# Product Vision and Planning

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**Abstract**

For considerable time, therapists have been researching the possibility to give social phobic patients a treatment with avatars. So far, this has been done in a lab on a university or hospital. To reduce costs new research is investigating the possibility to bring the treatment to the patients home by introducing an eCoach. The eCoach should take over most of the tasks of the therapist. These include motivating, helping and informing the patient, reflecting on exposure sessions, monitoring treatment progress and giving feedback.

A plan has been made to develop the eCoach system. In order of priority the following system components will be developed: anxiety questionnaire form, progress overview, communication server, progress reflection, personalized avatar, suggestions from avatar, outside events discussing.

To ensure the quality of the shipped product, a clear definition of 'done' is given. To be done, a feature has to be tested with unit tests and integration tests. The performance must be tested, the code must be sufficiently commented, documented and reviewed by automatic tools and peers. A sprint is completed when the backlog is up to date, the code is merged, tagged and refactored for maintainability, the UML diagrams are updated, and has been approved by the product owner. A release is done when is has been thoroughly tested, both automatic and manually, and has been approved by the product owner.

# Contents

# Chapter 1

# Introduction

The problem of Social Phobia in our society has been prevalent for a considerable time. It ranges from people feeling uneasy when speaking in front of a crowd to individuals being unable to leave their houses because of their anxiety. A problem with curing this type of phobia is that in vivo treatment can be difficult: those exposure treatments most of the time require the presence of other people. A possible solution to this problem is virtual exposure, or even beter: virtual exposure at home. To ensure the quality of virtual treatment at home, an eCoach is needed. An eCoach is a device or program that can be used by the therapist as a tool to act in behalf of the therapist when the patient is at home. Using an eCoach can create an easier environment for the patient to be treated in and can make the decision to ask for treatment easier and can speed up the process.

The goal of this report is to describe the vision on how the process of creating an eCoach works. The main question asked are: "What does the user want to do with the product?", "How does the communication between the therapist and patient work" and "What is the global planning for delivering working versions of the program?".

The report will start off with describing the product. This will consist of the Product Vision, which describes who the customers are and what they need, as well as a high-level product backlog that contains epics to describe the vision and closing off with a Roadmap with the planning of major releases of the product and what the goals are for those releases. Next is the actual Product Backlog. This will contain a variety of user stories about features, defects, technical improvements and know-how acquisition. It will also cover the initial release plan. Then the definition of when this product is considered done is discussed. What requirements have to be met to consider the product finished and what are the milestones along the way to reaching that goal. The report will close off with a Glossary that contains the definitions of technical terms used throughout the document.

# Chapter 2

# Product

This chapter will provide a basic overview of what the product will become. The first section describes the team's vision on the product's behavior and what purpose it serves. In the next chapter this vision is refactored in some high-level product backlog items whom can then be further refined into the product backlog. These high-level product backlog items are then prioritized into a roadmap which serves as an indicator of when the team wants the items to be implemented.

## 2.1 Product vision

For Social phobia therapist who want to provide patients with a home treatment system, eCoach is a solid solution for aiding patients with minimal interaction with the therapist. To ease treatment of social phobic patients, virtual exposure is an ideal solution, for the following reasons:

- It improves the comfort of the patients, because there is no need to leave their home regularly.
- It reduces costs by minimalizing interaction with the therapist
- It simulates hard to realize situations in in vivo therapy such as presenting for a crowd or waiting at a bus stop.

Currently only virtual therapy systems exist that require a therapist to be present and make the avatar interact with the patient by listening to the patient and selecting the appropriate response. These systems are not sophisticated enough to be used at home and in large scale because the presence of a therapist is still required. To counter this problem attempts have been made to develop an virtual coach to guide the patients with their therapy at home. eCoach will help, stimulate and inform the patient, but also give feedback and allows the patient to communicate the results and progress with the therapist. The results of the exposures are automatically shared with the therapist. This will result in improved adherence of the patient because he/she knows that the therapists monitors the progression. Furthermore, the eCoach gives the patient advice to define sub-goals that are easier to realize than the main goal. Before an exposure session, the eCoach avatar will clearly instruct the patient about the session to improve the patients efficacy. After an exposure session, the eCoach will reflect on the session with the patient and will provide the patient with an overview of his anxiety levels during the session. When appropriate, suggestions for improvement will be given. Because the eCoach system has to be used by people with different levels of computer skills, the system will have to be user friendly. The eCoach avatar will help the user to use the system by giving tips and suggestions at the appropriate moments.

