Tina, service persona*

Precondition: *Have an account, a smartphone with the Fellows app installed*

Postcondition: *Data recorded*

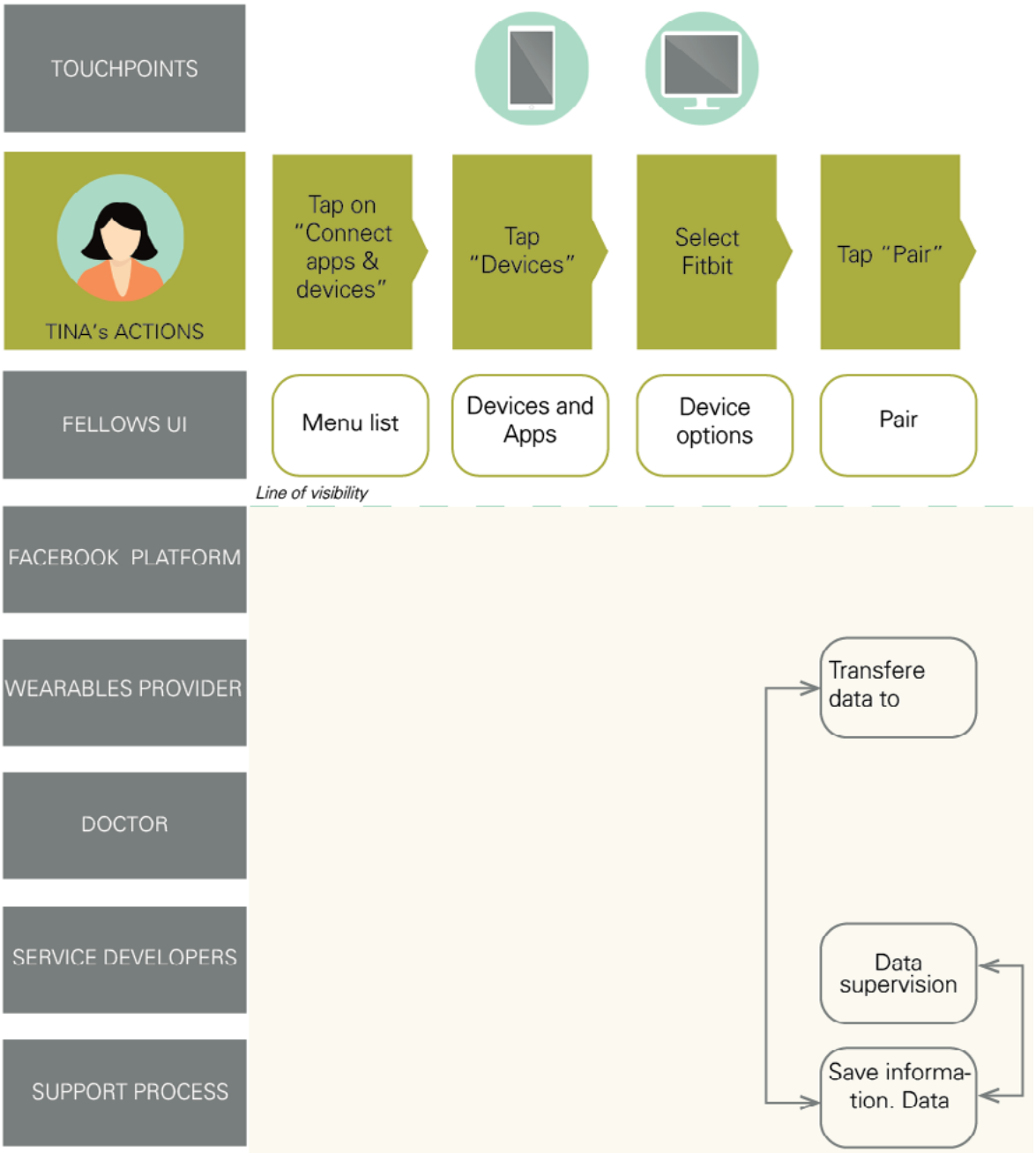


Use case: 4 Connect devices and apps

Actions	Actors
Phase 1: Pair the device	
Tina selects the devices she wants to pair with the system from the available device list. She chooses "Fitbit" device and confirms that she wants to pair it with this service. The system is taking the Fitbit API and starts to receive Tina's activity the data. *Alternatively, Tina can select "apps" entry, and subsequently the application she wants to connect from the available list. The system will ask her for the email address and password. Once that Tina typed it, the connecting process will be over and the system will start receiving Tina's data.*	*Tina, service persona*

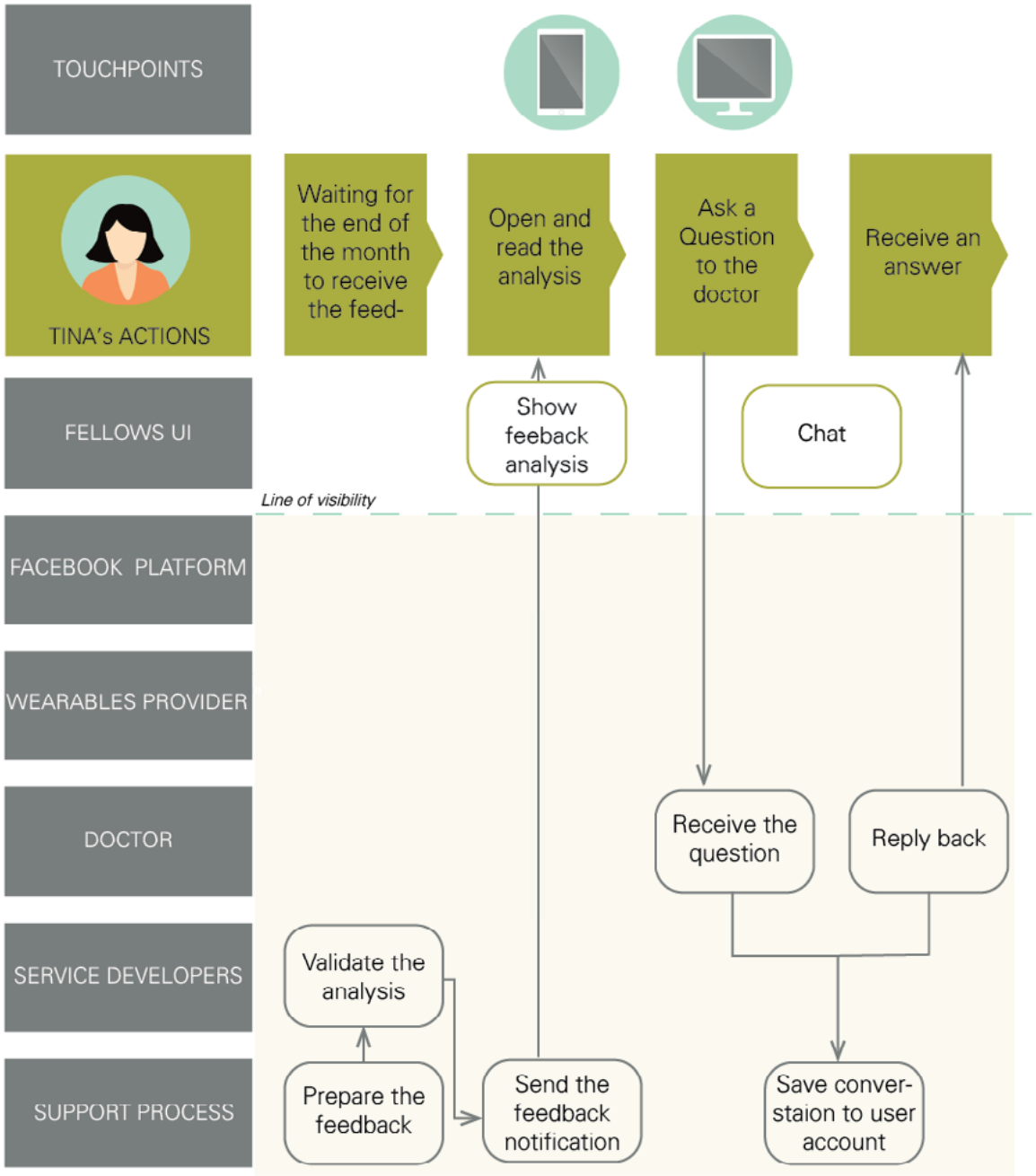
Precondition: *Posses a wearable device and have an account for the available apps*

Postcondition: *Devices and apps interconnected*

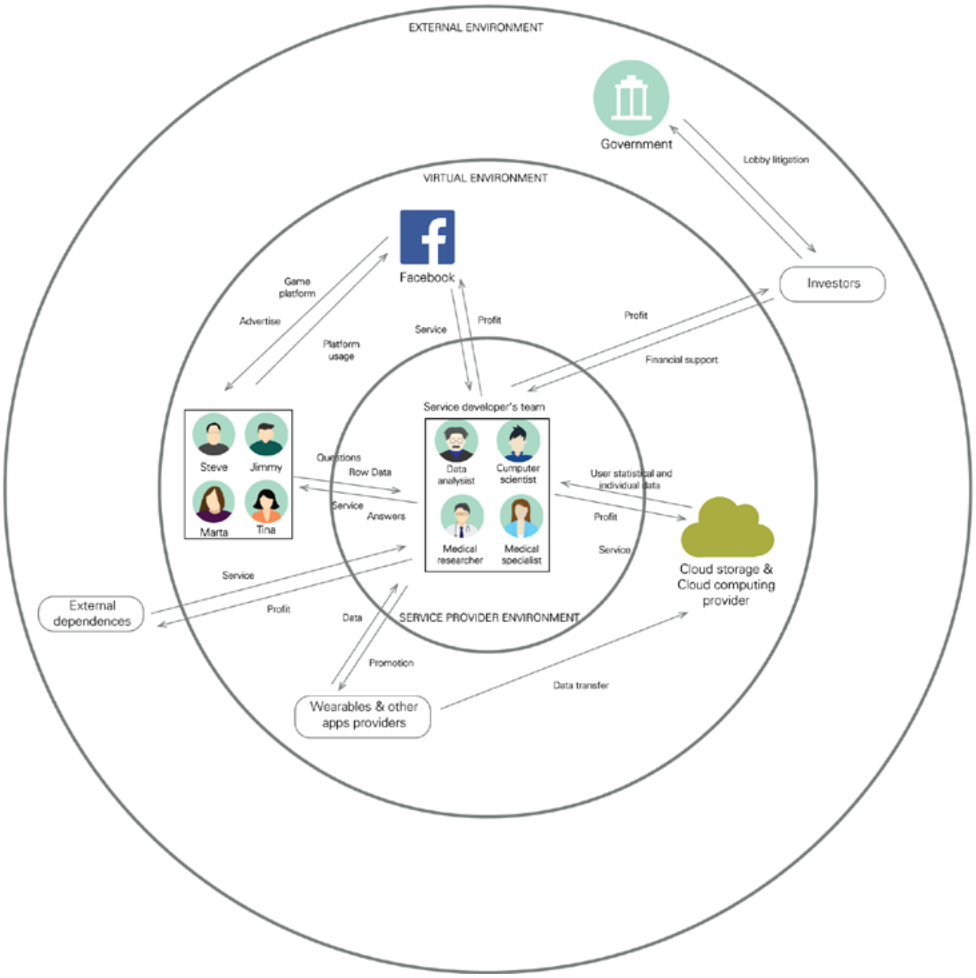


Use case 5: Feedback

Actions	Actors
Phase 1: Receive feedback	
System sends a notification to Tina, she opens it and the generalized feedback of her health indicators for the past month is displayed. She can select the report in the app or share via email and	*Tina, service persona*
Phase 2: Ask a question	
Tina wants to have additional clarifications from her report. She selected to ask a question to a doctor immediately within the app. The system intermediate the conversation between the doctor and Tina.	*Tina, service persona*
Precondition: *Data available within the service*	
Postcondition: *Feedback delivered*	



Stakeholder map



Identifying the stakeholders involved in the service, represents one most important tasks for an organisation, which will determine its good activity and help to provide an excellent experience to its users. At the same time, the service provider has to ensure a good collaboration among its stakeholders and identify their interest and their influence in the service ecosystem. This will help to build a proper strategy of how to tackle them and what approaches to take and how real is involve them in the project.

Thus, within *Fellows* project, 3 environmental groups of stakeholders have been detected:

Service developer environment - The core team that have developed the *Fellows* service and are responsible for its proper function, provide user feedback, create partnership with other stakeholders that are affected by the service.

Virtual environment - Is populated by the stakeholders that participate in service co-creation and delivery. They have an economic, contractual or regulative relationship with the service developers. The virtual environment

External environment - Are not directly linked into any service function, but provide vital parts or services and can facilitate or not the service delivery.

Motivation matrix

The goal of the motivation matrix is to understand the connexions between the different actors of the system because each actor expresses what he needs or expects from the service. (Service Design Tools)

Service design is about identifying and providing a good experience for the stakeholders involved in the service. It goes beyond user experience and aims to provide good relationship and valuable experience creators of the service backstage to frontstage actors. To help providing a good experience it is crucial to identify their motives to participate in the service. Motivation matrix represents an useful tool towards accomplishing this goal.

For *Fellows* service both game and service, firstly all the actors that have interest in the service have been mapped out and identified their motives and what they are giving and taking from each relationship in the service.

Synopsis:

Motivation matrix has some similarities to stakeholder map, that also aims to reveal the interests and motivations of each actor involved in the system. One difference is that motivation matrix uncovers expected benefits in detail and makes the interaction between the players emerge in terms of sensory and potential conflicts that the designers have to investigate. While stakeholder map aims to represent how the resources of the participants could be deployed more effectively to the given solution.

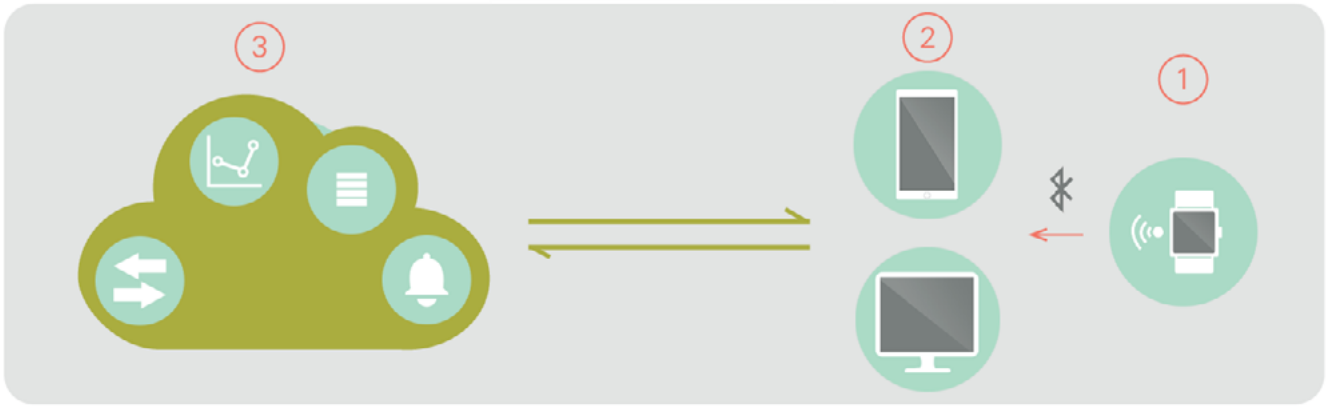
Motivation matrix helps to map out all the actors and identify their motivation to participate in the service.

The motivation matrix represent an interesting mean of investigation of the solution assuming the point of view of each stakeholder with his own interests.

In motivation matrix all the reasons to participate in the service of the actors are listed and is showing each possible relation ship among actors. Stakeholder map displays, at a macro-level, the relationships between the actors.

Goes to	Jimmy	Service provider	Facebook	Wearables and other apps providers	Investor	Cloud service provider	Government	Health insurance company
Jimmy	A tool that will increase awareness and will engage him in maintaining a healthy lifestyle	His data: food, physical activity, water intake, pills etc	Time that he spends on Facebook page. He is a potential consumer of Facebook page advertisements	Money for the device and device accessories. Also device/app recommendations to his friends				
Service provider	A service which will help Jimmy to embrace a healthy lifestyle by showing the impact his current choices have on his health	A service that could bring revenues, maybe even profit. Help tackle society problems and make an impact	A game which could make users to spend more time on Facebook page and pay for additional features.	Long term partnership. Share users data.	Profit	Payment for using cloud service	A service that will engage people in maintaining a healthy lifestyle. This will lead to a healthier nation, reduce expenses for healthcare indus-	Users statistical data
Facebook	A full access to the game. Advertisement of other products	A platform for developing and uploading games. Store the data from the game and provide access to it.	A potential new customers that might become consumers of the services, which will increase revenues					
Wearables and other apps providers	Option to import his activity data into the Fellows service, which will influence the feedback accuracy	Jimmt's activityt data- and other data the services measures		New users Popularity Increase revenue from selling more devices or buying addtional features		Transfer and store Jimmy's data to Fellows service cloud		
Investor		Financial support to start the business			A successful investment, which could bring big revenues		Participation and helping to have a healthier nation	
Cloud service provider		Data storage, analysis, transfer. Data privacy		Services for data transfer		Increase revenue	Assurance of respecting consumer data privacy	
Government	Ensure that the consumer rights are protected	Lobby and support. Provide intellectual rights. Ensure consumer rights and protection			Lobby to encourage to invest in this kind of business		Minimization of Government expenses for Diabetes	
Health insurance compa-	Health insurance remium cost reduction	Service promotion						Profit increase (risk assessment improvement)

Distributed systems



CLOUD ACTIONS

Notifications

Storage

Data analysis

Data transfer

SYSTEM ELEMENTS

Data flow

Internal data

1 Smart watch

2 Phone

3 Cloud

From the entities perspective, the system is composed of 3 major parts:

- User devices and tools: wearables, smartphones, personal computers
- Service front-end: Facebook app, Android & iOS app,
- Service back-end: A set of cloud supported services that receive, process and serve data back to the user and to the "Fellows" service provider (such as cloud computing service, cloud storage, etc)

In the first part, the *Fellows* service will use their API to receive notifications or push the user data (this API is usually open and based on Bluetooth or other wireless technologies). The mobile phone or the personal computers will be used to proxy the data transfer from less smart devices like wearables if that will be the case to the "Fellow service" platform.

The second part, Service Front-End, will represent a service interface to the user. By the means of the front-end, the user will be able to register to the service, link the devices and the tools to the services, push and update manual data, retrieve personal data (such as history), receive value-added data from the service, such as recommendations, updates, etc (and any other interaction with the service).

The relationship between front-end and the user tools is a client-server based (where the front-end is the server and the user tools are the clients). The relationship between front-end and the back-end is also a client-server based (where the front-end is the client and the back-end is the user).

The third part of the system is the back-end. This is the biggest and most complex part. The back-end, is responsible for receiving, storing, analyzing and providing the analysis results. Since the volume of the data will be immense (see the "big data" section below), the service will heavily rely on cloud computing. The type of the cloud used is "private" (I.E Virtual Private Cloud from Amazon Web Service). The need of using the private cloud technologies derives from both the amount of data used (that will require multiple processing units) as well as the data classification (most of the data will be at least confidential).

Big Data:

In order to estimate the amount of data that is being analyzed and stored by the service several key factors, that will directly influence the number of potential users, must be taken in consideration:

- The number of currently suffering patients.
- The number of patients not yet diagnosed.
- The ratio of the patients that have access to the technology (internet, wearables, etc)
- Health awareness and education
- Cultural values (that will dictate the spread of adoption as well as willingness to change and improve)
- In some cases, also government willingness to get involved (as the aim is to prevent or increase the quality of life for existing patients, which would in turn translate in less government expenditure with the public health system)

The World Health Organisation estimates more than 300 million individuals may have diabetes by the year 2025. (Burant 2004, 6-7) The biggest portion of the suffering population is located in highly developed countries (like USA). This implies easy and affordable access to the required tools and technologies as well as openness to the adoption to the new service.

Based on the above, and, with the proper marketing tools and techniques, the service is planning to support a very large number of users (in the order of millions) and to also be easily scalable if and when needed.

