

Fear Fighter Project: a mobile solution for treating acrophobia

- Exploring the qualities of the smartphone.

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ABSTRACT

The overall motivation for this project originates from the impact anxiety disorders have on society. The Fear Fighter Project aims to consider a new way of treatment by utilizing the technologies available, in this case the smartphone. This paper presents a research study to discover the most pertinent qualities of the smartphone, useful to take into consideration when designing a comprehensive solution for treating acrophobia. The foundation for further research is based on elements of playability and seductivity, however it does not contain any conclusive results as to what a design could look like.

Keywords

Acrophobia, Smartphone, Captivating Qualities, Cognitive Behavioral Therapy, Fear Fighter Project.

1. Introduction

There are currently defined approximately 500 different types of phobias, everything from acrophobia (fear of heights) to social anxiety, etc. With the plethora of anxiety disorders being as rampant as they are, this is an important matter to address. In Denmark about 1-5% of the population (60.000-300.000) suffers from either one of more types of phobias that will require treatment [10]. Here the extensiveness of the problem have statutorily resulted in necessary legal privileges for treatment of the disorder, thus creating an economically onerous situation in the society [11].

Numerous studies have given credence to the mobile technology's dynamic and communicative ability to be a successful mean in e.g. withdrawing people from smoking [1, 2]. In addition, recent studies have substantiated the use of mobile phone technology in the practice of Cognitive Behavioral Therapy (CBT), however without providing sufficient data or suggestions for an integration of a fully functional and effective system [1].

The mobile phone and more recently the smartphone is an interesting media for treating phobias, due to the fact that they are an integrated part of people's everyday lives [3].

This paper takes its point of departure in a research project called the Fear Fighter Project (FF Project). Our focus is on the smartphone. Among professional therapists, a general agreement is that the most important aspect of CBT is the relationship and trust that the patient builds up with their therapist [7]. The fact that the users have no direct personal contact to a therapist in the FF Projects' treatment, raises some concerns that, we wish to explore further i.e. motivational factors for users to engage in the therapy program. In this paper our intention is not to design a

complete solution to the problem, but to investigate how qualities of the smartphone can be exploited in the design of such a comprehensive solution.

1.1 Cognitive Behavioral Therapy (CBT)

The basic element for CBT is to have the patient confront and remedy the irrational thought that provokes the anxiety, instead of avoiding it. Through therapy sessions the patient is introduced to a set of techniques to help reduce the symptoms. By increasingly being exposed to their fears and by applying the acquired techniques in the situation, it will gradually reduce the anxiety until the symptoms do no longer occur [7].

1.2 Fear Fighter Project

The Fear Fighter Project is a proposal for a complete therapy program for treating acrophobia [9]. The treatment program is meant to be free of charge and anonymous. It takes place at a public location, the IT University, from an application on the patients own smartphone. The system is intended for people afflicted with a severe condition of acrophobia, often requiring professional treatment, which are also the target group of this research.

The system requires technical attributes such as the smartphone as the main technology and a tracking system. The treatment program builds on CBT, and will primarily consist of different *in vivo* exposure exercises, and proceeds over a period of ten days.

The fact that the treatment is extended over several days raises issues concerning motivation and engagement of the users in the FF Project.

2. Research Design

2.1 Methodical approach

In our research study we want to understand the phenomena of being exposed to one's anxieties, in this case acrophobia, while the smartphone serves as a mean to keep the situation under control.

Characteristics adjoining the phenomenological approach are to learn what the participants experience in certain situations and how they experience it. Through simulation and enactment in a controlled environment researchers are able to collect comparable data. This data utters something about the user experience, interactivity, and the potential, which mobile devices have to offer [6]. In order to get deeper into findings from preliminary studies, it can be beneficial to supplement with interviews [6]. To uncover the essence of these findings, methods such as use scenarios and personas, have proven to be useful in creating empathetic insight from participants during e.g. a focus group interview.