## 2.2 High-level product backlog

Anxiety questionnaire:
Form, which allows the system to gain information about the patient's current anxiety status. As an online form or the avatar will ask the questions, which is more personal and could be more helpful.

Communication server:
This allows the patient and the therapist to communicate online and will also send and retrieve the patient's files, progress and therapist's results.

Overview of patient's progress in therapy:
This will show the progress of the patient in graphs, tables and animation, which will give a clear overview of the patient's progress.

Suggestions and tips from the avatar:
Tips and suggestions the avatar will give to the patient based on the results and behaviour of the patient. The avatar also discusses things the patient has to do for the next session according to the result of the previous session(s). It will give more specific tips and suggestions that will help the patient in his current situation.

Reflection of patient's progress in therapy:
The avatar is able to interpret the results of the patient and will discuss the results. The avatar discusses what the results mean and what the patient could do to improve or what the patient has done really well.

## 2.3 Roadmap

- Friday May 10: Anxiety questionnaire
- Friday May 17: Overview of patient's progress in therapy
- Friday May 24: Communication server May 17
- Friday May 31: Reflection of patient's progress in therapy
- Friday June 7: Suggestions and tips from the avatar

# Chapter 3

# Product backlog

The product backlog is a list of features and user stories that need to be implemented by the scrum team. The items on this list may need to be refined further, so that they can be implemented in a single sprint. The list is based on persona and scenario's. An example is given in appendix B.

## 3.1 User stories of features

- As a therapist I want to monitor the patient's progress
- As a therapist I want to gain information about the patient via an adaptable questionnaire
- As a therapist I want to be able to set a treatment plan
- As a patient I want to communicate with my therapist
- As a therapist I want to communicate with my patients
- As a therapist I want to retrieve files of the patient's progress
- As a therapist I want the avatar to talk with the patients about their social events outside of the therapy
- As a patient a clear overview of my progress in form of graphs, tables and animations
- As a therapist I want an overview of my patients
- As a patient I want to be motivated by the avatar
- As a patient I want tips and suggestions from the avatar based on my progress
- As a patient I want to have clear instructions what I have to do for the next session based on the previous session.
- As a therapist I want the avatar to be able to adapt the way it gives feedback to the patient
- As a patient I want the avatar to reflect results with me and say what I have done well and where I need to improve.

## 3.2 User stories of defects

There are no user stories of defects at this time.

## 3.3 User stories of technical improvements

There are no user stories of technical improvements at this time.

## 3.4 User stories of know-how acquisition

- As a developer I need to fully understand what social phobia means.
- As a developer I need to know how to communicate with social phobic patients.
- As a developer I need to know what kind of situations social phobic patients fear.
- As a developer I need to know how to program an avatar.

## 3.5 Initial release plan

The following items are the minimal releasable features that the final release must have to be satisfactory to the user and product owner.

- Anxiety questionnaire
- Overview of patient's progress in therapy
- Communication server
- Reflection of patient's progress in therapy

# Chapter 4

# Definition of Done

The definition of done (DoD) is a guideline to review the work that has been done and if it will be acceptable for release. To have a definition of what is done and what is not, makes it easy for team members to correct each others work, but also to check if your own work is ready. This section is divided in three parts. The first will describe a definition of done for a feature or a user-story. These are the product backlog items that are due in one sprint. The next part is a definition of done for a whole sprint. This focuses mainly on the integration of the different features. The last is the definition of done for a release. The release has most of the features implemented and is potentially ready to ship.

## 4.1 DoD for a Feature

- Unit tests written
- Code complete
- Unit tests are executed and passed
- Integration tested
- Performance tested
- Code sufficiently commented and documented
- Code is reviewed with automatic tools or by peers

## 4.2 DoD for a Sprint

- All features and user-stories that are not done added to product backlog
- New code is properly merged and tagged
- Code is re-factored to make it maintainable and expandable
- UML diagrams are updated
- Sprint has product owner approval

## 4.3 DoD for a Release

- Thoroughly automatically tested
- Manually tested
- Product owner approval
- Product is properly packaged

# Glossary

**avatar** a virtual person. 1, 3–6

**eCoach** an online virtual coach that aims to help patients solve problems on their own with minimal input of a therapist. 1–3

**scrum** a project managing method designed to be flexible and handle changing requirements easily by releasing not feature complete software in short time periods, called sprints. 5, 8