Business Model Canvas

Business Model Canvas was used for "assembling" the parts of the business model this service aims to deliver. This method provides a good way of visualisation of the most critical success factors and a good option to assess a service proposal. Because all components come on a single layout, it is possible iterate over a concept and compare the results.

The value proposition of the *Fellows* service are: raise healthy lifestyle awareness and health control through the constant feedback that the service is sending to the users. Data connectivity permits other application services data to come directly into this service, factor that will influence the feedback accuracy. And an entertaining game on Facebook platform.

All these values are addressed for overweight and prediabetes people.

The audience will reach the service through mobile application and internet browsers channels.

The customer relationships are built with the users through automation, self-service (this will reduce the expenses considerably) and doctors personal assistance if the user will request it within the service.

Most of the revenue is expected to come from the game. Making the game addictive may influence users to buy extra features for their avatar. A secondary income channel could be built by selling the aggregated data or building partnerships based on it.

The key resources of the service are "Humans" to develop the game, to validate data, to unfold medical perspectives. "Intellectual" resource for building algorithms that will analyze user data. Hardware is the service platform.

Key activities represents: develop the game and mobile application; provide feedback of health indicators; application and game design, communication design for the generated data; data analysis and validation; find providers to partner the Fellows service with other relevant services.

Service Key partners are the stakeholders that influence direct the service development: Facebook platform; Cloud provider, Dieticians, doctors, engineers, Wearable and other services (mobile application) providers.

The associated costs for the managing the Fellows service are for: service development, promotion and maintenance.

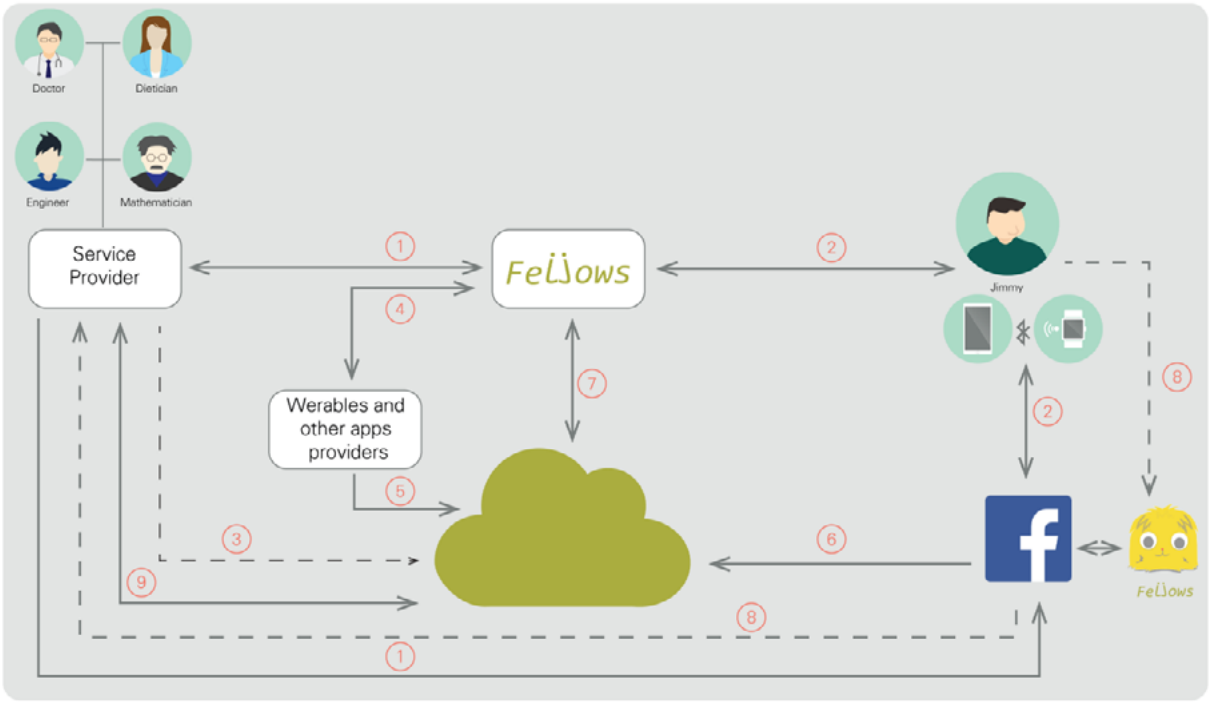
Key partners	Key activities	Value proposition	Customer relationships	Customer segments
Facebook Cloud provider Dieticians, doctors, engineers, mathematician Wearables and other apps partners	Develop the game and mobile app Provide feedback about health indicators App and game design, communication design Data analysis and validation Co-opt service partners	Health awareness Motivation to improve lifestyle Lifestyle traking Entertainment Easy data input Interconnectivity with other services and tools	Automation Self-service Personal assistance	Prediabetes people Overweight people
	Key resources Human: app and website development, data validation, medical perspective Intellectual: data analysis techniques and algorithms Hardware: service system platform		**Channels** The game: Facebook social network: mobile app & website The app: mobile app & service website	

Cost structure	Revenue streams
Service development: mbile app, Facebook app Service promotion: branding, commercials, etc. Service maintenance: cloud provider, salaries, fixed costs, leagal costs (patent, litigation, etc.)	In-app purchases Sell aggregated data

System map

For *Fellows* service a system map has been built. The intention was to depict in a visual way the technical parts of the service, actors links, and show how they co-create the value in the system through service information and money flow.

The service it is launched by the Service provider's team (1) which delivers the *Fellows* game for Facebook platform and the service as mobile application. The user - Jimmy (2) will introduce his data into the app and game and will receive systems feedback. Jimmy also can connect only through *Fellows* service the wearables and other mobile applications (4). In case of mobile application, Jimmy's data goes directly to the cloud (7), so as the other apps data (5). In case of Facebook game, the service provider's should periodically import Jimmy's data from the platform (6) and attach it to Jimmy's account. The data in the cloud it is processed, analyzed and validated by the service provider team (9) (the doctor, dietician, mathematician and engineer). After that the data travels back to Jimmy's account (2) as health advices, detected risks, notifications and warnings.



1. The service provider's team develops the app and the game and uploads on Facebook platform
2. Fellows service is reached by Jimmy through mobile app & Facebook. Jimmy inputs data on both products.
3. Service provider pays for receving a cloud service
4. Pairing between Fellows and other services
5. Other services send data in Fellows cloud
6. Cloud imports data from the game from Facebook platform
7. Cloud and "Fellows" data exchange
8. Jimmy pays for additional game features and Facebook transfers money to service developer
9. Data supervision and validation

Data flow

Money flow

implementation

"The best is yet to come"

The holistic view

Spending time within the service environment is often the only way to develop a truly holistic view of how the service is operating, as it provides an intimate understanding of the real-time interactions that take place between the various groups and touchpoints involved.

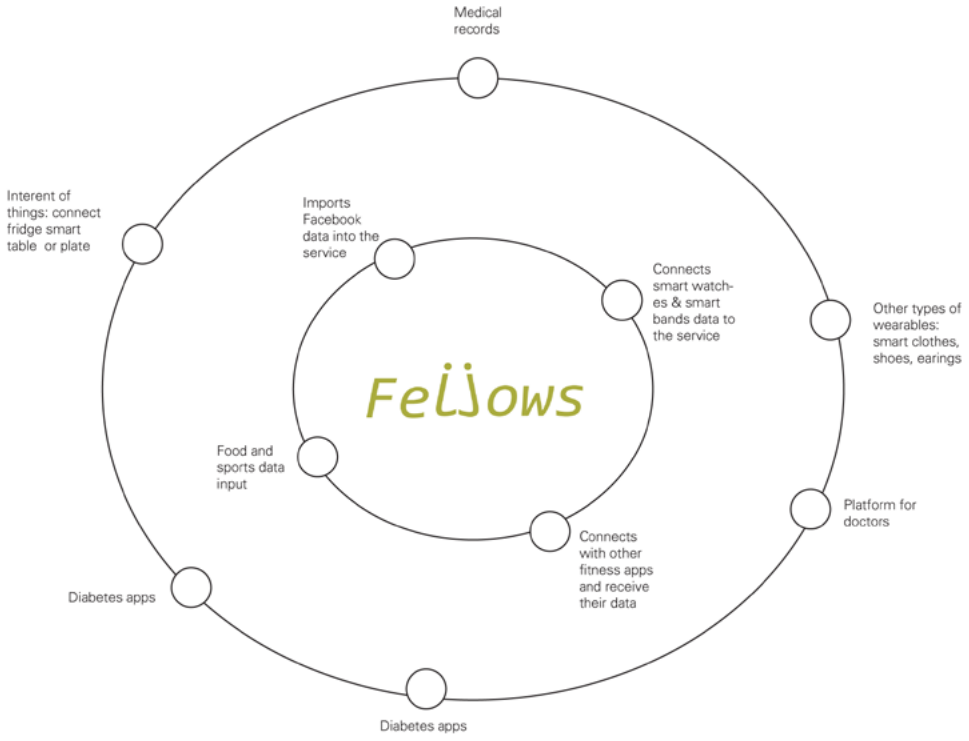
The *Fellows* service, promotes the service exchange services among the stakeholders, allowing each actor to create their own value in the system. This concept of service exchange in the background of a service, in software design it is known as service-oriented architecture. A service-oriented architecture represents an architectural pattern in which application components provide services to other components via a communications protocol, typically over a network. (Wikipedia)

In the following graph, the vision of service exchange service it is taken to a higher level by presenting the holistic view over the current service landscape and how to integrate even more services into *Fellows* service.

The chart consists of two circles: the inner and outer circle. The inner circle represents the existing service features, which were discusses earlier in the project.

The outer circle illustrates the long term perspective and will promote a larger service integration of different data in the system, such as users medical records, internet of things data, blood glucose data. This will allow the service to provide accurate forecasts and cover larger groups of diseases. At that moment the service concept will expand into a big "virtual doctor" system, that generates advices to help users in order to prevent illnesses in general, not only diabetes.

This is a new and wider shift that the service will embrace. And with this change, the role of the users remains as the "content creator" of the platform.



Service solution and value constellation

Early in this project there was defined a set of values for the service - the value constellation. That value constellation was supposed to come across the entire journey of developing the service and be retrieved in the service's final solution. The value constellation, as most important attribute of the business model, must achieve two important goals. It must create value throughout the constellation and it must allow each actor of the constellation to capture a sufficient portion of the overall value to justify its participation. (Normann, Ramirez)

The service provides the platform and a wide range of tools, allowing other services providers to deliver added value through it. They shifting from service providers as a separate entity in *Fellows* service suppliers, which in return will give them a higher popularity of their devices. This is what Ramirez called the reconfiguration of roles and relationships among the constellation actors from the system. The same phenomenon is happening with the users. Within this service they are not only consumers, they are also content providers: through data input, through connecting this service to other services available in the *Fellows* application. This way, the *Fellows* service, mobilises the service actors to create their own value from the available offerings. This paradigm is similar to the popular Youtube service: creates a content platform and it is up to the users to populate the way they want. And the service remains an intermediary tool that mediates the parts in the system.

Yet, the initial values: Awareness, Motivation, Commitment are accomplished thanks to the user data and suppliers contribution.

Travel beyond the established audience

The *Fellows* service was initially proposed for people with prediabetes and overweight. Revising the service outcome and principle, other social groups were identified that could also benefit out of this service.

Because of the gamification side, a significant target group are the younger generations. The game will represent a good tool to learn about lifestyle and build a healthy one. Certainly, the service feedback and diagnoses should be designed according to the age range, simple and educative. Moreover, the teenage generation could become potential long-term users of the service.

Another target group could be people that are very focused on their diets and healthy lifestyle. Having the interpreted results and forecasts could be an extremely valuable reward for them.

Another group could also be the people with other chronic diseases, which condition could be improved by adopting and committing to a healthy lifestyle. An example of this category are people with high blood pressure. The feedback, and recommendations could influence their well-being as well.

Social aspect

Diabetes is a social disease. It needs social context to make a truly big impact in patient's life. So far, a lot of companies are focusing their resources in providing service proposals to meet the social requirements.

This solution is a bit different, it slides out from the social context through the service (mobile application) and goes in through the game. But even through the game, the social life aspect is far from the existing services. This happens because within the game, players can play some reduced scenarios with other people, but it is not necessary for both parties to be in a prediabetes conditions or to be overweight. The social context in the game is leaning towards fun, competition and addictiveness.

A reason why the service acts only at individual level is because the information provided in the system is too private. It is about personal data that belongs to user and there is no reason to share it publicly with somebody else.

However a social part could be implemented through a following system, same as Dextcom SHARE a diabetes mobile application does (Dexcom, 2016). In their scenario a person with type 1 diabetes can allow up to 5 people to follow his/her data and receive urgent notifications, view their current blood glucose values. In Fellows service, an interesting proposal could be for the parents to follow their children and check their daily nutrition values and other data.

conclusion

"Believe none of what you hear, half of what you read and all of it what you see"

Synopsis

This report illustrates a service design project named *Fellows* and describes the design process for developing it.

The scope of the project is enclosed within healthcare system with a direct focus over diabetes chronic disease. The goal of the project was to design a sustainable service solution which would engage the target group in maintaining a healthy lifestyle. The selected target group represents prediabetes and overweight people.

The journey that the author lived while developing the project, offered valuable knowledge: understanding the theoretical and methodological aspects; the collision of design fields in one project, the knowledge, reflections and limits that resulted after applying some design tools; the human interaction embedded with powerful technologies of the present time. All these levels of interaction influenced and guided towards accomplishing its goal.

In the following chapter, the mentioned journey "stops" will be discussed in detailed. Starting with the fact that the project didn't focus on improving the quality of an existing service. Instead, it is inventing a new one, by applying the innovation perspective, guided by the "human-centred design" and "service design" methods. The process began by understanding the needs and the requirements of the users, rather than putting the insights at a later point on the table and just aiming to find opportunities for design.

Theoretical and methodological aspects

The project development was guided mainly by IDEO's Human-centred design methodology. The methodology consists of three phases: Inspiration, Ideation and Implementation. The process is designed to steer the researchers towards learning directly from the people, embrace creative opportunities and enhance a viable and desirable solution for the project's audience. Alongside with human-centred design approach, other tools outside the IDEO's field guide were adopted successfully too.

The design of this service wasn't following the human-centric approach in its entirety. The main reason for this being the sheer amount of effort required and the limited amount of resources that the designer's disposal.

Applying the Human-centred design techniques for this project was quite challenging. The time required to fully follow all the steps exceeds the time available for a single designer (student). In my opinion, for a school project, the Double Diamond methodology would be more handy to use. First of all, it has a simpler structure, which makes it easier to identify the border of each phase: Discover, Define, Develop, Deliver, without always checking the Field Guide. It also offers more freedom to choose the tools the designers find handy, and by this way, avoiding the feeling of going on a wrong path and not meet the methodology testimonials.

Another issue discovered in the "human-centred design" approach is how to define the boundaries of methodology? How much usage of the recommended tools and how much effort would be considered enough in order to claim the design is founded on "human-centred" approach? In human-centred design, the designer also spends a lot of time trying to identify the particular needs for a target group, persuading them to participate in the project. But this way the usability for other potential users it is ignored.

Service design and the project

Service design discipline is complex and primarily interlaced with other fields, which gives a certain level of flexibility in terms of tools and methods to use, but at the same time, is multilateral which makes it harder to control sometimes. It is adoptive to environment and orchestrated in terms of project unfolding and progression.

Thinking about what are the difficulties in service design discipline, at least for *Fellows* service case, was to see the big picture of the service - holistically not only from the point of view of the service blueprint, but of a service solution in general, seeing how this solution could be used in a wider context, bringing a higher value to the existing users and paving the way for new actors in the system.

Another important step in the project was to correctly identify the actors network. It is of paramount importance to outline them in the service, separate them as entities, find what their role is and what motivates them to participate in the service. Only after this it would be possible to deliver a good service experience not only for the final users, but for the entire network of actors.

A sensitive point encountered in *Fellows* project was the interactions between the humans and the technology. Things around us are becoming digital at a very fast pace: complex systems, large data flow, sometimes it is easy to neglect and forget what stands beyond all this: humans. The technology, as powerful as it may be, can't stand without human interaction its value is vanished otherwise.

To give a more tangible example, in *Fellows* project there is the cloud computing system that receives data from users, stores it, analyses it and sends it back to users as reports and diagnoses. But, this process is not pure machine-thinking. There are people working with this data in the cloud: dieticians, doctors, engineers, mathematicians who validate the data, compute reports, build statistics, identify patterns and ultimately make the machines more powerful.

Service design, user interface design and user experience design are some of the other points of reflection. The society is now embraced by the digital surroundings, where digital service touchpoints conquer everyday a new market. What is the service designer's role here and how much knowledge does he/she need to know about user interface design? That interface is the main point of interaction the customer and the service, thus, how do we manage to provide a good experience?

An interesting paradox, worth to mention, is that while the design tends to move from the old paradigm: "one size fits all" toward customized services, yet when it comes to service design, design fields are colliding in one project. The main reasons for this is to build better deliverables, but could also be that service design is an emerging and complex field of science and, in order to achieve that high quality of experience. *Fellows* service, embedded ethnographic studies, human-centred design methodology, Venn diagram, user interface, user experience design, all in one and the result was as expected.

The overall learnings

The 2 years master program of Service Systems Design, brought one of the most challenging experiences for me. I believe that doesn't really matter what background one comes from, this program will prove both challenging and very valuable. At the same time, it is also very versatile and can easily leverage and integrate the experience from virtually any field be it technological, medicine, management or art. Same can be said about the domain of problems it can be applied to.

Another important insight about Service System Design discipline is that it allows the designers to apply simultaneously creativity, technical knowledge, management and marketing skills, graphic design, sociology techniques. It is a big baggage, but this is what drives the creation of meaningful services and what motivates us, the service designers, to be up to date and competent.

bibliography

Books

Burant, Charles. 2004. *Medical Management of Type 2 Diabetes*. Virginia, USA: Port City Press.

Viana, Alder, Lucena, Russo. 2012. *Design Thinking*. Rio de Janeiro, Brazil: Av. Marechal Câmara

IDEO. 2015. *The field guide to human-centered design*. Canada

Chip Heath, Dan Heath. 2007. *Switch how to change things when change is hard*. Broadway Books, New York.