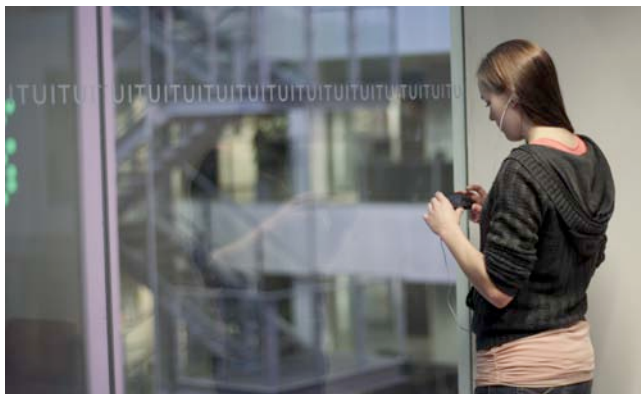
Based on these theories on how to merge research methods for understanding mobile technology use, we have assembled our study. It is grounded on a preliminary investigation at the IT University of Copenhagen and a focus group.

2.2 Preliminary investigation at the IT University of CPH

During the public event *Kulturnat 2011* we constructed a situation with focus on simulation, with 38 participants with various grades of fear of heights. They were exposed to heights inside the building and were introduced to anxiety reducing techniques, enabling them to cope with their fear immediately. Some received techniques from a psychotherapist and some through a prototype on a smartphone. The prototypes presented three techniques either through a video with text or a video with a combination of text and the voice of a therapist. In addition to the three different presentation methods (a therapist and two prototypes) we created a fourth situation to account for the placebo effect.



Picture 1. Here is an example of one of the techniques presented in the prototype.



Picture 2. One of the participants trying the prototype.

The main focus for us was to observe the behavior of the participants while they were interacting with the smartphone contrary to the therapist.



Picture 3. One of the participants is receiving some techniques from Lone Decker.

2.3 Focus group interview

Subsequently we conducted a focus group interview with three participants, with moderate to severe anxiety, and a therapist who participated in the discussion as an expert, representing her previous anxiety patients. The focus of the interview was on the use of the smartphone, as well as the participants' experiences with their anxiety. Open-ended questions were formed and divided into themes, based on our findings from our preliminary investigation. Furthermore we used the method Persona and Scenarios, to make the participants relate to the phenomenon from the eyes of a persona with a severe condition of acrophobia.

2.4 Critic of methodology

Our investigations are based on an extensive supplement to traditional approaches within HCI [6], but because of complications during the recruiting of participants, our study has been of small range than intended. Also, only few participants in our investigations could approach similarities of the FF Project's proposed target group. This means that the results cannot be generalized, and are not representative of the whole population of persons with acrophobia.

When involving people in studies revolving around sensitive areas such as anxieties, ethical considerations are to be made. In this regard, we collaborated with two psychologists during the planning and execution of both studies, making sure that the participants were under supervision.

3. Findings

3.1 Similarities between the smartphone and the therapist

From the preliminary investigation we found that the participants were positive towards being presented to techniques through a smartphone; they saw it as a distraction from the fear, and as a support. One girl showed a huge amount of fear, but was able to focus on the smartphone performing the techniques step by step while feeling more relaxed. The majority of the participants expressed that the reasons for this relaxing effect were clearly the sound of a calm voice. The only thing that seemed to separate the situation with the therapist and the situation with the sound application was the fact that the participants spoke out loud while the therapist was helping them.

We discovered that there had to be certain motivating elements connected to the smartphone, in the design of the FF Project, in order to retain the users in such a program. A participant in the focus group confirmed this discovery:

"It can be a problem that the treatment takes its course through the smartphone. It is all up to you, and no one else. No one is pushing you to do it. You are afraid of heights, so why would you expose yourself voluntarily to heights here at ITU?"

3.2 Game as a motivational factor

An interesting finding from the focus group was that the participants mentioned game elements as a motivational factor. The therapist corresponded by saying that it could be of significance to involve challenge in a CBT program, but without exaggerating it [Lone Decker, psychotherapist MPF]. Additionally, one of the participants stressed, "It is always nice to be able to measure one's success". The others agreed on this. At the same time one of them mentioned that it is important that success is not measured in e.g. how many apples you can get as points, but it should be meaningful and appealing compared to the situation in which you are in, in this case a very emotional situation.