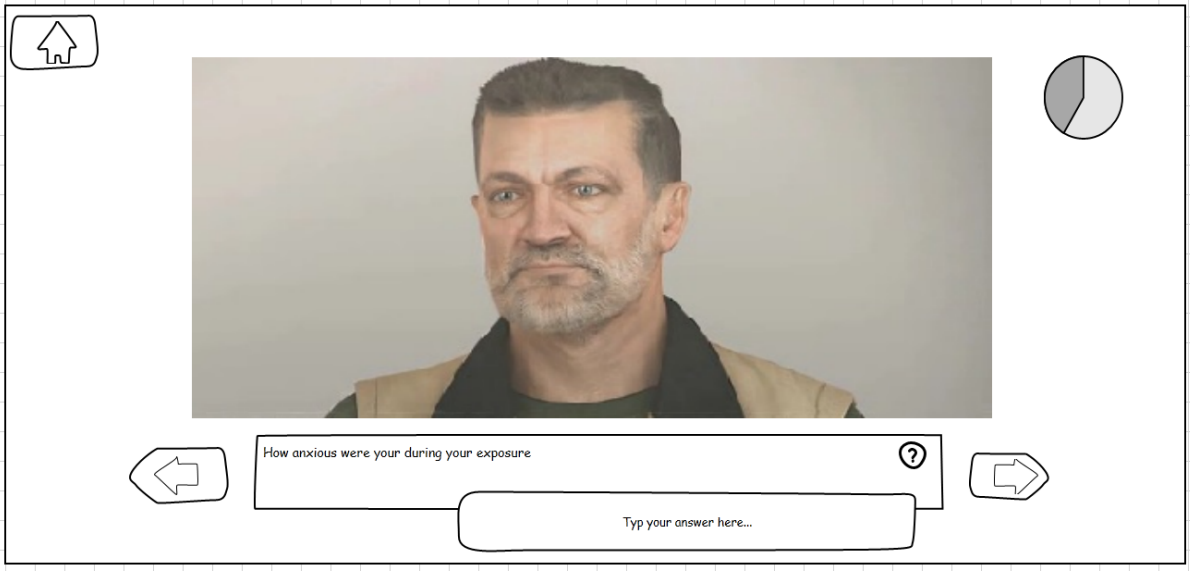
**sprint** the time interval in which the scrum team delivers a working piece of software. Usually a sprint is one or two weeks. 1, 5, 8

**UML** (Unified Modelling Language) a standardized way of visualizing code and project architecture. 1, 7

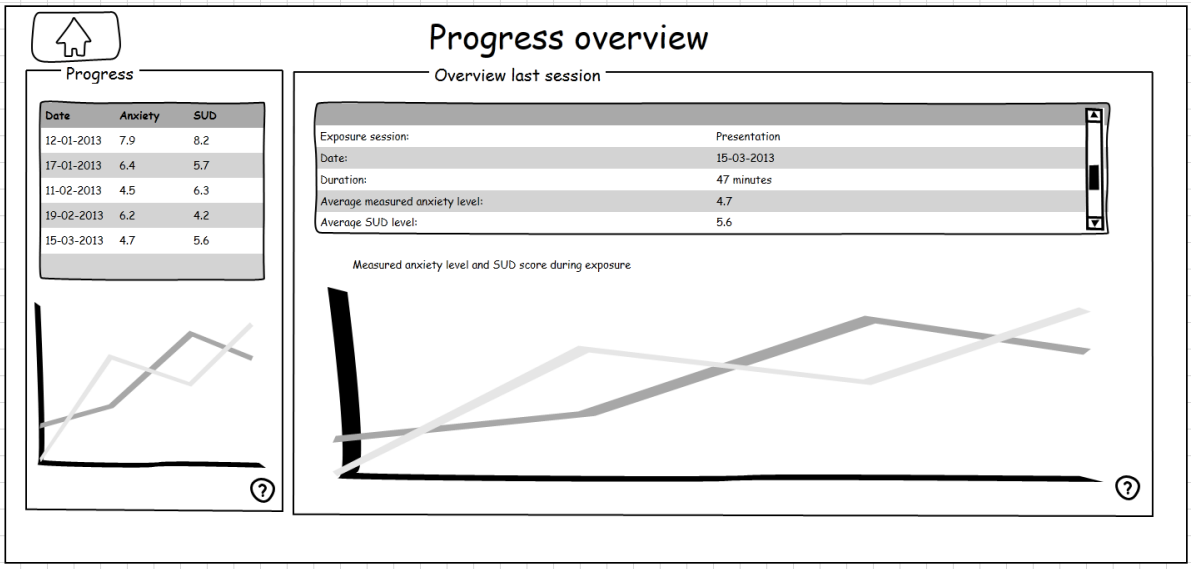
# Appendix A

# Grahpical User interface

The patient will fill in answers in a questionarry form. Example of the form:




The patient wants an overview of his/her progress. Example of the interface:



# Appendix B

# Persona

**Persona 4**

- Name: Jan
- Nationality: Dutch
- Male, 42 years old
- Super computer skills (coder)
- Hardware: Laptop, pc, HDTV, tablet, smartphone
- Does not like slow programs and difficult GUIs
- Motivated to do "Home" treatment
- Average self-effiacy
- LAT (Living Apart Together) relation
- Status: freelancer for his own company
- Goal: Be able to give a presentation to his customers

Figure B.1: Photo of Jan

**Progress Reflection and Briefing Exposure Module (Block 6b+7):** Jan starts his actual therapy session (according to his treatment schedule). He sets up all the necessary things to monitor his parameter: inserts the USB stick, put on the heart rate monitor device, setup the Bluetooth connection. Then, while he is starting eCoach, he complains why the setup is so complicated. After he logs in to eCoach, using a username and password, the avatar greets him and asks him to fill in a social anxiety questionnaire that his therapist has created earlier and send to the individual patients.
After Jan finishes the social anxiety questionnaire, the program informs him that the therapist has send him a message. Jan clicks on the message box and reads the message. His therapist has send him a message about his progress that the therapist can monitor from the office. Jan says to him self, that he really likes that the therapist can monitor him without the therapist actually being in the same room. The therapist also says in the message that Jan can try out different reactions to a avatars response. Jan is complaining that he already tried this and that the therapist didn't need to remind him about his.
Now he wants to se an overview of his progress to boost his own confidence. So he clicks on the button to show an overview of social anxiety scores he has entered over weeks. After viewing various scores of his fear levels and anxiety scores in exposure sessions the program asks him via an avatar whether he is satisfied with his progress. Jan is still a bit worried about his progress and what the therapist thinks of his progress. Than the avatar steps in and explains that this can vary for each individual, the avatar comforts Jan and gives him positive feedback. After this Jan feels a lot better about himself and is now more determined to finish the therapy.
The avatar invites Jan to indicate his expectations for next week. After reflecting on his progress, Jan likes to start with the actual exposure session. He clicks on this treatment plan. The avatar explains that today he will have to give a presentation in front of a small audience. The avatar also explains the goals of the exposure. Jan should look at the audience when he gives his presentation, and he should not

try to hold something as a trick to keeps his hands from tremble. Next, the avatar ask Jan if he also has a goal in mind for this session and gives him a long list of possible goals. Jan select speaking without stuttering option. As stuttering is not under Jan direct control, the avatar suggests to change his goals into something he can actually control, for example, if he stutters to make a joke about it. Jan agrees that this is a goal he could try to achieve. After this the avatar screen disappears, the narrative text of the session appears on the screen and the exposure sessions starts.

Claims:

1. Getting feedback from both the therapist and from the avatar about the previous exposure(s) will increase the chance of a patient to continue the therapy.
2. Patients awareness that therapist will regularly monitor their treatment progress improves patient adherence.
3. Feedback from therapist about events outside the therapy will increase chance of patient to continue the therapy session.
4. Providing clear instructions about a sessions goal before exposure will improve efficacy of exposure.
5. Having an overview with interpretation of the progress so far will motivate patient to continue with the treatment.

**Current Exposure Reflection Module (Block 9):** After the exposure session has ended, the avatar leads Jan into the reflection session. Here Jan is provided with an overview of his SUD scores and heart rate data. Also the times are shown for which Jan was talking and the avatar was talking. Jan thinks that this is a good representation of a session overview, he really finds this useful.
The avatar also asks Jan to indicate whether he has applied any tricks (safety behavior). Jan is also asked to rate how much he achieved the goals for this sessions.
After this the avatar suggest that Jan takes a rest for about five minutes, before he continues with the next exposure session, that the therapist has ordered. Then his screen turns black, only showing a clock counting backwards. When the five minutes are up, Jan sees the avatar once again and he is reminded about the goals for the next session. After this, Jan sees the narrative text again and a new exposure session starts.

Claims:

1. Having patient reflect on their exposure experience in between or after the last exposure session will improve the efficacy of the exposure.