Online Articles

Bonu, Yotsna. 2015. *Type 2 Diabetes Mellitus Causes, Symptoms, Tests, Treatment. Lloyd Healthcare Pvt. Ltd*. http://www.lloydhealthcare.org/type-2-diabetes-mellitus-causes-symptoms-tests-treatment/ (accessed at: 04.02.2016)

Greg Johnson, Jane E Martin and Amy Timoshanko. 2015. *Preventing type 2 diabetes: scaling up to create a prevention system*. MJA. https://www.mja.com.au/journal/2015/202/1/preventing-type-2-diabetes-scaling-create-prevention-system (accessed at: 05.02.2016)

Adam G. Tabák, Christian Herder, Wolfgang Rathmann, Eric J. Brunner, Mika Kivimäki. 2012. *Prediabetes: A high-risk state for developing diabetes. US National Library of medicine.* http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3891203/ (accessed at: 15.03.2016)

Richard Normann, Rafael Ramirez, 1993. *From value chain to value constellation: Designing interactive Strategy*. Harvard Business Review. http://www1.ximb.ac.in/users/fac/dpdash/dpdash.nsf/pages/BP_Constellation (accessed at: 8.04.2016)

Karine Freire, Daniela Sangiorgi. 2010. *Service Design & Healthcare Innovation: from consumption to co-production and co-creation*. Universidade do Vale do Rio dos Sinos. http://www.academia.edu/628119/SERVICE_DESIGN_and_HEALTHCARE_INNOVATION_from_consumption_to_coproduction_and_co-creation (accessed at: 8.04.2016)

P. Valensi , P. Schwarz , M. Hall , AM Felton , A. Maldonato , C Mathieu. 2005. *Pre-diabetes essential action: a European perspective.* Diabetes & Metabolism Vol 31, pp. 606-620 http://www.em-consulte.com/en/article/80434 (accessed at: 8.04.2016)

Katja Battarbee, Jane F. Suri, Suzanne G. Howard. 2014. *Empathy on the edge*. IDEO https://www.ideo.com/images/uploads/news/pdfs/Empathy_on_the_Edge.pdf (accessed at: 8.04.2016)

Nicola Morelli. (2002). Designing product/service systems. A methodological exploration. Design Issues, 18(3), 3-17

Lene Nielsen. *Personas*. Interaction Design Foundation. https://www.interaction-design.org/printerfriendly/encyclopedia/personas.html (accessed at: 18.05.2016)

Demetrius Madrigal, Bryan McClain.2011. *Subject-Matter Experts: Putting Users at the Center of the Design Process.* http://www.uxmatters.com/mt/archives/2011/02/subject-matter-experts-putting-users-at-the-center-of-the-design-process.php#sthash.BB1eXI8j.dpuf (accessed at: 16.04.2016)

Organization website

Health Care About. *A winning plan to lower risk for diabetes*. http://www.healthcareabout.com/type-2-diabetes-symtoms-treatment/ (accessed at: 04.02.2016)

The Anatomical Travelogue. *Type 2 diabetes*. http://www.thevisualmd.com/advameddx/ (accessed at: 04.02.2016)
Service Design Tools. *Motivation Matrix*. http://www.servicedesigntools.org/tools/20 (accessed at: 020.05.2016)

Wikipedia. *Diabetes mellitus type 2.* https://en.wikipedia.org/wiki/Diabetes_mellitus_type_2 (accessed at: 04.05.2016)
Wikipedia. *MyFitnessPal*. https://en.wikipedia.org/wiki/MyFitnessPal (accessed at: 04.05.2016)
Wikipedia. *Pou*. https://en.wikipedia.org/wiki/Pou_(video_game) (accessed at: 04.05.2016)

Wikipedia. *Service-Oriented architecture*. https://en.wikipedia.org/wiki/Service-oriented_architecture (accessed at: 22.05.2016)

I-scoop. *Customer experience and beyond: customer journey mapping*. http://www.i-scoop.eu/customer-experience/customer-experience-beyond-customer-journey-mapping/ (accessed at: 20.05.2016)

Michigan State University. *Dining with Diabetes*. http://msue.anr.msu.edu/program/info/dining_with_diabetes (accessed at: 04.05.2016)

Jamie's Ministry of Food. *What is Jamie's Ministry of Food*. http://www.jamieoliver.com/jamies-ministry-of-food/about.php (accessed at: 04.05.2016)

SA Health. *Preventative health and wellbeing*. http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/protecting+public+health/preventative+health+and+wellbeing (accessed at: 04.05.2016)

Participle. *Health > Wellogram*. http://www.participle.net/health (accessed at: 04.05.2016)

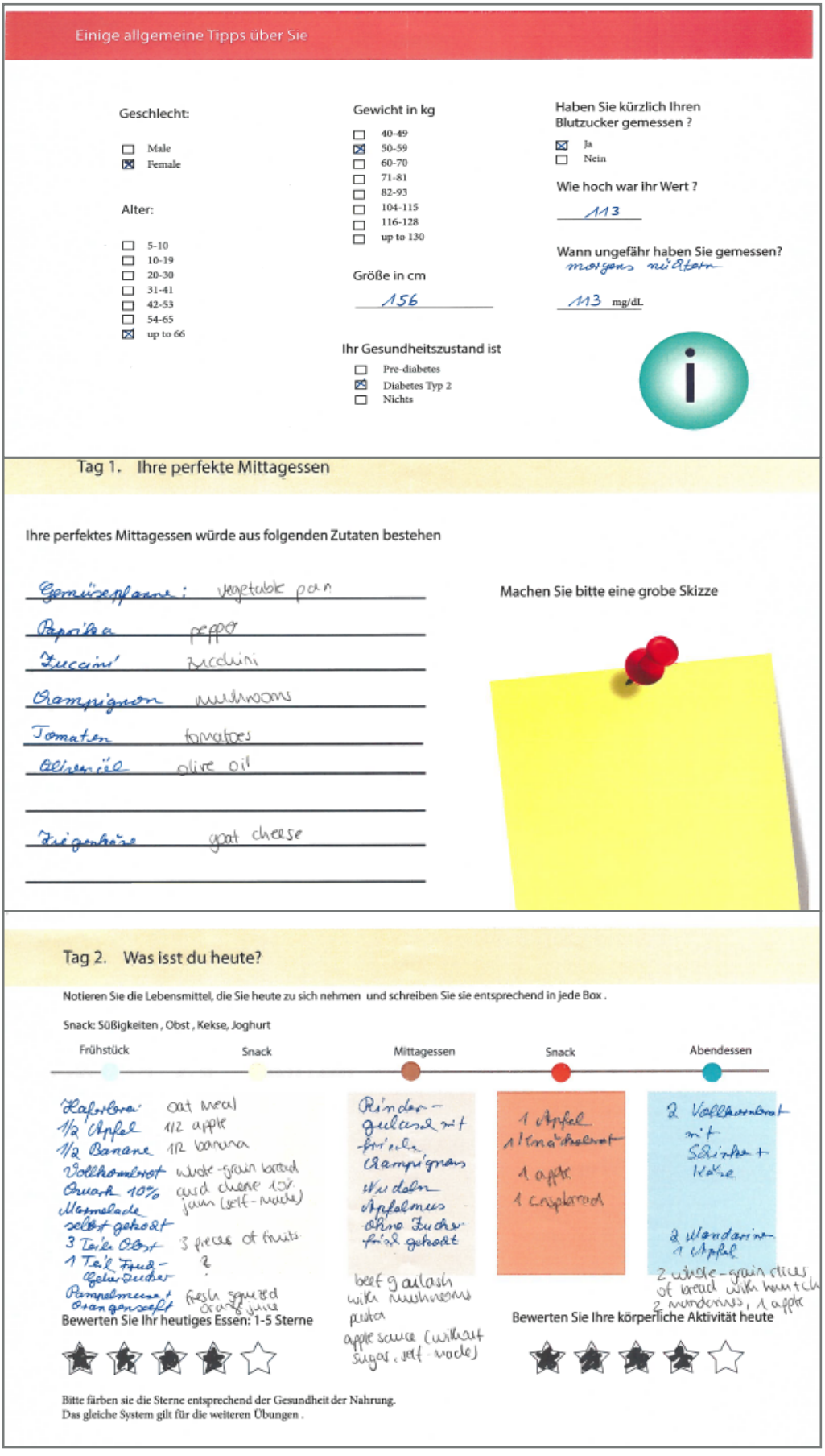
Dexcom. *Dexcom Share app*. http://www.dexcom.com/ (accessed at: 18.05.2016)

Reality mine. 2015. *Myth busting: Mobile Gaming demographics*. http://www.realitymine.com/myth-busting-mobile-gaming-demographics/ (accessed at: 18.05.2016)

appendix

Appendix 1

Cultural probes answers. User 1



Einige allgemeine Tipps über Sie

Geschlecht:

- ☐ Male
- ☒ Female

Alter:

- ☐ 5-10
- ☐ 10-19
- ☐ 20-30
- ☐ 31-41
- ☐ 42-53
- ☐ 54-65
- ☒ up to 66

Gewicht in kg

- ☐ 40-49
- ☒ 50-59
- ☐ 60-70
- ☐ 71-81
- ☐ 82-93
- ☐ 104-115
- ☐ 116-128
- ☐ up to 130

Größe in cm

156

Ihr Gesundheitszustand ist

- ☐ Pre-diabetes
- ☒ Diabetes Typ 2
- ☐ Nichts

Haben Sie kürzlich Ihren Blutzucker gemessen ?

- ☒ Ja
- ☐ Nein

Wie hoch war ihr Wert ?

113

Wann ungefähr haben Sie gemessen?

morgens nüchtern

113 mg/dL

Tag 1. Ihre perfekte Mittagessen

Ihre perfektes Mittagessen würde aus folgenden Zutaten bestehen

Gemüsepfanne: vegetable pan
Paprika pepper
Zucchini zucchini
Champignon mushrooms
Tomaten tomatoes
Olivenöl olive oil
Ziegenkäse goat cheese

Machen Sie bitte eine grobe Skizze

Tag 2. Was isst du heute?

Notieren Sie die Lebensmittel, die Sie heute zu sich nehmen und schreiben Sie sie entsprechend in jede Box .

Snack: Süßigkeiten , Obst , Kekse, Joghurt

Frühstück | Snack | Mittagessen | Snack | Abendessen

Haferflocken oat meal
1/2 Apfel 1/2 apple
1/2 Banane 1/2 banana
Vollkornbrot whole-grain bread
Quark 10% and cheese 10%
Marmelade selbst gekocht jam (self-made)
3 Teile Obst 3 pieces of fruits
1 Teil Fruchtgelierzucker ?
Pampelmuse / Orangensaft fresh squeezed orange juice

Rinder-Gulasch mit frischen Champignons Wildobst Apfelmus ohne Zucker selbst gekocht
beef goulash with mushrooms pasta apple sauce (without sugar, self-made)

1 Apfel
1 Vollkornbrot
1 apple
1 crispbread

2 Vollkornbrot mit Schinken + Käse
2 Mandarinen 1 Apfel
2 whole-grain slices of bread with ham + cheese
2 mandarins, 1 apple

Bewerten Sie Ihr heutiges Essen: 1-5 Sterne

Bewerten Sie Ihre körperliche Aktivität heute

Bitte färben sie die Sterne entsprechend der Gesundheit der Nahrung.
Das gleiche System gilt für die weiteren Übungen .

Tag 3. Die Botschaft ist...

Bitte kommentieren Sie die Bilder. Welche Botschaften schicken Sie?

Kommentar:

Blutzucker zu hoch!

blood sugar too high

Kommentar:

Bewegung wichtig

work out is important

Kommentar:

Normalgewicht sehr gut

normal weight is very good

Kommentar:

Obst ist für die Gesundheit sehr gut!

Kuchen u. Gebäck schadet!

fruits are very good for your health

cake and cookies/pastries are bad

Tag 4. Was denken Sie über...

Bitte markieren Sie den Kreis, der am besten zu Ihren Gewohnheiten passt

	Lieben	Mögen	Neutral	Kein großer Fan	Nicht mögen
Soda Getränke	○	○	○	○	X
Wasser, Tee	X	○	○	○	○
Süßigkeiten	○	○	○	○	X
Früchte	X	○	○	○	○
Pasta, Kartoffel, Würstchen, Kuchen	○	○	○	X	○
Ernährung, Kontrolle	○	○	X	○	○
Auto fahren	○	○	X	○	○
Spazieren gehen	X	○	○	○	○
Fernsehen, am Computer arbeiten	○	○	X	○	○
Einzelkämpfer	○	○	○	X	○
Aktivitäten	○	X	○	○	○
Selbsthilfegruppe	○	○	○	○	X

Tag 5. Reflektion

Bitte reflektieren Sie und bitte beantworten Sie die Fragen.

Was tun Sie um Ihren Gesundheitszustand zu verbessern?

Viel Bewegung

Essen kontrollieren

a lot of work out

control eating/diet

Was würde Sie motivieren, eine strenge Diät einzuhalten?

Hohe Zuckerwerte

~~ver~~ high blood sugar

Cultural probes answers. User 2

Einige allgemeine Tipps über Sie

Geschlecht:

- [x] Male
- [ ] Female

Alter:

- [ ] 5-10
- [ ] 10-19
- [ ] 20-30
- [ ] 31-41
- [ ] 42-53
- [x] 54-65
- [ ] up to 66

Gewicht in kg

- [ ] 40-49
- [ ] 50-59
- [ ] 60-70
- [ ] 71-81
- [ ] 82-93
- [ ] 104-115
- [x] 116-128
- [ ] up to 130

Größe in cm

170

Ihr Gesundheitszustand ist

- [ ] Pre-diabetes
- [x] Diabetes Typ 2
- [ ] Nichts

Haben Sie kürzlich Ihren Blutzucker gemessen ?

- [x] Ja
- [ ] Nein

Wie hoch war ihr Wert ?

173 mg/dL

Wann ungefähr haben Sie gemessen?

9:30 ~~pm~~ am

Tag 1. Ihre perfekte Mittagessen

Ihre perfektes Mittagessen würde aus folgenden Zutaten bestehen

Steak
Bratkartoffeln fried potatoes
Salat salad

Machen Sie bitte eine grobe Skizze

Tag 2. Was isst du heute?

Notieren Sie die Lebensmittel, die Sie heute zu sich nehmen und schreiben Sie sie entsprechend in jede Box .

Snack: Süßigkeiten , Obst , Kekse, Joghurt

Frühstück	Snack	Mittagessen	Snack	Abendessen
Vollkornbrötchen mit Käse + 1 Apfel whole-grain bread with cheese + 1 apple	/	Hähnchen mit Bratkartoffel + Salat chicken with fried potatoes + salad	/	Salat Pommes mit Cordon bleu salad with fries and cordon bleu

Bewerten Sie Ihr heutiges Essen: 1-5 Sterne

★★☆☆☆

Bewerten Sie Ihre körperliche Aktivität heute

★☆☆☆☆

Bitte färben sie die Sterne entsprechend der Gesundheit der Nahrung.
Das gleiche System gilt für die weiteren Übungen .

Tag 3. Die Botschaft ist...

Bitte kommentieren Sie die Bilder. Welche Botschaften schicken Sie?

Kommentar:
Gefahr
danger

Kommentar:
- Fit im Ruhestand
- positiv

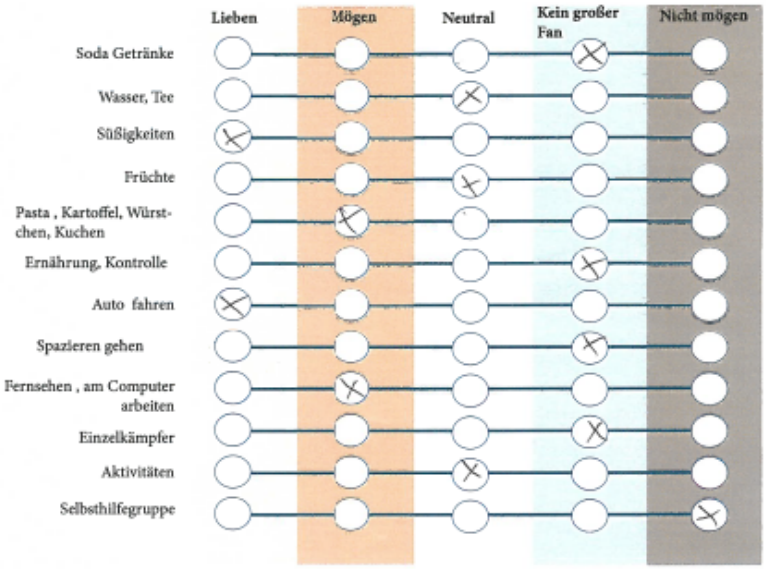
fit after retiring
positive

Kommentar:
Weniger Essen ist besser
eating less is better

Kommentar:
Krankheit links
Gesundheit rechts
disease/illness left
healthy right

Tag 4. Was denken Sie über...

Bitte markieren Sie den Kreis , der am besten zu Ihren Gewohnheiten passt



Tag 5. Reflektion

Bitte reflektieren Sie und bitte beantworten Sie die Fragen.

Was tun Sie um Ihren Gesundheitszustand zu verbessern?

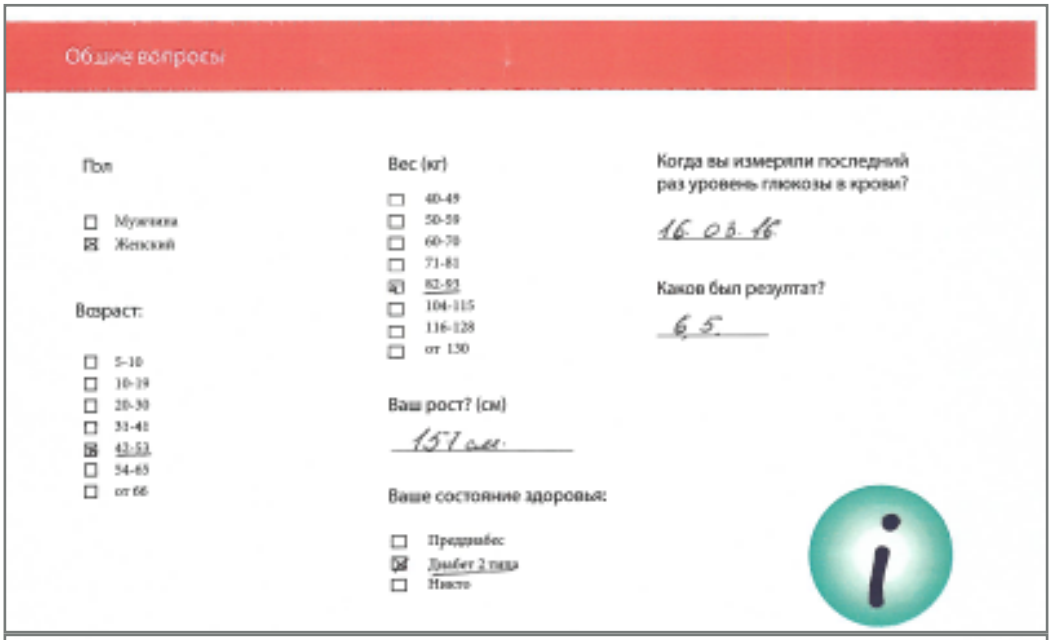
- Gesund Essen (soweit wie möglich) eating healthy (as far as possible)
- viel Fahrrad fahren a lot of cycling
- manchmal in den 5ten Stock in der Firma laufen sometimes take the stairs to fifth floor at Roche

Was würde Sie motivieren, eine strenge Diät einzuhalten?

- schlechte Zuckerwerte
- tolles Essen ohne Zucker
- mehr Urlaub

- bad blood-sugar
- good food without sugar
- more holiday

Cultural probes answers. User 3



Общие вопросы

Пол

- ☐ Мужчина
- ☒ Женский

Возраст:

- ☐ 5-10
- ☐ 10-19
- ☐ 20-30
- ☐ 31-41
- ☒ 42-53
- ☐ 54-65
- ☐ от 66

Вес (кг)

- ☐ 40-49
- ☐ 50-59
- ☐ 60-70
- ☐ 71-81
- ☒ 82-93
- ☐ 104-115
- ☐ 116-128
- ☐ от 130

Ваш рост? (см)

151 см.

Ваше состояние здоровья:

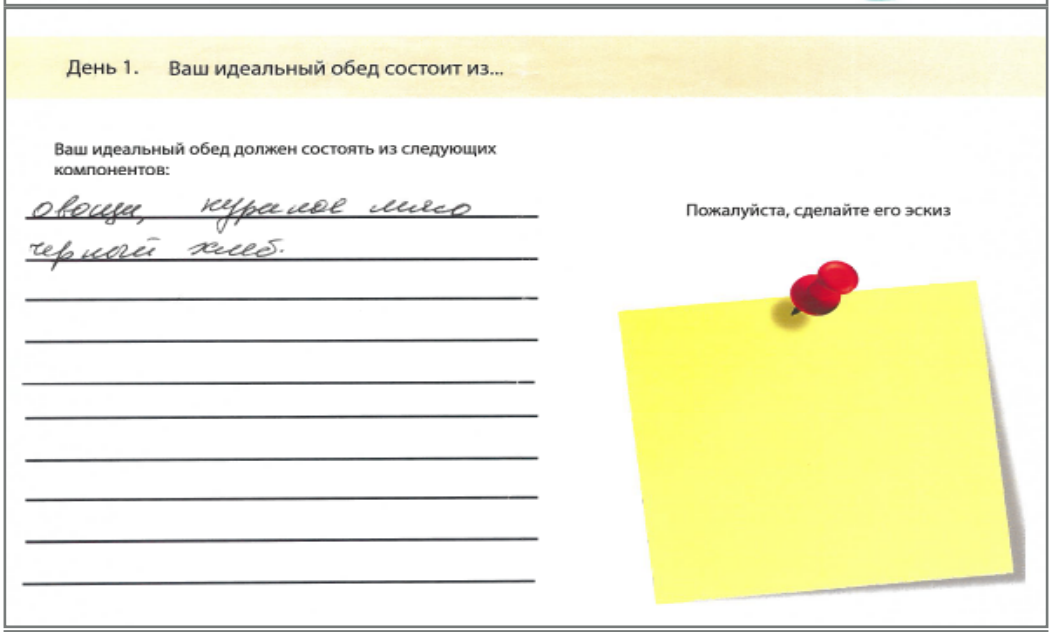
- ☐ Предиабет
- ☒ Диабет 2 типа
- ☐ Никто

Когда вы измеряли последний раз уровень глюкозы в крови?