3.3 Online community

The participants could not relate to an anxiety treatment program where only a single mobile application was attached. All of them agreed on a statement, by one of the participants:

"It would be a good idea to have an online community at a website, connected to the application. Like they have on weight loss-websites. That gives the project a mentality of "let's do it together"

The participants found that involving game elements and an online community, would motivate them to engage in the FF Project. One last interesting quote from one of the participants that supported our approach was: "It is okay to have fun while getting rid of one's acrophobia".

4. Design criteria for the FF Project

An important finding, and quality of the smartphone, is its ability to function, as a discrete, mobile, online computer device. Hereby, the users can easily be in touch with an online community network, or game elements can be integrated technically in the device. Also the positive feedback on the sound qualities is very valuable for integrating these essential findings. In this section we will discuss why these abilities could be important.

4.1 Motivation

Bill Gaver states that human beings are playful creatures, as he calls them "Homo Ludens" [5]. "Play is not just mindless entertainment, but an essential way of engaging with and learning about our world and ourselves — for adults as well as children" [6, p. 3]

The play elements though, should not take over the goals and rules that are incorporated in the treatment process. There has to be found a middle way where the elements assert as a motivational factor.

Löwgren defines two captivating qualities in digital artifacts as "playability" and "seductivity" [8]. Seductivity entails "...*Enticement* (attracting attention and making an emotional promise to the user), *Relationship* (making progress with small fulfillment's and more promises, possibly lasting for long time) and *Fulfillment* (making good and final promises and ending the experience in a memorable and positive way)" [8, p. 132].

An important aspect of the treatment process is the relationship between the partial goals and greater promises. Reaching a certain goal e.g. getting rid of an anxiety, is what must keep them motivated and captured.

Seductivity seduces the user, whereas, playability is described as making the users addictive [8]. Playability is important in order to give the users a sense of joy, it appeals to the intrinsic motivation that drives Homo Ludens. E.g. reaching a goal, getting from first floor to second floor [8]. It is important to supplement playability with seductivity.

As mentioned in the findings the participants were able to connect to the smartphone, but in order to capture their attention and withhold them in a therapy program, it could be beneficial to integrate the following playability qualities in the design of the smartphones application, as ways of engaging the users in an emotional process:

Challenge: The application should challenge the users and their anxiety by gradually exposing them to heights during the treatment. For motivation, they are given an opportunity to measure and visualize their success during the treatment.

Curiosity: The application should awake the users curiosity by them wondering, how far they can go, with the smartphone as a mean and if they are able to cope with the anxiety situation.

Control: The user should have control over the application, e.g. the length of the techniques or which techniques to use, and be able to stop if the anxiety level rises.

By combining seductivity and playability, it is possible to create a relationship between the application and the user that motivates the user to complete the treatment. In a situation where the users experience anxiety, emotions are controlling them. In these situations, it is important that the play elements are not visible. There should be a fine balance between the seriousness of the situation and the playability qualities.

4.2 Online community combined with the smartphone

As mentioned in the findings the participants from the focus group interview agreed that an online community at a website connected to the application would assert as a motivational factor, that would make them feel comfortable and secure.

This can be connected to the game aspect. The participants from the focus group, liked the idea of comparing and sharing with like-minded. According to Löwgren network games, contrary to single games entails a whole new class of motivation, based on the social interactions [8]. Doing something together with other people is a huge motivational factor, which could supply the FF concept with great value [8, p. 127].

5. Conclusion and Further Research

We have discovered and discussed motivational factors for engaging the users in the FF Project, and which qualities of the smartphone could support this engagement. Besides the audible and visual qualities, the smartphones ability to portray game elements and access the internet, create seductive and motivating reasons for the users to engage in the FF treatment.

The paper has through a phenomenological approach provided a ground for further research. We have specified two criteria that convey something about the described phenomena, by indicating that the smartphone in a longer therapeutic treatment without

direct contact to a physical therapist, can not stand alone. However this area of interest does not provide any conclusive solution for a comprehensive design. There are others aspects to include when investigating user experience, such as physical, sensual, cognitive, emotional and aesthetic [4].

A Research Through Design approach in further research could benefit from including the mentioned criteria, combined with these aspects. Further research regarding the design of the smartphones role in the FF Project should also involve people with direct acrophobia and take place over a longer period of time, in order to build our findings.

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