



Image from Interaction Design Exhibition 2019 by Judit Losh

Treating Anxiety Disorder Symptoms Through Public Installation

Physical Computing & Interaction Design Studio

Reflective Report

Team Placebo

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Abstract

Mental Illness is becoming more common in society. Negative emotions such as anxiety, fear, and stress are common in one's daily life, but when they start to interfere with daily activities, it is the moment when steps need to be taken. Team Placebo developed a solution to stabilize the user's emotion, and this reflective report explains my journey in developing The Untold.

Introduction

The prevalence of mental illness is increasing globally, as more and more people have been diagnosed to experience mental illness symptoms. The feeling of worry, fear and anxiety are commonly felt by everyone under normal circumstances. But, when those feelings started to interfere with daily activities, it has become a symptom of anxiety disorder. People could experience anxiety disorder and clinical depression simultaneously. Fortunately, the treatment for both illnesses are similar. In some cases, anxiety disorder itself could become a symptom of clinical depression disorder. Both mental illnesses should be treated carefully and as early as possible, as the risk of suicide is increased for people that experience mental illnesses. Professional treatment would be recommended to treat the illness, as people rarely cope with the symptoms by themselves.

In recent times, people have become more aware of mental illness and the problem that it may cause. Mental illness is slowly being acknowledged as equal to physical illness. Sadly, in some areas, there is a stigma against mental illness, having a mental illness is a disgrace and it would bring dishonor to them. This stigma creates a barrier for those people that experience mental illness symptoms as it prevents them to seek help in fear of being discriminated by society. Many support groups and movements around the world have been created with the goal to help people that experience mental illness symptoms and breaking the stigma against mental health disorder in the society

The project "The Untold" is a public installation that aims to help people in restoring their current emotional state. By using The Untold, people would be able to share their emotion to other people by sharing their stories. Then, other people would be able to give feedback to them based on the emotion that has been detected from the story. The Untold aims to be the first-aid solution for people that are currently feeling anxiety disorder symptoms and become a medium for people to seek help from others. By using The Untold, we want people to realize the state that they are currently in and push them to seek assistance from the professional. The Untold provides a safe space for people to share their stories with other people anonymously, as only their emotion will be sent to others. The project is targeted towards people that are currently not in their stable emotional state, especially anxious and stressed people.

This essay will focus more on the development of The Untold and the research that has been done to support the design choices that has been made for the project. The Untold project focuses more on anxiety disorder rather than clinical depression. The reason behind this is because treating depression requires direct assistance from a professional, where anxiety, fear, and stressful feelings that people often feel as symptoms for anxiety disorder could be treated by people around us. Although, researches and insights for treating clinical depression will be used as a reference, as treating anxiety and depression is similar. As the aim of the project relies on one person influencing the other person to stabilize their emotional state, the project is created as a public installation to see whether an interactive public installation has the effects to influence others.

Background survey

The Untold is a project that aims to become a first-aid solution for people that are currently feeling the anxiety disorder symptoms, it is important for us to understand what anxiety disorder is, its symptoms and how to treat it. The Untold itself was created as an interactive public installation. Therefore, it is also important for us to see how we can utilize that form in order to influence other people to achieve the intended effect to restore the emotional state of the user through the help of others.

Anxiety Disorder

The Untold has a target audience of people that experiences an anxiety disorder. Therefore, it is important for us to be able to identify different types of anxiety disorder. Anxiety Disorder is a mental health disorder where the person suffers from the feelings of worry, anxiety, and fear to the point that it hinders with their daily activities. There are several different types of Anxiety Disorder, the most common ones being Generalized Anxiety Disorder (GAD), Obsessive-Compulsive Disorder (OCD), Panic Disorder, Post-Traumatic Stress Disorder (PTSD) and Social Phobia.