16.05.16

Каков был результат?

6.5

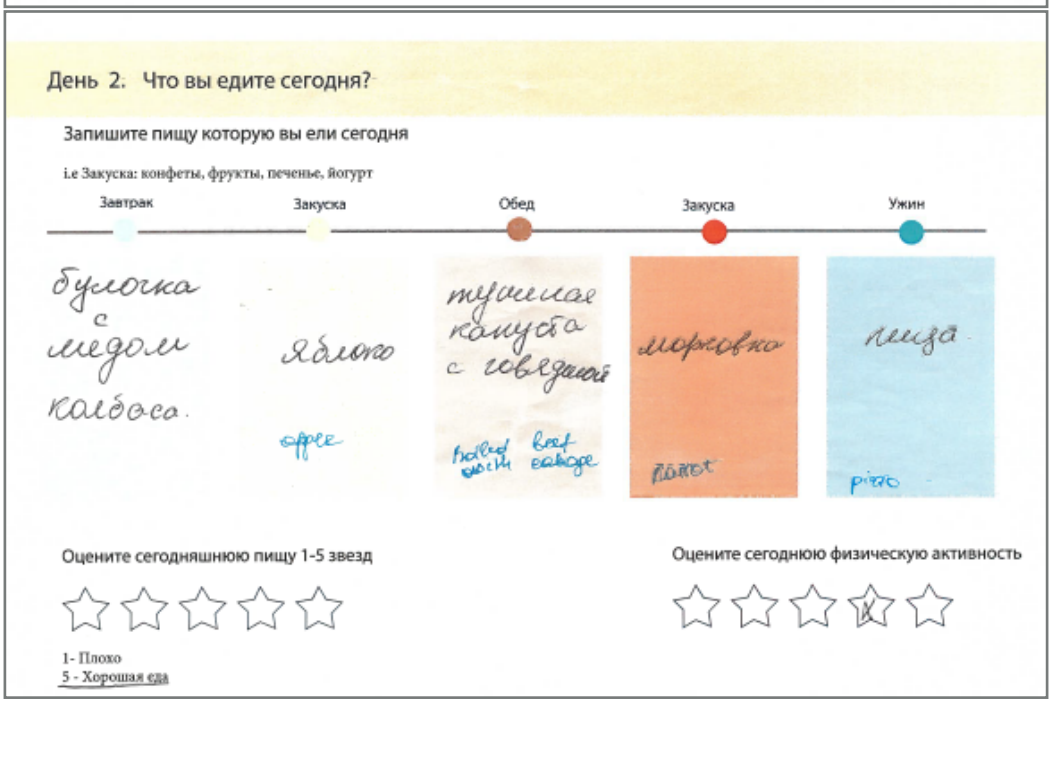


День 1. Ваш идеальный обед состоит из...

Ваш идеальный обед должен состоять из следующих компонентов:

овощи, куриное мясо
черный хлеб.

Пожалуйста, сделайте его эскиз



День 2. Что вы едите сегодня?

Запишите пищу которую вы ели сегодня

i.e Закуска: конфеты, фрукты, печенье, йогурт

Завтрак | Закуска | Обед | Закуска | Ужин

булочка с медом колбаса.

яблоко

coffee

тушеная капуста с говядиной

boiled cabbage with beef

морковка

carrot

пицца

pizza

Оцените сегодняшнюю пищу 1-5 звезд

☆ ☆ ☆ ☆ ☆

1- Плохо
5 - Хорошая еда

Оцените сегоднюю физическую активность

☆ ☆ ☆ ☆ ☆

День 3. Восприятие...

Как воспринимаете эти изображений?

Комментарий:

Комментарий:
хорошо

Комментарий:

Комментарий:

День 4. Как вы относитесь к ...

Пожалуйста выделите круг, который подходит лучше для ваших привычек

	Обожаю	Нравится	Нейтральный	Не очень нравится	Не нравится
Сладкая вода, сок		X			
Несладкий чай/ вода				X	
Сладости			X		
Фрукты		X			
Картофель, макароны, хлеб, колбаса		X		X	
Диета, контроль				X	
Предпочитаю транспорт общего пользования					
Предпочитаю ходить			X		
Предпочитаю смотреть телевизор в свободное время	X				
Обычно я активен		X			
Я предпочитаю, узнать о здоровом образе жизни вместе с другими людьми которые имеют те же проблемы со здоровьем, как и я		X			

День 5. Размышление

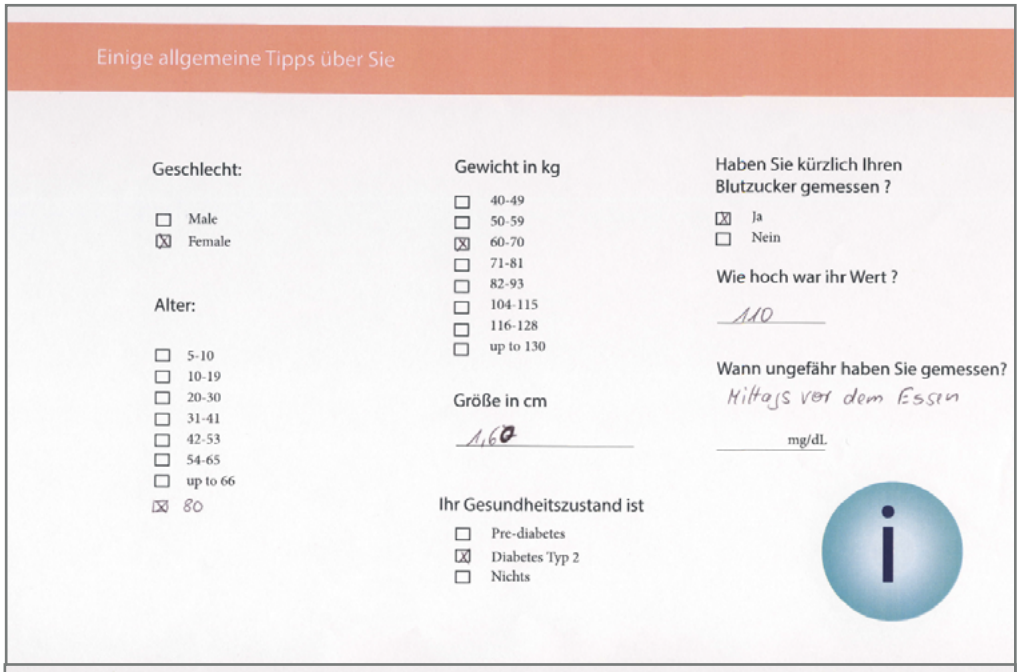
Пожалуйста, поразмсылите на поставленные вопросы и напишыте свои мысли.

Что вы делаете чтобы улучшить ваше состояние здоровья?

Что вас затрудняет держать строгую диету?

С какими трудностями вы встречаетесь когда вы держите диету?

Cultural probes answers. User 4



Einige allgemeine Tipps über Sie

Geschlecht:

- ☐ Male
- ☒ Female

Alter:

- ☐ 5-10
- ☐ 10-19
- ☐ 20-30
- ☐ 31-41
- ☐ 42-53
- ☐ 54-65
- ☐ up to 66
- ☒ 80

Gewicht in kg

- ☐ 40-49
- ☐ 50-59
- ☒ 60-70
- ☐ 71-81
- ☐ 82-93
- ☐ 104-115
- ☐ 116-128
- ☐ up to 130

Größe in cm

1,60

Ihr Gesundheitszustand ist

- ☐ Pre-diabetes
- ☒ Diabetes Typ 2
- ☐ Nichts

Haben Sie kürzlich Ihren Blutzucker gemessen ?

- ☒ Ja
- ☐ Nein

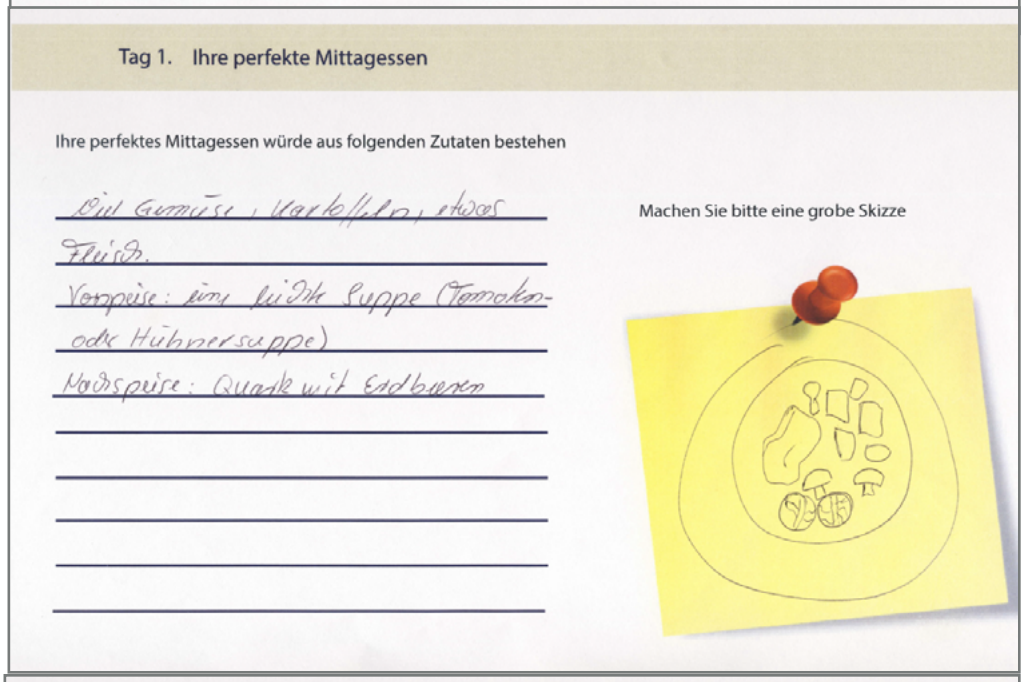
Wie hoch war ihr Wert ?

110

Wann ungefähr haben Sie gemessen?

Mittags vor dem Essen

mg/dL

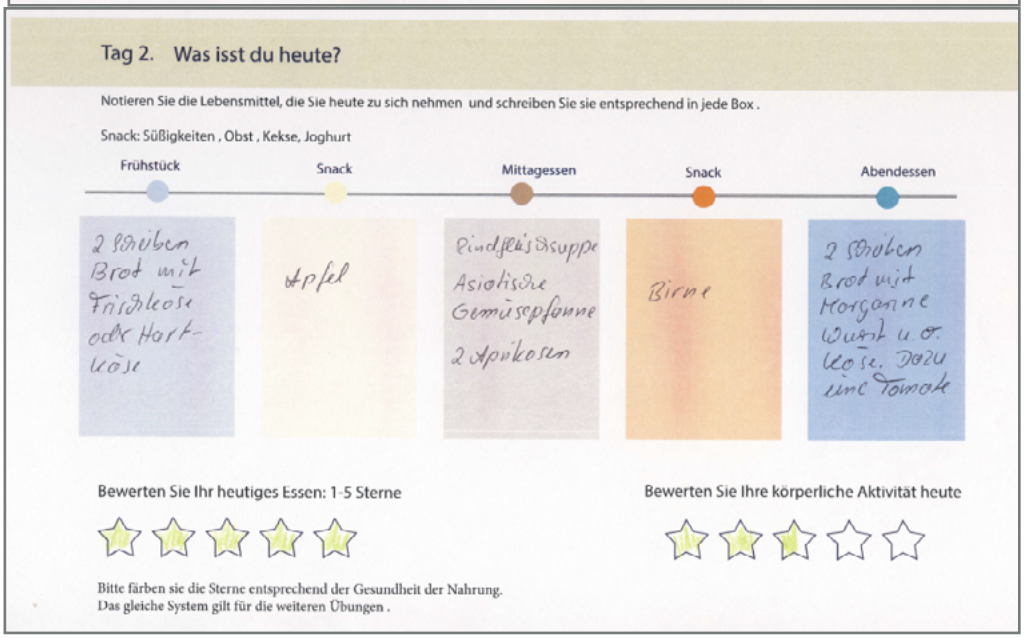


Tag 1. Ihre perfekte Mittagessen

Ihre perfektes Mittagessen würde aus folgenden Zutaten bestehen

Viel Gemüse, Kartoffeln, etwas Fleisch.
Vorspeise: eine leichte Suppe (Tomaten- oder Hühnersuppe)
Nachspeise: Quarck mit Erdbeeren

Machen Sie bitte eine grobe Skizze



Tag 2. Was isst du heute?

Notieren Sie die Lebensmittel, die Sie heute zu sich nehmen und schreiben Sie sie entsprechend in jede Box .

Snack: Süßigkeiten , Obst , Kekse, Joghurt

Frühstück	Snack	Mittagessen	Snack	Abendessen
2 Scheiben Brot mit Frischkäse oder Hartkäse	Apfel	Rindfleischsuppe Asiatische Gemüsepfanne 2 Aprikosen	Birne	2 Scheiben Brot mit Margarine Wurst u. Käse. Dazu eine Tomate

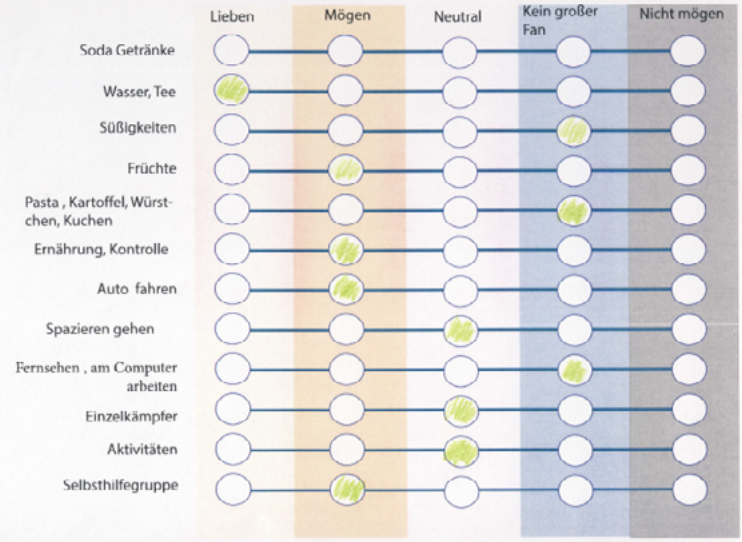
Bewerten Sie Ihr heutiges Essen: 1-5 Sterne

Bewerten Sie Ihre körperliche Aktivität heute

Bitte färben sie die Sterne entsprechend der Gesundheit der Nahrung.
Das gleiche System gilt für die weiteren Übungen .

Tag 4. Was denken Sie über...

Bitte markieren Sie den Kreis , der am besten zu Ihren Gewohnheiten passt



Tag 3. Die Botschaft ist...

Bitte kommentieren Sie die Bilder. Welche Botschaften schicken Sie?

Kommentar:
sollte nicht sein!

Kommentar:
sehr Lebenswert

Kommentar:
links ist schön und gesundes.

Kommentar:
Eva wollte ihm (den Apfel) geben.

Tag 5. Reflektion

Bitte reflektieren Sie und bitte beantworten Sie die Fragen.

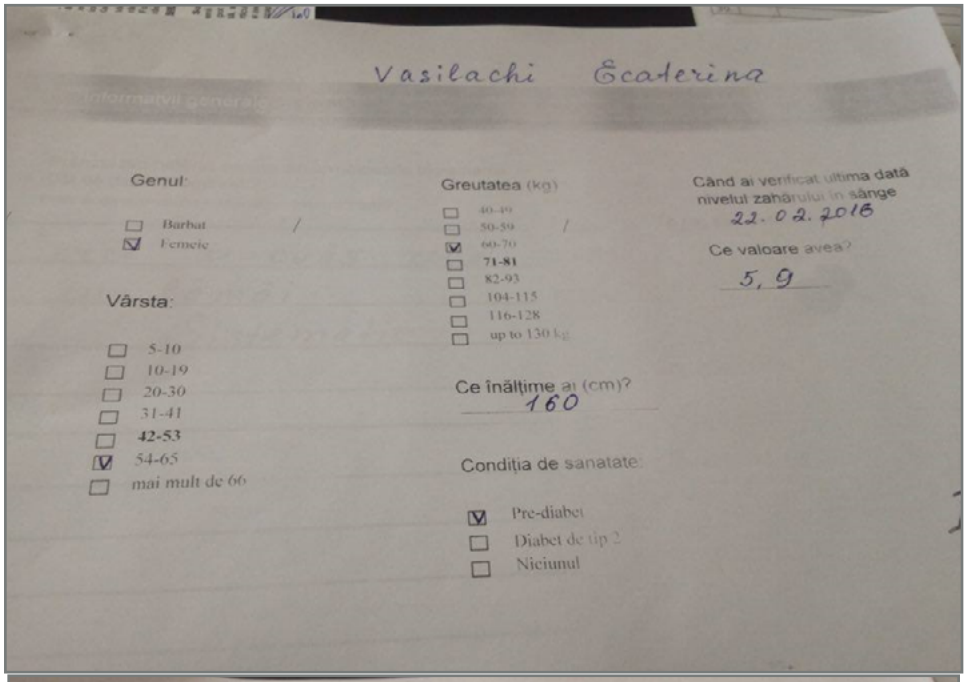
Was tun Sie um Ihren Gesundheitszustand zu verbessern?

- Viel trinken
- Bewegung an der frischen Luft
- kein Kuchen essen
- Tee und Wasser nur ohne Zucker
- Diät mehr machen
- Abwechslungsreiche und gesunde Ernährung
- regelmäßig Arztbesuche
-

Was würde Sie motivieren, eine strenge Diät einzuhalten?

- Alleine schaffe ich das nicht. Ich brauche jemand der mir hilft und sagt was ich machen soll.
- Ein Lob von anderen Menschen wenn meine Blutwerte gut sind und meine Figur gut ist.

Cultural probes answers. User 5



Vasilachi Ecaterina

Genul:

- [ ] Barbat
- [x] Femeie

Vârsta:

- [ ] 5-10
- [ ] 10-19
- [ ] 20-30
- [ ] 31-41
- [ ] 42-53
- [x] 54-65
- [ ] mai mult de 66

Greutatea (kg)

- [ ] 40-49
- [ ] 50-59
- [x] 60-70
- [ ] 71-81
- [ ] 82-93
- [ ] 104-115
- [ ] 116-128
- [ ] up to 130 kg

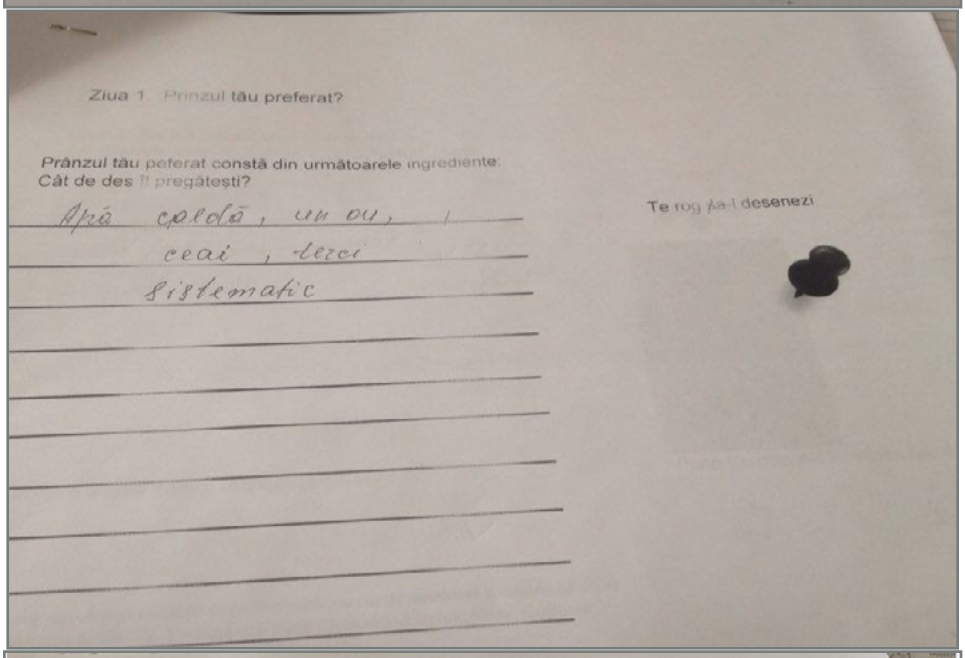
Când ai verificat ultima dată nivelul zahărului în sânge
22.02.2018

Ce valoare avea?
5,9

Ce înălțime ai (cm)?
160

Condiția de sanatate:

- [x] Pre-diabet
- [ ] Diabet de tip 2
- [ ] Niciunul

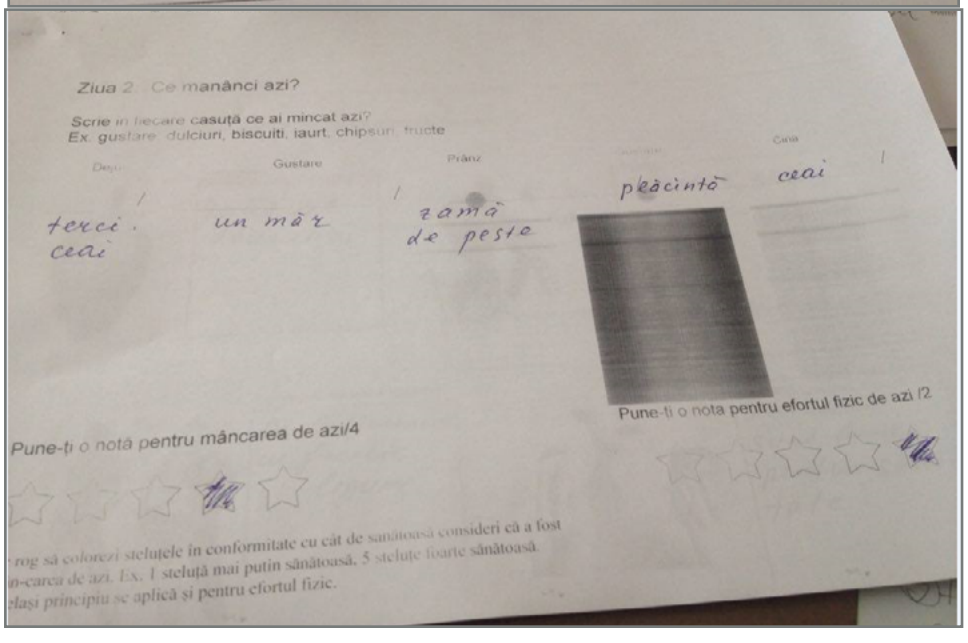


Ziua 1 Prânzul tău preferat?

Prânzul tău preferat constă din următoarele ingrediente:
Cât de des îl pregătești?

Apă caldă, un ou, ceai, terci
Sistematic

Te rog să-l desenezi



Ziua 2 Ce mănânci azi?

Scrie în fiecare casuță ce ai mâncat azi?
Ex: gustare: dulciuri, biscuiți, iaurt, chipsuri, fructe

Dejun	Gustare	Prânz	Cina
terci. ceai	un măr	zamă de pește	plăcintă ceai

Pune-ți o notă pentru mâncarea de azi/4

Pune-ți o notă pentru efortul fizic de azi /2

rog să colorezi steluțele în conformitate cu cât de sănătoasă consideri că a fost
n-carea de azi. Ex. 1 steluță mai puțin sănătoasă, 5 stelute foarte sănătoasă.
elași principiu se aplică și pentru efortul fizic.

Ziua 3. Mesajul este

Te rog comentează imaginile. Ce mesaj crezi că ele transmit

Comentariu:
De consumat mai puțin zahar.
Zahărul dăunează

Comentariu:
Sportul e necesar

Comentariu fructele si legumele
De alimentat cu fructe și legume

Comentariu:
Fructele sunt bune pentru sănătate

Ziua 4. Ce părere ai...

Te rog colorează cercul care cel mai bine se potrivește cu ce îți place și consumi frecvent

	Ador	Îmi place	Neutru	Nu prea îmi place	Nu-mi place deloc
Apa dulce, suc		X			
Apa plata, ceai		X			
Dulciuri		X			
Fructe	X				
Paste, cartofi, salamuri		X			
Dietă, control				X	
Prefer transport public				X	
Prefer să merg pe jos		X			
Prefer sa mă uit la televizor au calculator in timpul liber		X			
Sunt tot timpul activ			X		
er sa învăt despre modul tos de viată împreună cu ne cu aceleasi probleme		X			

Ziua 5. Reflectă

Te rog să reflecți asupra următoarelor întrebări:

Ce faci ca să-ți îmbunătățești modul sănătos de viață?

Mă străduiesc să țin dieta

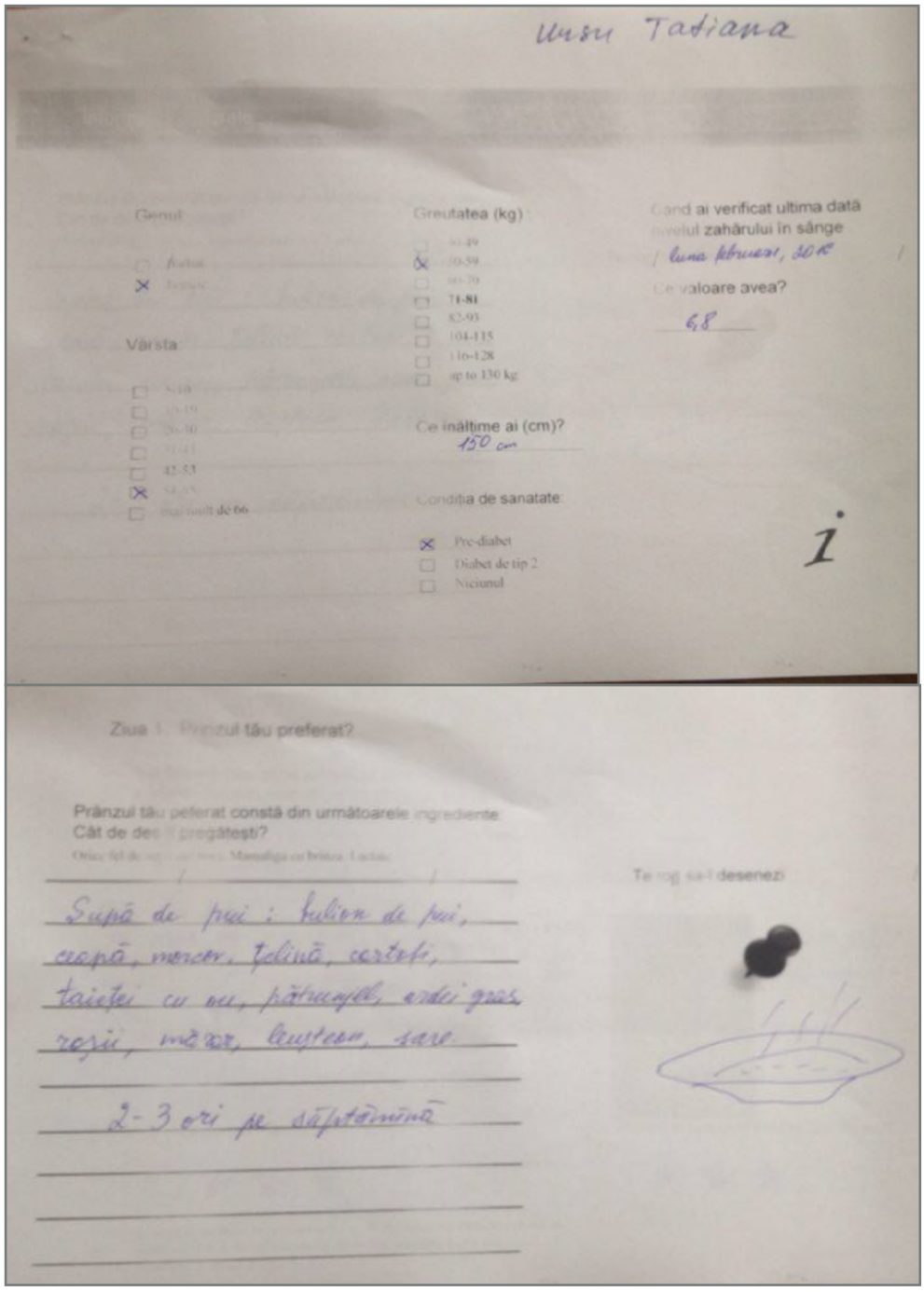
Ce te-ar motiva să ții o dietă foarte strictă?

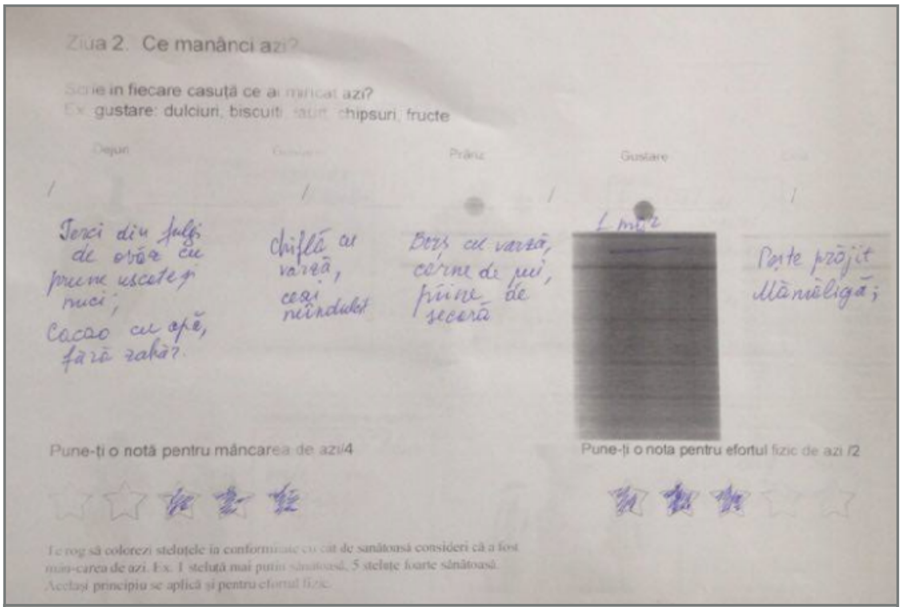
dorința de a fi sănătoasă

Ce greutăți întâmpini când ții dietă?

Poftă de mîncare

Cultural probes answers. User 6





Ziua 2. Ce manânci azi?

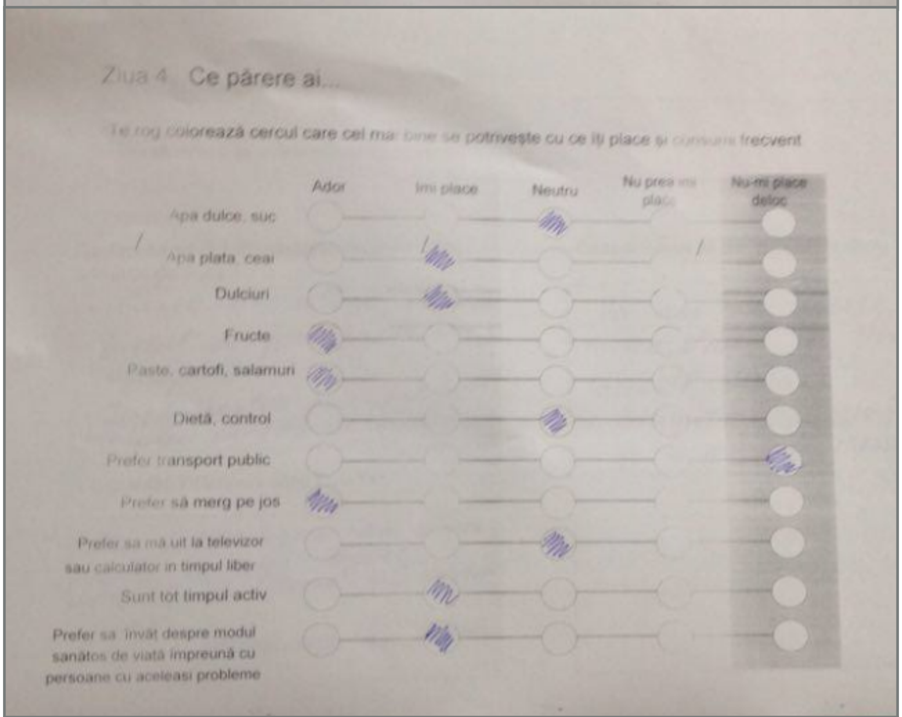
Scrie în fiecare casuță ce ai mâncat azi?
Ex. gustare: dulciuri, biscuiti, [illegible], chipsuri, fructe

Dejun	Gustare	Prânz	Gustare	Cina
Terci din fulgi de ovăz cu prune uscate și nuci; Cacao cu apă, fără zahăr	Chiflă cu varză, ceai neîndulcit	Borș cu varză, carne de pui, pâine de secară	1 măr [redacted]	Paste prăjit Mămăligă;

Pune-ți o notă pentru mâncarea de azi/4

Pune-ți o nota pentru efortul fizic de azi /2

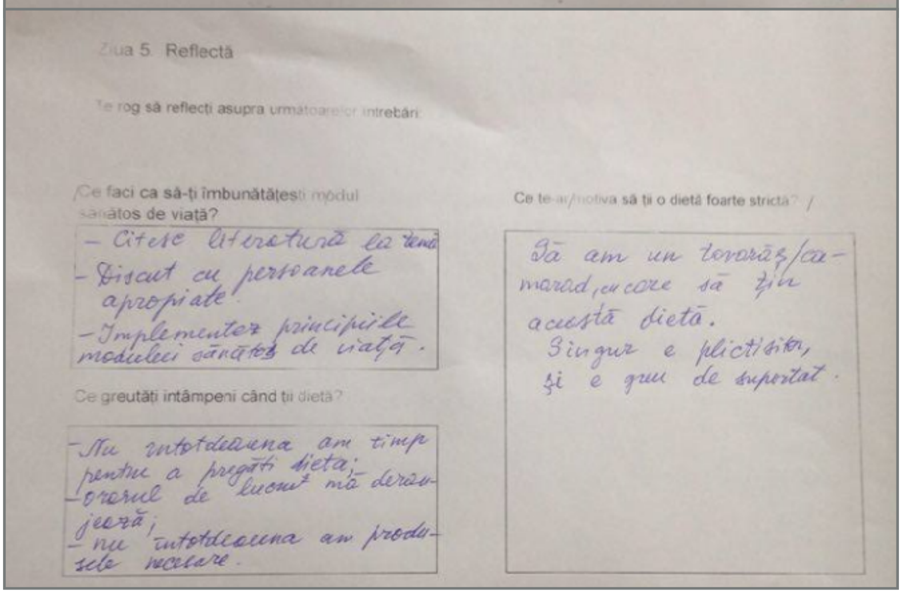
Te rog să colorezi steluțele în conformitate cu cât de sanătoasă consideri că a fost mâncarea de azi. Ex. 1 steluță mai puțin sănătoasă, 5 steluțe foarte sănătoasă. Același principiu se aplică și pentru efortul fizic.



Ziua 4. Ce părere ai...

Te rog colorează cercul care cel mai bine se potrivește cu ce îți place și consumi frecvent

	Ador	Îmi place	Neutru	Nu prea îmi place	Nu-mi place deloc
Apa dulce, suc			X		
Apa plata, ceai		X			
Dulciuri		X			
Fructe	X				
Paste, cartofi, salamuri	X				
Dietă, control			X		
Prefer transport public					X
Prefer să merg pe jos	X				
Prefer să mă uit la televizor sau calculator în timpul liber			X		
Sunt tot timpul activ		X			
Prefer să învăț despre modul sanătos de viață împreună cu persoane cu aceleași probleme		X			



Ziua 5. Reflectă

Te rog să reflecți asupra următoarelor întrebări:

Ce faci ca să-ți îmbunătățești modul sanătos de viață?

- Citesc literatură la temă
- Discut cu persoanele apropiate
- Implementez principiile modului sănătos de viață.

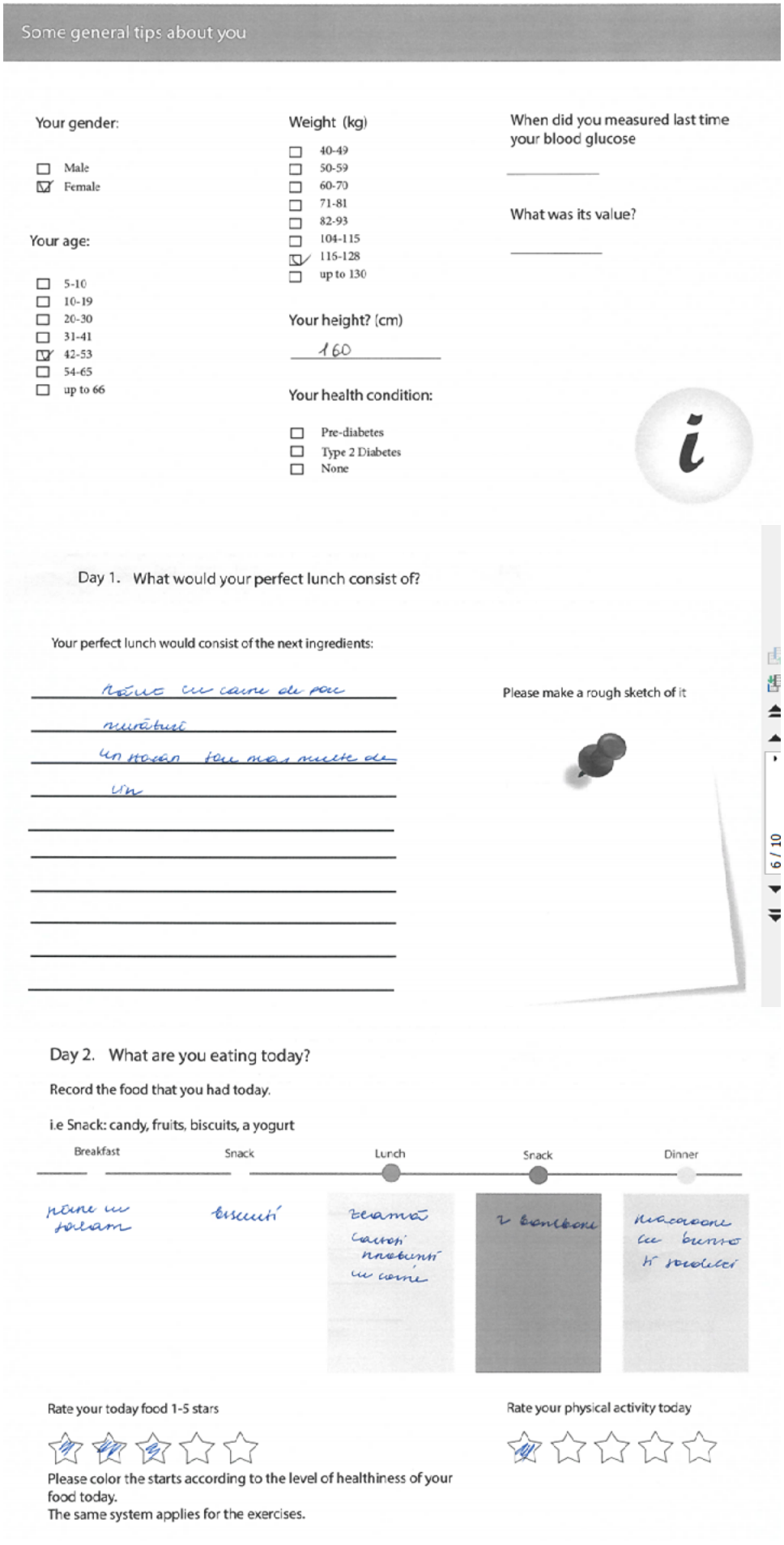
Ce greutăți întâmpeni când ții dietă?

- Nu întotdeauna am timp pentru a pregăti dieta;
- orarul de lucru mă deranjează;
- nu întotdeauna am produsele necesare.

Ce te-ar motiva să ții o dietă foarte strictă?

Să am un tovarăș/camarad, cu care să țin această dietă. Singur e plictisitor, și e greu de suportat.

Cultural probes answers. User 7



Some general tips about you

Your gender:

- ☐ Male
- ☑ Female

Your age:

- ☐ 5-10
- ☐ 10-19
- ☐ 20-30
- ☐ 31-41
- ☑ 42-53
- ☐ 54-65
- ☐ up to 66

Weight (kg)

- ☐ 40-49
- ☐ 50-59
- ☐ 60-70
- ☐ 71-81
- ☐ 82-93
- ☐ 104-115
- ☑ 116-128
- ☐ up to 130

Your height? (cm)

160

Your health condition:

- ☐ Pre-diabetes
- ☐ Type 2 Diabetes
- ☐ None

When did you measured last time your blood glucose

What was its value?

Day 1. What would your perfect lunch consist of?

Your perfect lunch would consist of the next ingredients:

Please make a rough sketch of it

Day 2. What are you eating today?

Record the food that you had today.

i.e Snack: candy, fruits, biscuits, a yogurt

Breakfast | Snack | Lunch | Snack | Dinner

Rate your today food 1-5 stars

Rate your physical activity today

Please color the starts according to the level of healthiness of your food today.
The same system applies for the exercises.

Day 3. The message is...

Please comment on the given images. What message do you think they send?

Comment:
Nivelul zaharul

Comment:
ca bătrânete faci sport

Comment:
Doar mâncare fructe poate slabi

Comment:
Mărul este mai sănătos să mănânci

Day 4. How do you feel about...

Please check the circles that best fits with your habits

	Very often	Often	Neutral	Sometimes	Never
Soda, juice		✓			
Water, unsweetened tea		✓			
Sweets			✓		
Fruits				✓	
Pasta, potato, processed meat	✓				
Diet, control				✓	
I prefer to take public transport or my car	✓				
I prefer walking or cycling				✓	
In my free time I prefer to watch TV or navigate on			✓		
I am always active		✓			
I prefer to learn about the healthy eating behavior with the peers that have similar health issues as I do		✓			

Day 5. Reflect upon

Please reflect upon given questions and write your thoughts.

What are you doing to improve your health condition?

Nu fac nimic acum nu am probleme cu sănătatea și nu am de ce să mă îngrijorez

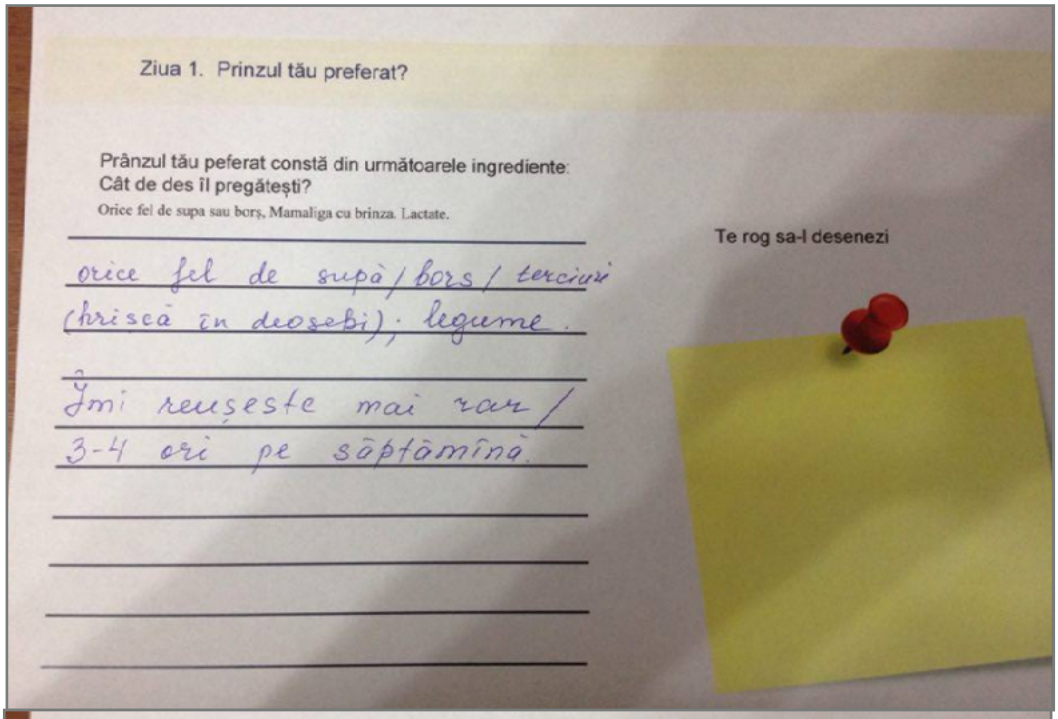
What would motivate you to keep a strict diet?

probleme cu sănătatea cred

What do you hate about diets?

sunt lungi

Cultural probes answers. User 8



Ziua 1. Prinzul tău preferat?

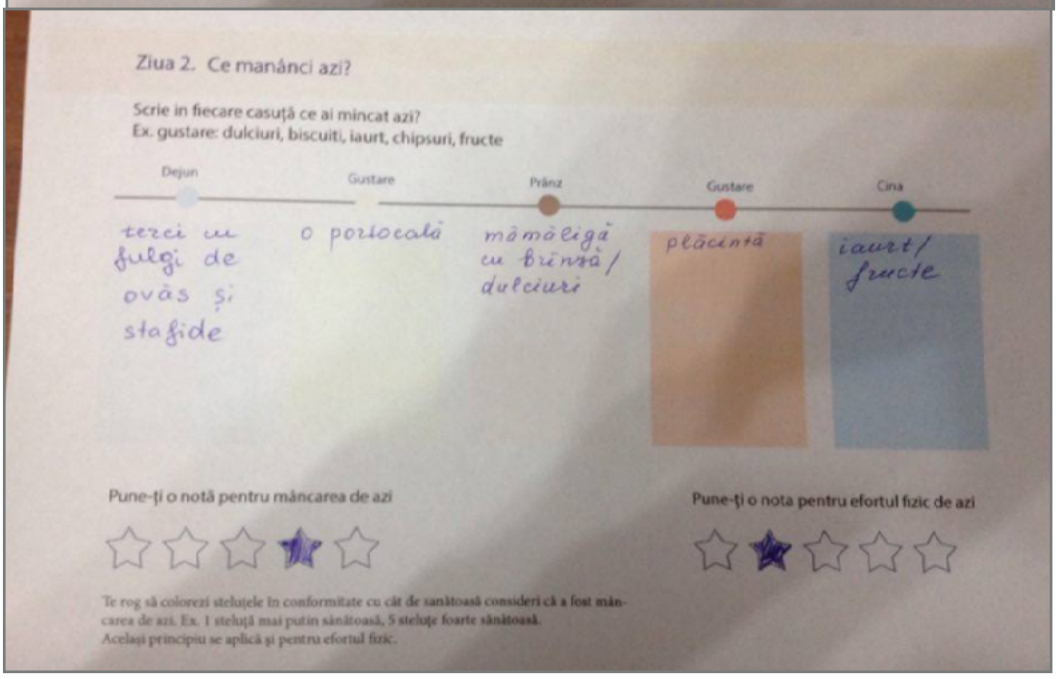
Prânzul tău peferat constă din următoarele ingrediente:
Cât de des îl pregătești?

Orice fel de supa sau borș, Mamaliga cu brinza. Lactate.

orice fel de supă / borș / terciuri (briscă în deosebi), legume.

Îmi reușește mai rar / 3-4 ori pe săptămînă.

Te rog sa-l desenezi



Ziua 2. Ce mănânci azi?

Scrie in fiecare casuță ce ai mincat azi?
Ex. gustare: dulciuri, biscuiti, iaurt, chipsuri, fructe

Dejun: terci cu fulgi de ovăs și stafide

Gustare: o portocală

Prânz: mămăligă cu brînză / dulciuri

Gustare: plăcintă

Cina: iaurt / fructe

Pune-ți o notă pentru mâncarea de azi

Pune-ți o nota pentru efortul fizic de azi

Te rog să colorezi steluțele în conformitate cu cât de sanătoasă consideri că a fost mâncarea de azi. Ex. 1 steluță mai putin sănătoasă, 5 steluțe foarte sănătoasă.
Același principiu se aplică și pentru efortul fizic.

Ziua 3. Mesajul este...

Te rog comentează imaginile. Ce mesaj crezi că ele transmit.

Comentariu:
Mult zahăr dăunează sănătății

Comentariu:
Efortul fizic este necesar

Comentariu:
Fructele și legumele mențin sănătatea și ținuta.

Comentariu:
Fructele trebuie să înlocuiască copturile

Ziua 4. Ce părere ai...

Te rog colorează cercul care cel mai bine se potrivește cu ce îți place și consumi frecvent

	Ador	Îmi place	Neutru	Nu prea îmi place	Nu-mi place deloc
Apa dulce, suc			X		
Apa plata, ceai		X			
Dulciuri		X			
Fructe	X				
Paste, cartofi, salamuri		X			
Dietă, control				X	
Prefer transport public					X
Prefer să merg pe jos				X	
Prefer sa mă uit la televizor sau calculator in timpul liber	X				
Sunt tot timpul activ				X	
Prefer sa învăț despre modul sanătos de viață împreună cu persoane cu aceleasi probleme		X			

Ziua 5. Reflectă

Te rog să reflecți asupra următoarelor întrebări:

Ce faci ca să-ți îmbunătățești modul sănătos de viață?

Mă străduiesc să iau obligatoriu dejunul, apă cu suc de lămâie și miere pe stomac gol. Beau mult ceai/apă plată.

Ce greutăți întâmpeni când ții dietă?

Nu-mi reușește din cauza programului încărcat și puțină voință.

Ce te-ar motiva să ții o dietă foarte strictă?

- Probleme de sănătate
- dorința de a arăta bine.

Cultural probes answers. User 9

Informațvii generale

Genul:

- [x] Barbat
- [ ] Femeie

Vârsta:

- [ ] 5-10
- [ ] 10-19
- [ ] 20-30
- [x] 31-41
- [ ] 42-53
- [ ] 54-65
- [ ] mai mult de 66

Greutatea (kg) :

- [ ] 40-49
- [ ] 50-59
- [ ] 60-70
- [ ] 71-81
- [ ] 82-93
- [x] 104-115
- [ ] 116-128
- [ ] up to 130 kg

Ce înălțime ai (cm)?

175

Condiția de sanatate:

- [ ] Pre-diabet
- [ ] Diabet de tip 2
- [ ] Niciunul

Când ai verificat ultima dată nivelul zahărului în sânge?

____

Ce valoare avea?

____

Ziua 1. Prinzul tău preferat?

Prânzul tău peferat constă din următoarele ingrediente:
Cât de des îl pregătești?

„PILMENI" - CARNE TOCATA CU CEAPA și USTUROI ÎNVELITA CU UN STRAT SUBTIRE DE ALUAT. și OPARITE, CU SMÂNTANĂ

„SALATA DE VARZA"

„VIN ROȘU"

Te rog sa-l desenezi

Ziua 2. Ce manânci azi?

Scrie in fiecare casuță ce ai mincat azi?
Ex. gustare: dulciuri, biscuiti, iaurt, chipsuri, fructe

Dejun	Gustare	Prânz	Gustare	Cina
Biscuiți cu gem de zmeură cu Ceai.		Varză cu carne de Vită Peste „Macrou" La cuptor		Seminte Floarea Soarelui Mere.

Pune-ți o notă pentru mâncarea de azi

☆ ☆ ☆ ☆ ☆

Pune-ți o nota pentru efortul fizic de azi

☆ ☆ ☆ ☆ ☆

Te rog să colorezi steluțele în conformitate cu cât de sanătoasă consideri că a fost mâncarea de azi. Ex. 1 steluță mai puțin sănătoasă, 5 steluțe foarte sănătoasă.
Același principiu se aplică și pentru efortul fizic.

Ziua 3. Mesajul este...

Te rog comentează imaginile. Ce mesaj crezi că ele transmit.

Comentariu:
Aparat chinezesc, ce măsoară ceva.

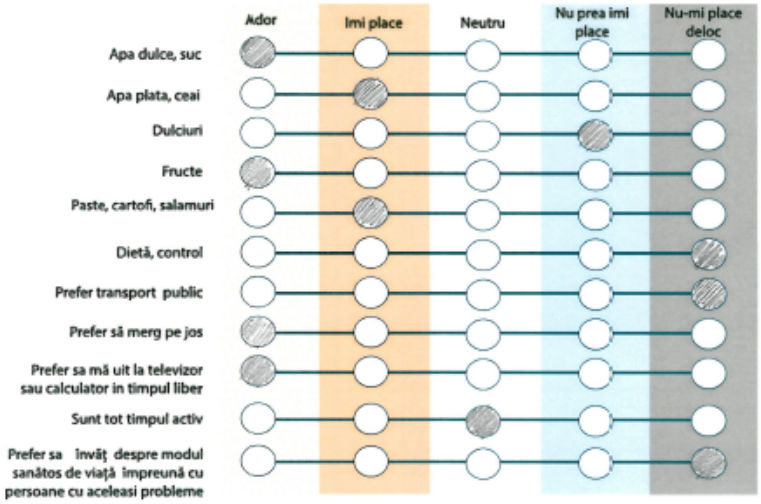
Comentariu:
După o vârstă Socializarea se face la mese, în jurul.

Comentariu:
Cine poate Legume nu se înghesuie

Comentariu:
Femeile au dileme foarte importante

Ziua 4. Ce părere ai...

Te rog colorează cercul care cel mai bine se potrivește cu ce îți place și consumi frecvent



Ziua 5. Reflectă

Te rog să reflecți asupra următoarelor întrebări:

Ce faci ca să-ți îmbunătățești modul sănătos de viață?

Mă străduiesc să merg pe jos sau cu bicicleta.

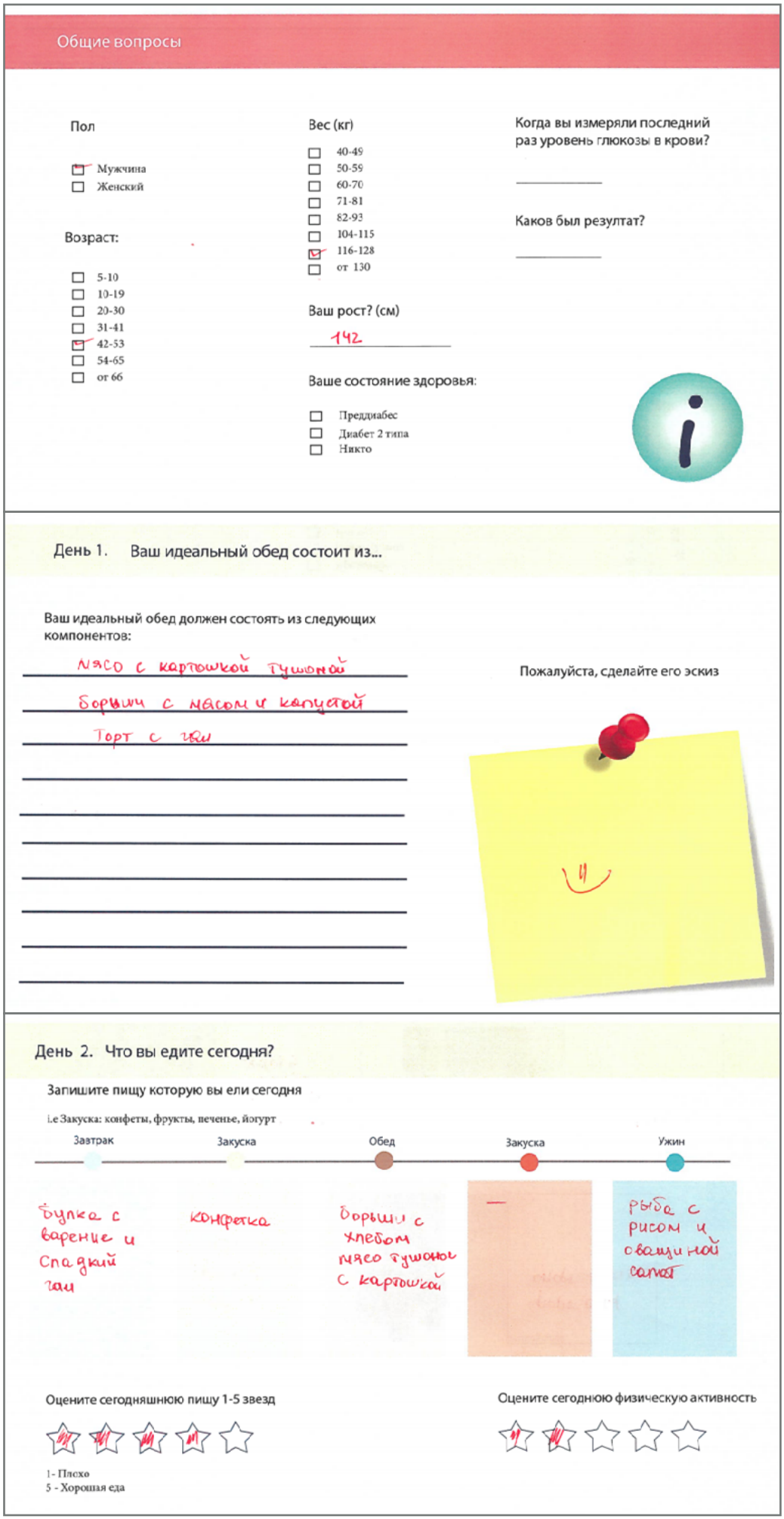
Ce greutăți întâmpeni când ții dietă?

Nu știu, nu prea am ținut dietă.

Ce te-ar motiva să ții o dietă foarte strictă?

Un pariu, o recompensă...

Cultural probes answers. User 10



Общие вопросы

Пол

- [x] Мужчина
- [ ] Женский

Возраст:

- [ ] 5-10
- [ ] 10-19
- [ ] 20-30
- [ ] 31-41
- [x] 42-53
- [ ] 54-65
- [ ] от 66

Вес (кг)

- [ ] 40-49
- [ ] 50-59
- [ ] 60-70
- [ ] 71-81
- [ ] 82-93
- [ ] 104-115
- [x] 116-128
- [ ] от 130

Ваш рост? (см)

142

Ваше состояние здоровья:

- [ ] Преддиабес
- [ ] Диабет 2 типа
- [ ] Никто

Когда вы измеряли последний раз уровень глюкозы в крови?

Каков был результат?

День 1. Ваш идеальный обед состоит из...

Ваш идеальный обед должен состоять из следующих компонентов:

мясо с картошкой тушеной

борщик с мясом и капустой

Торт с чаи

Пожалуйста, сделайте его эскиз

День 2. Что вы едите сегодня?

Запишите пищу которую вы ели сегодня

i.e Закуска: конфеты, фрукты, печенье, йогурт

Завтрак | Закуска | Обед | Закуска | Ужин

булка с варенье и сладкий чай

конфетка

борьщ с хлебом мясо тушеное с картошкой

—

рыба с рисом и овощной салат

Оцените сегодняшнюю пищу 1-5 звезд

1 - Плохо
5 - Хорошая еда

Оцените сегоднюю физическую активность

День 3. Восприятие...

Как воспринимаете эти изображений?

Комментарий:

Замеряет кровь

Комментарий:

Спорт есть спорт всегда

Комментарий:

Если я буду кушать фрукты, я похудею похожу

Комментарий:

я выберано тортик

День 4. Как вы относитесь к ...

Пожалуйста выделите круг, который подходит лучше для ваших привычек

	Обожаю	Нравится	Нейтральный	Не очень нравится	Не нравится
Сладкая вода, сок	✓				
Несладкий чай/ вода			✓		
Сладости	✓				
Орукты			✓		
Картофель, макароны, хлеб, колбаса		✓			
Диета, контроль					✓
Предпочитаю транспорт общего пользования		✓			
Предпочитаю ходить			✓		
Предпочитаю смотреть телевизор в свободное время	✓				
Обычно я активен			✓		
Я предпочитаю, узнать о здоровом образе жизни вместе с другими людьми которые имеют те же				✓	

День 5. Размышление

Пожалуйста, поразмсылите на поставленные вопросы и напишыте свои мысли.

Что вы делаете чтобы улучшить ваше состояние здоровья?

Пытаюсь держати диету иногда

Что вас затрудняет держать строгую диету?

Голод
Время
Стресс на работе
Очень трудно нету сил иногда

С какими трудностями вы встречаетесь когда вы держите диету?

Голод

Cultural probes answers. User 11

Informații generale

Genul:

- [ ] Barbat
- [x] Femeie

Vârsta:

- [ ] 5-10
- [ ] 10-19
- [ ] 20-30
- [ ] 31-41
- [ ] 42-53
- [x] 54 65
- [ ] mai mult de 66

Greutatea (kg) :

- [ ] 40-49
- [ ] 50 59
- [x] 60-70
- [ ] 71-81
- [ ] 82-93
- [ ] 104-115
- [ ] 116-128
- [ ] up to 130 kg

Ce înălțime ai (cm)?

160

Condiția de sănătate:

- [ ] Pre diabet
- [x] Diabet de tip 2
- [ ] Niciunul

Când ai verificat ultima dată nivelul zahărului în sânge?

februarie 2016

Ce valoare avea?

6.7

Ziua 1. Prinzul tău preferat?

Prânzul tău peferat constă din următoarele ingrediente:
Cât de des îl consumi?

zeama, carne, cartofi cu carne, salata ciai

Te rog sa-l desenezi

Ziua 2. Ce mănânci azi?

Scrie în fiecare casuță ce mâncare ai consumat azi?
Ex. gustare: dulciuri, biscuiti, iaurt, chipsuri, fructe

Dejun	Gustare	Prânz	Gustare	Cina
terci si ciai	mar, covrigi	zeaqma, carne fiarta, oua		cartofi, peste, mamaliga

Pune-ți o notă pentru mâncarea de azi

Pune-ți o nota pentru efortul fizic de azi

Te rog să colorezi steluțele în conformitate cu cât de sănătoasă consideri că a fost mâncarea de azi. Ex. 1 steluță mai putin sănătoasă, 5 steluțe foarte sănătoasă.
Același principiu se aplică și pentru efortul fizic.

Ziua 3. Mesajul este...

Comentează imaginile. Ce mesaj crezi că ele transmit.

Comentariu:

incerc sa-l mentin sub control zaharul
si il masor foarte des

Comentariu:

nu ma ocup cu sportul, insa cred ca ar fi bine sa ma ocup ca sa fii mai sanatos

Comentariu:

organizmul are nevoie de toate cite oleqaca

Comentariu:

le prefer foarte mult pe amble

Ziua 4. Ce părere ai...

Colorează cercul care cel mai bine se potrivește cu ce îți place și consumi frecvent

	Ador	Imi place	Neutru	Nu prea imi place	Nu-mi place deloc
Apa dulce, suc	○	✓	○	○	○
Apa plata, ceai	○	✓	○	○	○
Dulciuri	○	✓	○	○	○
Fructe	○	✓	○	○	○
Paste, cartofi, salamuri	○	○	○	✓	○
Dictă, control	○	✓	○	○	○
Prefer transport public	○	○	○	✓	○
Prefer să merg pe jos	○	✓	○	○	○
Prefer sa mă uit la televizor sau calculator in timpul liber	○	✓	○	○	○
Sunt tot timpul activ	○	✓	○	○	○
Prefer sa învaţ despre modul sanătos de viaţă împreună cu persoane care prezintă probleme de sănătate similare	○	○	○	✓	○

Ziua 5. Reflectă

Te rog să reflecți asupra următoarelor întrebări:

Ce faci ca să-ți îmbunătățești modul sănătos de viață?

fac consultaiea la medic, respect dieta, dar nu intotdeauna, depinde daca am dulciuri sau nu, sau daca ma duc undeva si este cu maninc,
daca ma duc in ospetie si este maninc
sun in miscare permanent

Ce greutăți întâmpeni când ții dietă?

nu in totdeauna imi reuseste, imi plac dulciurile si imi este greu sa ma ablin

Ce te-ar motiva să ții o dietă strictă?

starea de sanatate , indicatiile medicului

Cultural probes answers. User 12

Informații generale

valerie

Genul:

- [x] Barbat
- [ ] Femeie

Vârsta:

- [ ] 5-10
- [ ] 10-19
- [ ] 20-30
- [ ] 31-41
- [x] 42-53
- [ ] 54-65
- [ ] mai mult de 66

Greutatea (kg) :

- [ ] 40-49
- [ ] 50-59
- [ ] 60-70
- [ ] 71-81
- [ ] 82-93
- [ ] 104-115
- [ ] 116-128
- [x] up to 130 kg

Ce înălțime ai (cm)?

170

Condiția de sănătate:

- [x] Pre-diabet
- [ ] Diabet de tip 2
- [ ] Niciunul

Când ai verificat ultima dată nivelul zahărului în sânge?

5 8 inuarie

Ce valoare avea?

Ziua 1. Prinzul tău preferat?

Prânzul tău peferat constă din următoarele ingrediente:
Cât de des îl consumi?

zeama

carne

costite nabusite

salata de varza

2-3 pahare de vin negru

fructe, suc

dulciuri cu limita

paine de secara

Te rog sa-l desenezi

Ziua 2. Ce mănânci azi?

Scrie în fiecare casuță ce mâncare ai consumat azi?
Ex. gustare: dulciuri, biscuiti, iaurt, chipsuri, fructe

Dejun	Gustare	Prânz	Gustare	Cina
7:30 terci cu miere ciai din plante	11 covrigi cu tarate	15 supa din carne, salam, oua salata, 1 pahar vin negru		18 mapiga, peste prajit brinza cu smantina 21 veai covrigi

Pune-ți o notă pentru mâncarea de azi

Pune-ți o nota pentru efortul fizic de azi

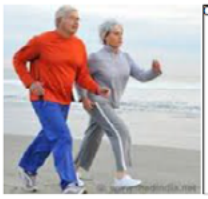
Te rog să colorezi steluțele în conformitate cu cât de sănătoasă consideri că a fost mâncarea de azi. Ex. 1 steluță mai puțin sănătoasă, 5 steluțe foarte sănătoasă.
Același principiu se aplică și pentru efortul fizic.

Ziua 3. Mesajul este...

Comentează imaginile. Ce mesaj crezi că ele transmit.

Comentariu:

permanent trebuie sa cunaostem starea sanatatii noastre



Comentariu:

sport si miscare la virta impreuna cu sotia

Comentariu:

alimentatie focator major in sanatatea omului

Comentariu:

Alege alimentatia sanataosa, fructe si legume fata de fainoasa si dulciuri

Ziua 4. Ce părere ai...

Colorează cercul care cel mai bine se potrivește cu ce îți place și consumi frecvent

	Ador	Imi place	Neutru	Nu prea imi place	Nu-mi place deloc
Apa dulce, suc	✓				
Apa plata, ceai			✓		
Dulciuri		✓			
Fructe	✓				
Paste, cartofi, salamuri	✓				
Dietă, control			✓		
Prefer transport public			✓		
Prefer să merg pe jos				✓	
Prefer sa mă uit la televizor sau calculator in timpul liber	✓				
Sunt tot timpul activ				✓	
Prefer sa învăț despre modul sanătos de viață împreună cu persoane care prezintă probleme de sănătate similare			✓		

Ziua 5. Reflectă

Te rog să reflecți asupra următoarelor întrebări:

Ce faci ca să-ți îmbunătățești modul sănătos de viață?

incerc sa ma alimentez corect si la ceeasi ora

Ce greutăți întâmpeni când ții dietă?

servicul nu mi permite sa i au la timp mesele access limitat la produse necesare sanatoase pentru dieta. M simpt rau daca maninc fara grasime

Ce te-ar motiva să ții o dietă strictă?

Ajutorul apropiatilor, supravegherea de un medic dietolog si consultatiile medicilor Acces la mincare sanatoase in orice moment posibilitate de a lua mai multe mese ce nu permite rezimul zilei, salariu mai mare

Cultural probes answers. User 14

Informații generale

Genul:

- [x] Barbat
- [ ] Femeie

Vârsta:

- [ ] 5-10
- [ ] 10-19
- [ ] 20-30
- [ ] 31-41
- [ ] 42-53
- [x] 54-65
- [ ] mai mult de 66

Greutatea (kg) :

- [ ] 40-49
- [ ] 50-59
- [ ] 60-70
- [ ] 71-81
- [ ] 82-93
- [x] 104-115
- [ ] 116-128
- [ ] up to 130 kg

Ce înălțime ai (cm)?

1.90

Condiția de sănătate:

- [x] Pre-diabet
- [ ] Diabet de tip 2
- [ ] Niciunul

Când ai verificat ultima dată nivelul zahărului în sânge?

Ce valoare avea?

Ziua 1. Prinzul tău preferat?

Prânzul tău peferat constă din următoarele ingrediente:
Cât de des îl consumi?

Zeama de pui,

paste cu carne si paine alba

un pahar de vin

o felie de tort cu ceai

Te rog sa-l desenezi

Ziua 2. Ce mănânci azi?

Scrie în fiecare casuță ce mâncare ai consumat azi?
Ex. gustare: dulciuri, biscuiti, iaurt, chipsuri, fructe

Dejun	Gustare	Prânz	Gustare	Cina
2 ou ochiuri ceai paine cu unt	ceai cu paine	bors cu paine si un pahar de vin	ceai cu paine cu unt	mamaliga cu peste

Pune-ți o notă pentru mâncarea de azi

Pune-ți o nota pentru efortul fizic de azi

Te rog să colorezi steluțele în conformitate cu cât de sanătoasă consideri că a fost mâncarea de azi. Ex. 1 steluță mai putin sănătoasă, 5 steluțe foarte sănătoasă.
Același principiu se aplică și pentru efortul fizic.

Ziua 3. Mesajul este...

Comentează imaginile. Ce mesaj crezi că ele transmit.

Comentariu:

ceva aparat, nustiu

Comentariu:

cine alearga bine, arta bine

Comentariu:

mie nu-mi plac fructele si legumele, dar e biens ale maninci

Comentariu:

eu aleg briosa

Ziua 4. Ce părere ai...

Colorează cercul care cel mai bine se potrivește cu ce îți place și consumi frecvent

	Ador	Imi place	Neutru	Nu prea imi place	Nu-mi place deloc
Apa dulce, suc	✓				
Apa plata, ceai	✓				
Dulciuri	✓				
Fructe				✓	
Paste, cartofi, salamuri	✓				
Dietă, control					✓
Prefer transport public			✓		
Prefer să merg pe jos					✓
Prefer sa mă uit la televizor sau calculator in timpul liber	✓				
Sunt tot timpul activ			✓		
Prefer sa învăț despre modul sanătos de viață împreună cu persoane care prezintă probleme de sănătate similare			✓		

Ziua 5. Reflectă

Te rog să reflecți asupra următoarelor întrebări:

Ce faci ca să-ți îmbunătățești modul sănătos de viață?

nu fac nimic, eu ma simpt bine asa cum este

Ce te-ar motiva să ții o dietă strictă?

greu de spus, nu cred in diete

Ce greutăți întâmpeni când ții dietă?

nu tin dieta

Cultural probes answers. User 15

Informații generale

Genul:

- [ ] Barbat
- [x] Femeie

Vârsta:

- [ ] 5-10
- [ ] 10-19
- [ ] 20-30
- [ ] 31-41
- [ ] 42-53
- [x] 54-65
- [ ] mai mult de 66

Greutatea (kg) :

- [ ] 40-49
- [ ] 50-59
- [ ] 60-70
- [ ] 71-81
- [ ] 82-93
- [ ] 104-115
- [ ] 116-128
- [x] up to 130 kg

Ce înălțime ai (cm)?

175

Condiția de sănătate:

- [x] Pre-diabet
- [ ] Diabet de tip 2
- [ ] Niciunul

Când ai verificat ultima dată nivelul zahărului în sânge?

noiembrie 2015

Ce valoare avea?

6.1

Ziua 1. Prinzul tău preferat?

Prânzul tău peferat constă din următoarele ingrediente:
Cât de des îl consumi?

supa de legume sau bors fara grasime

putina paine de tarate

Te rog sa-l desenezi

Ziua 2. Ce mănânci azi?

Scrie in fiecare casuță ce mâncare ai consumat azi?
Ex. gustare: dulciuri, biscuiti, iaurt, chipsuri, fructe

Dejun	Gustare	Prânz	Gustare	Cina
hrisca, ciai	un mar	supa de legume	morcov, sfecla, ridiche salata	leftovers, ciai

Pune-ți o notă pentru mâncarea de azi

Pune-ți o nota pentru efortul fizic de azi

Te rog să colorezi steluțele în conformitate cu cât de sanătoasă consideri că a fost mâncarea de azi. Ex. 1 steluță mai putin sănătoasă, 5 steluțe foarte sănătoasă.
Același principiu se aplică și pentru efortul fizic.

Ziua 3. Mesajul este...

Comentează imaginile. Ce mesaj crezi că ele transmit.

Comentariu:
tine sub control glicemia

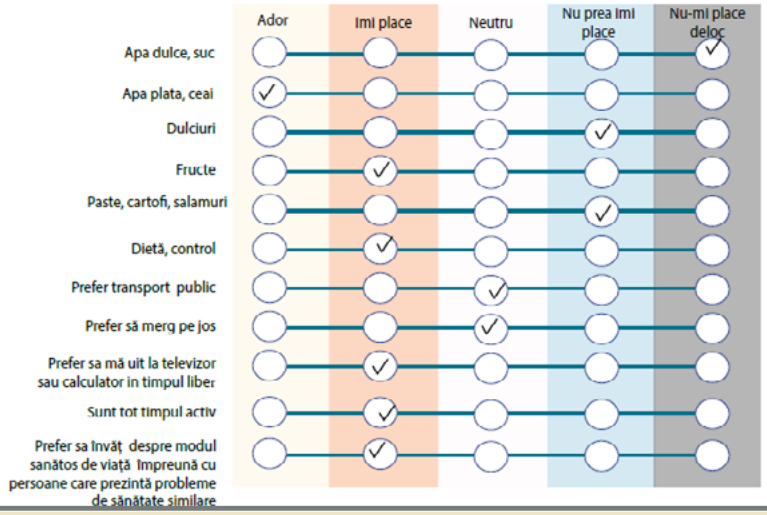
Comentariu:
sportul este sanatate

Comentariu:
o alimentatie sanatoasa un organism sanatos

Comentariu:
alege sanatatea

Ziua 4. Ce părere ai...

Colorează cercul care cel mai bine se potrivește cu ce îți place și consumi frecvent



Ziua 5. Reflectă

Te rog să reflecți asupra următoarelor întrebări:

Ce faci ca să-ți îmbunătățești modul sănătos de viață?

respect dieta, privesc emisiuni despre sanatate
fac efort fizic in masura posibilitatii

Ce te-ar motiva să ții o dietă strictă?

sa slabesc si sa pot traii mai mult

Ce greutăți întâmpeni când ții dietă?

foamea, mi-i tot timpul foame si este greu de respectat

Cultural probes answers. User 16

Informații generale

Genul:

- [x] Barbat
- [ ] Femeie

Vârsta:

- [ ] 5-10
- [ ] 10-19
- [ ] 20-30
- [ ] 31-41
- [ ] 42-53
- [x] 54-65
- [ ] mai mult de 66

Greutatea (kg):

- [ ] 40-49
- [ ] 50-59
- [ ] 60-70
- [ ] 71-81
- [ ] 82-93
- [x] 104-115
- [ ] 116-128
- [ ] up to 130 kg

Ce înălțime ai (cm)? 194

Condiția de sănătate:

- [x] Pre-diabet
- [ ] Diabet de tip 2
- [ ] Niciunul

Când ai verificat ultima dată nivelul zahărului în sânge? 10.02.16

Ce valoare avea? 6

Ziua 1. Prinzul tău preferat?

Prânzul tău peferat constă din următoarele ingrediente:
Cât de des îl consumi?

Varza a la Cluj cu costita
afumata
Ciolan afumat cu cartofi la
cuptor
ciorbă de burtă
un pahar de vin

Te rog sa-l desenezi

Ziua 2. Ce manânci azi?

Scrie în fiecare casuță ce mâncare ai consumat azi?
Ex. gustare: dulciuri, biscuiti, iaurt, chipsuri, fructe

Dejun	Gustare	Prânz	Gustare	Cina
cafă Pâine cu pește și salam cu ceai	bicesa	ciorbă de burtă pleoante cu varză	biscuiti	orez cu legume salate de varză și ciolan afumat cu burtă

Pune-ți o notă pentru mâncarea de azi

Pune-ți o nota pentru efortul fizic de azi

Te rog să colorezi steluțele în conformitate cu cât de sanătoasă consideri că a fost mâncarea de azi. Ex. 1 steluță mai puțin sănătoasă, 5 steluțe foarte sănătoasă.
Același principiu se aplică și pentru efortul fizic.

Ziua 3. Mesajul este...

Comentează imaginile. Ce mesaj crezi că ele transmit.

Comentariu:

Mâncare sănătoasă

Comentariu:

Cine face sport
e mai sănătos

Comentariu:

produsele și
patiseria dăunează
sănătății în
cantități mari

Comentariu:

Un măr pe zi ține
doctorul la distanță

Ziua 4. Ce părere ai...

Colorează cercul care cel mai bine se potrivește cu ce îți place și consumi frecvent

	Ador	Imi place	Neutru	Nu prea imi place	Nu-mi place deloc
Apa dulce, suc	X				
Apa plata, ceai		X			
Dulciuri		X			
Fructe				X	
Paste, cartofi, salamuri	X				
Dietă, control					X
Prefer transport public		X			
Prefer să merg pe jos			X		
Prefer sa mă uit la televizor sau calculator in timpul liber		X			
Sunt tot timpul activ			X		
Prefer sa învăț despre modul sanătos de viață împreună cu persoane care prezintă probleme de sănătate similare		X			

Ziua 5. Reflectă

Te rog să reflecți asupra următoarelor întrebări:

Ce faci ca să-ți îmbunătățești modul sănătos de viață?

Încerc să țin dietă

Ce greutăți întâmpeni când ții dietă?

Mi-e tot timpul foame
Este greu să ții dieta
Lipsă de motivație

Ce te-ar motiva să ții o dietă strictă?

Nimic

Appendix 2

Experts interview

Kelly - type 2 diabetes

1. For how long have you had diabetes?
2. What circumstances have leaded to become a victim of diabetes?
3. How did diabetes changed your lifestyle?
4. What is the most frustrating thing about diabetes?
5. Please share with me your experience of changing your lifestyle, what did motivate you to change? Did you started to change your lifestyle right after you were diagnosed or later?
6. In your opinion, what are the most important 3 steps/decisions that people with diabetes should take in order to start to change their health condition?
7. If you'd have the power to solve the prediabetes and type 2 diabetes conditions in the world, how would you do it?

Matthias - the doctor

1. Do you have any patients with type 2 diabetes?
2. How often the type 2 diabetes cases are discovered?
3. What are the most common circumstances that lead to develop the disease?
4. What are your advices towards changing their lifestyle?
5. In your opinion what are the problems that the patients encounter in lifestyle change?
6. Is there a centre for people with type 2 diabetes? What services so they provide?

Ana - teacher

1. Do you teach about lifestyle education in school? Is it a dedicated class?
2. What are the subjects about?
3. Do you touch the chronic diseases problems like diabetes?
4. Do you do any practical activities with them, like cooking classes?
5. Do you think food eduction in school produces a big impact in kids behaviour or still most of the kids are following the practices from home?
6. Can you measure somehow the school lifestyle education on students?

Elsa - dietician

1. Do you work with patients with diabetes/prediabetes?
2. How often people with this health issues are asking for your health?
3. Do you have any special programs you run with people with
4. Could you please share with me the programs do you run with them?
5. Could you give an estimation of the success rates?
6. From your experience, why do people fail in following the diets programs?
7. What is the most important thing to do when you are following a diet?

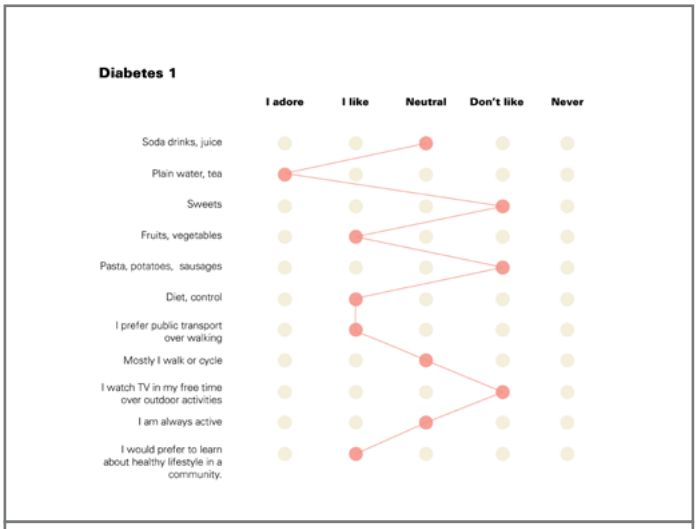
Appendix 3

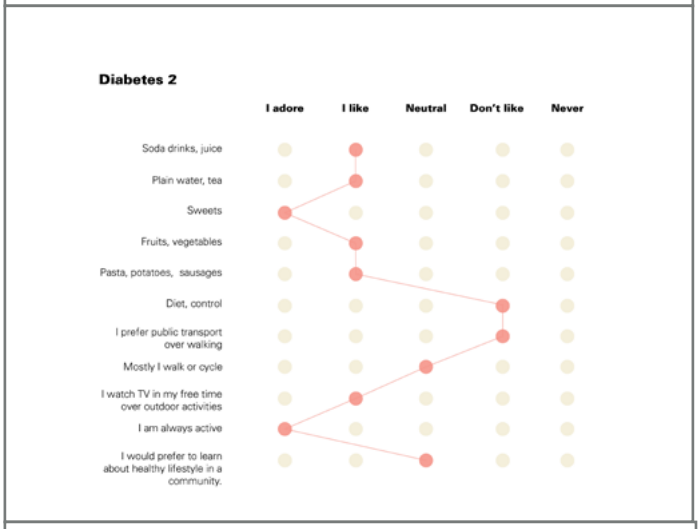
User interview

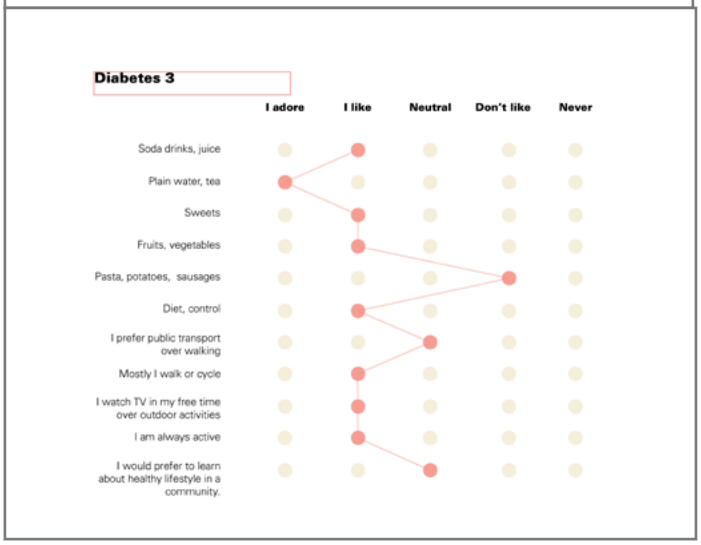
1. When you hear the word "cake or chocolate" what are you thinking about?
2. If somebody is giving you a box of your most preferred chocolates, would you eat them all at once?
3. Here are some cards with different kind of food, could you group them according to how often you are having them. Would you like to add anything else?
4. What lifestyle habits of yours would you want to change? What works and what doesn't work?
5. What motivates you to change those habits?
6. Do you count the daily food calories?
7. If the doctor would prescribe you a strict diet, would you follow it?
8. How often do you do physical exercise?

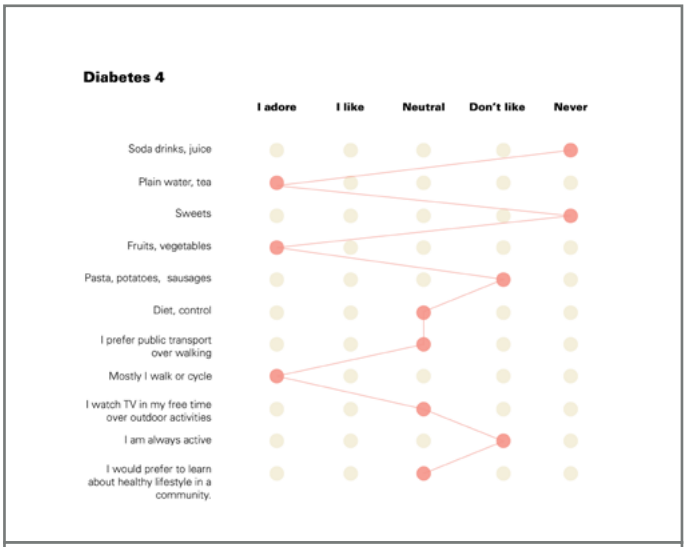
Appendix 4

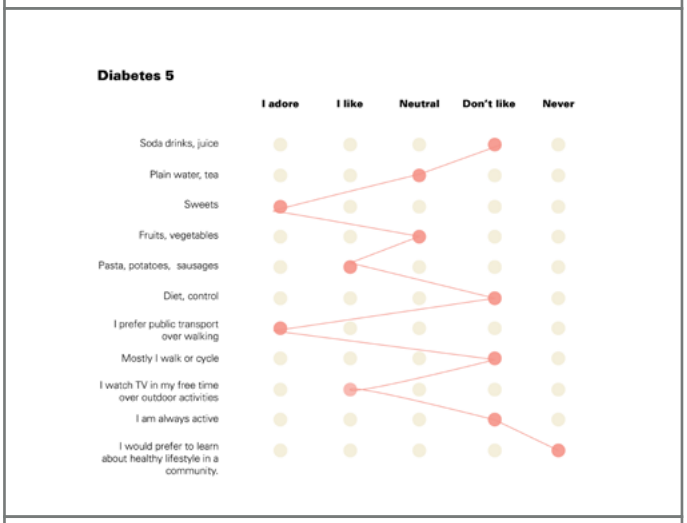
Cultural probes analysis

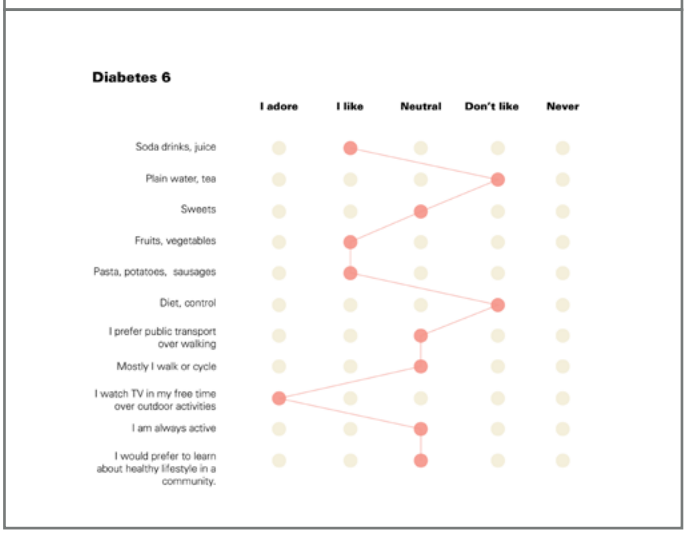


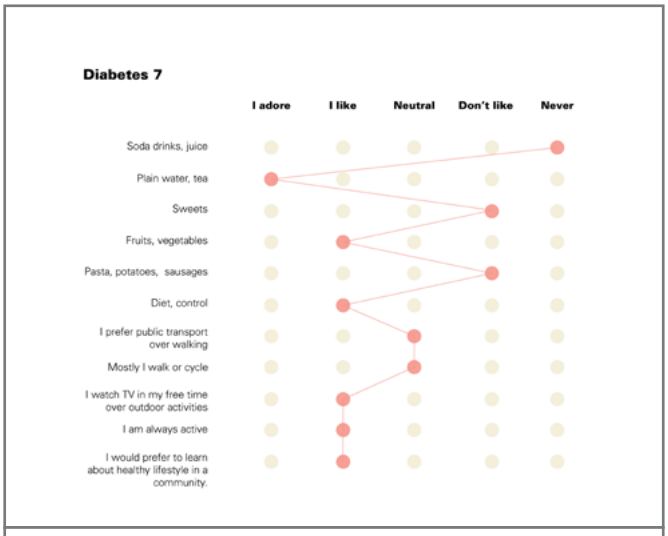


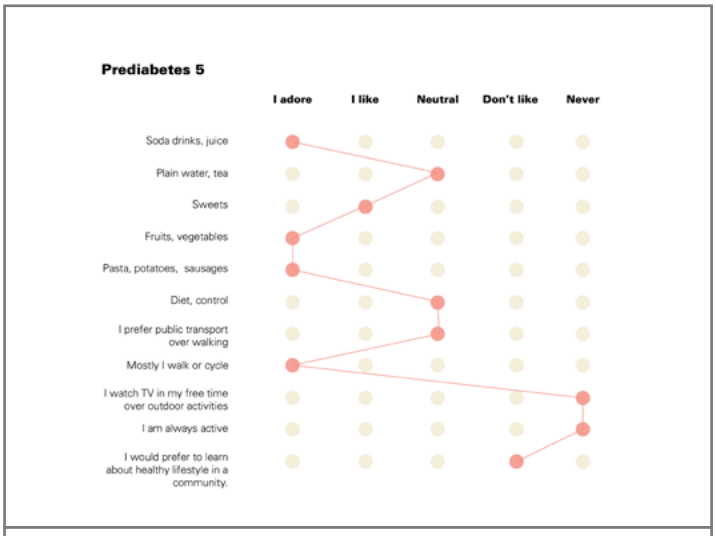


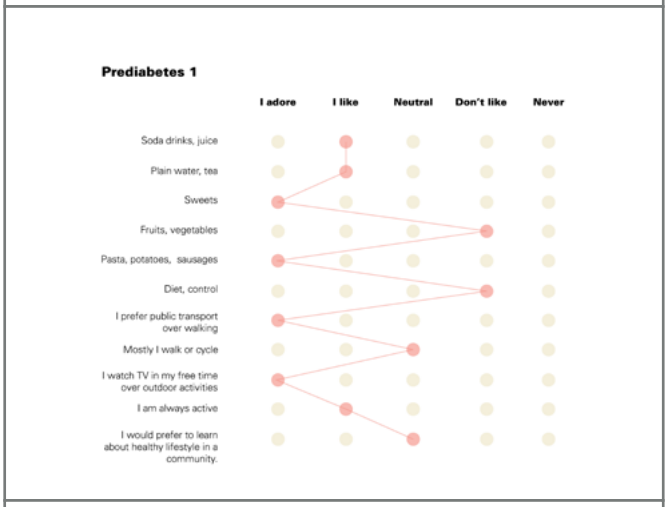


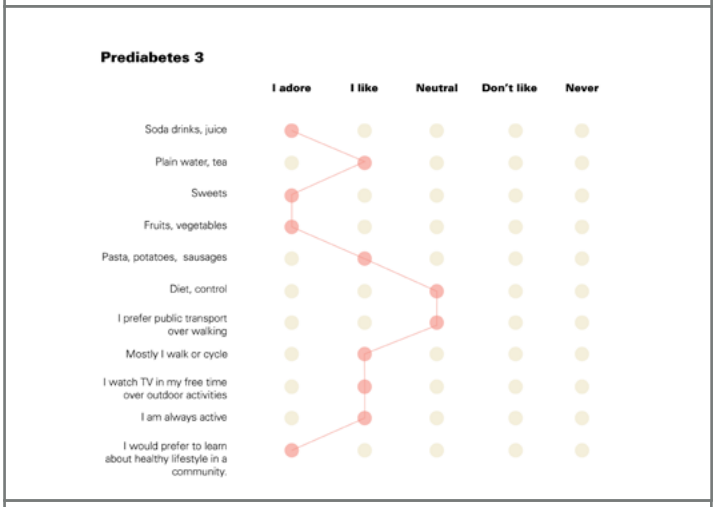


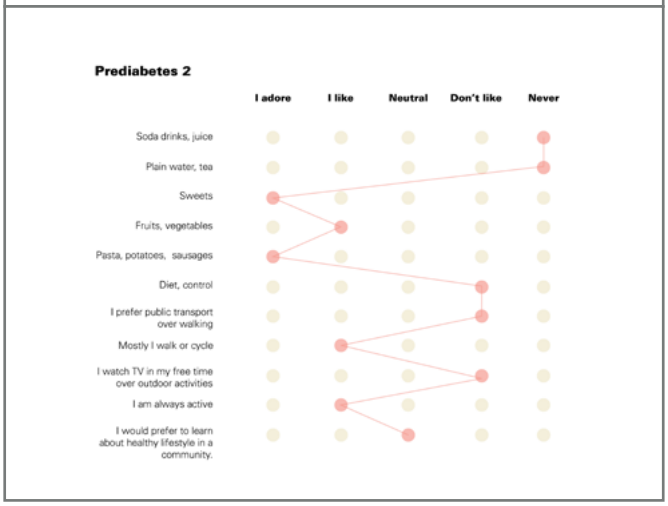


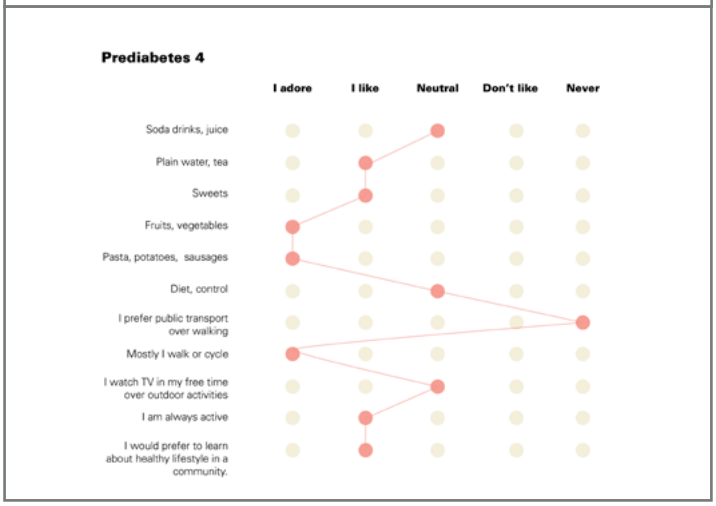

Diabetes 7
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.

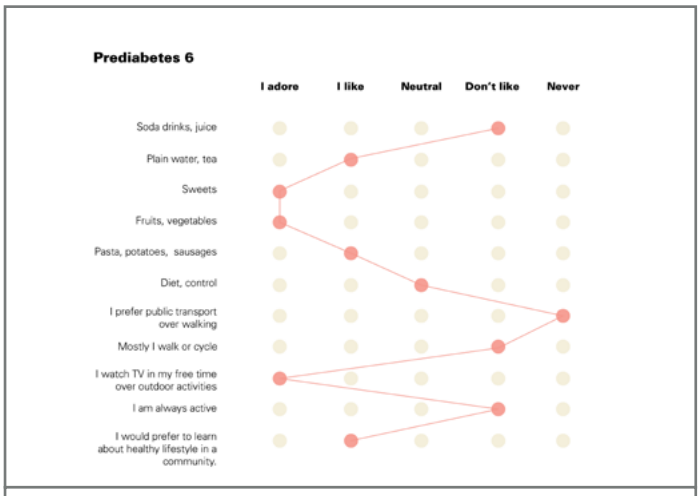

Prediabetes 5
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.

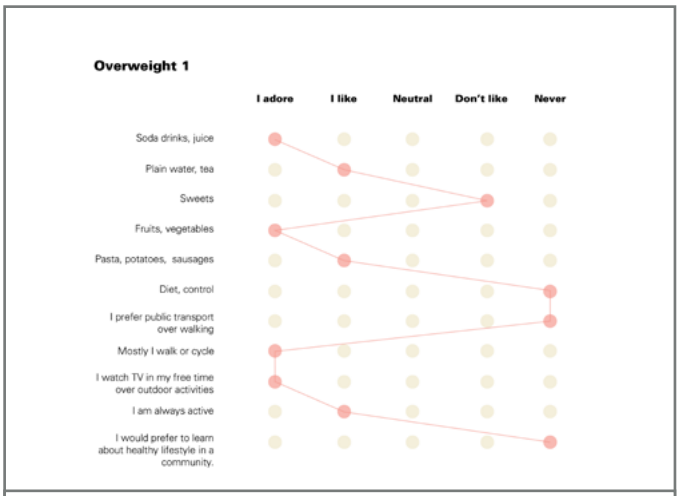

Prediabetes 1
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.

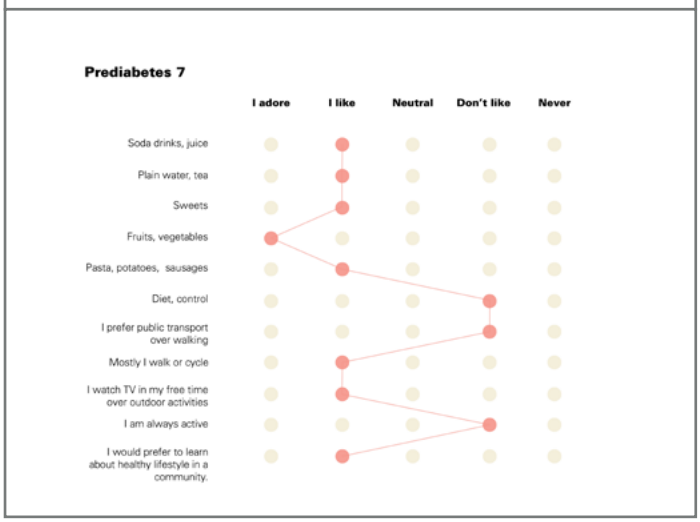

Prediabetes 3
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.

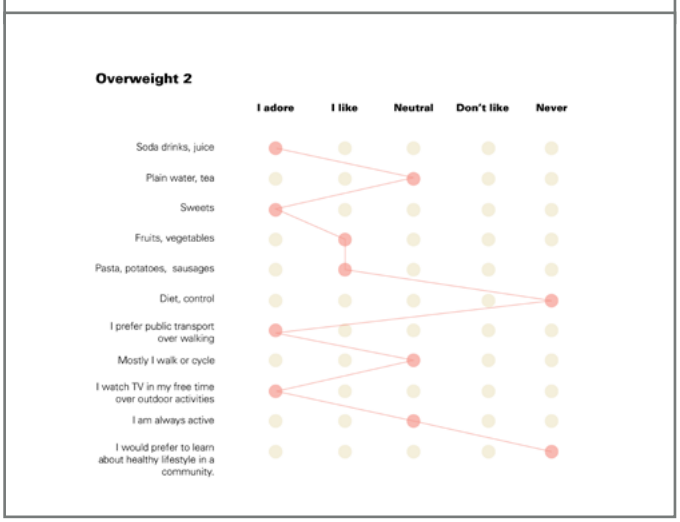

Prediabetes 2
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.


Prediabetes 4
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.


Prediabetes 6
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.


Overweight 1
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.


Prediabetes 7
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.


Overweight 2
I adore
I like
Neutral
Don't like
Never
Soda drinks, juice
Plain water, tea
Sweets
Fruits, vegetables
Pasta, potatoes, sausages
Diet, control
I prefer public transport over walking
Mostly I walk or cycle
I watch TV in my free time over outdoor activities
I am always active
I would prefer to learn about healthy lifestyle in a community.

The end