GAD is a condition where anxiety happens over otherwise common things or events, and usually, it is difficult for the individual to control (Torpy, Golub, 2011). This condition is excessive and usually occurs for at least 6 months. The level of anxiety that the sufferer felt gradually fluctuates over the years. This condition contrast with Panic Disorder symptoms that experiences separate episodes of severe panic anxiety. Panic Disorder is when a panic occurs frequently and unrelated to any situations around them and followed by a minimum of 30 days of worry (Torpy, Burke, & Golub, 2011). OCD is characterized by persistent obsessions and compulsions, although both do not have to be present in one individual (Goodman, Grice, Lapidus, & Coffey, 2014). PTSD is characterized by failure to recover from a traumatic event, and often have an intense reaction to the reminders of the event (Longo, Shalev, Liberzon, & Marmar, 2017). While Social Phobia, or Social Anxiety Disorder, is characterized when social or interpersonal interaction causes irrational anxiety. People who suffer from this will avoid interaction with others, and often induces suicidal behaviors (Miloyan, Beyon, Bulley, Adam, Pachana, Nancy, & Byrne, 2014).

Treating Anxiety and Stress

To provide the user with a suitable treatment, we need to know how to treat the anxiety itself. Anxiety disorder and clinical depression have similarities in treatment. Therefore, researches and insights regarding treatment to depression could be applied for treating anxiety. While using The Untold, the user will be guided to seek help from a professional if the anxiety feeling persists. Existing problems regarding current treatment process, or even getting someone to be treated itself should also be researched, for The Untold to be able to guide the user.

Currently, physicians rely on small assessments to measure anxiety. On each visit, patients are required to fill a short self-report measure of their anxiety level. Then, physicians would be able to track the responses and give treatment based on it. Patients would start with small, low-cost interventions for stress reduction. If it is not enough, the treatment continues with antidepressant for 2 - 4 weeks and will continue for 9 - 12 months if it is effective. If it is not, the patient will be referred to a suitably trained therapist for CBT (Cognitive Behaviour Therapy) or to a psychiatrist for advanced medication. (Stein, & Craske, 2017).

According to Lueck (2018), different communication strategies would be needed for different stages of depression to make them ready to seek help. Lower stages of depression (minimal depression) tend to have higher rates of intention to seek help rather than those that are currently in higher stages of depression (moderate to severe). Lueck stated that a depressed individual will be less likely to seek help due to specific barriers that make acting particularly difficult. Usually, this barrier is in the form of a stigma in society. These barriers mean that sending a message to them may not be relevant unless they overcome such barriers. By breaking the stigma in society, treating those individuals will be easier.

People with anxiety disorder are given stress reduction treatment early on to reduce their symptoms. The Untold needs to incorporate this treatment for its user, as it will be the first-aid solution that people can use when they are experiencing the symptoms. While using The Untold, user will feel relaxed and comfortable to reduce their stress level. User will also be guided to seek for professional help while using The Untold if their anxiety persists for a long time. This is done subtly without forcing the suggestion to the user so that the user would be able to reflect on it without getting annoyed.

Public Installation

The idea of The Untold is to create an environment where the user could have a social interaction through the installation. A public installation form is chosen for The Untold for this reason. Multiple users would be able to interact with the installation and communicate with each other through it. Using the interaction, it is hoped that one user could influence the other user and help stabilize the emotion that the other user felt.

An interactive art installation is unique because the dialogue between the user and the installation will vary and difficult to predict. While designing the product, it is important for the product to have an interaction that is satisfying, or rich experience. Van Boheemen & Hu (2014) did an experiment regarding social connectedness in an interactive public installation. During their experiment, the users of a multiple users interactive art installation ended up interacting with each other in a social way. This proves that having users to interact simultaneously will increase the level of social connectedness, which will result in influencing others.

The Untold

The Untold is an interactive public installation that Team Placebo has created as a solution to the problem space. User would be able to share their stories to other people and receive feedback based on the emotion that they are currently feeling. That way, the feedback that the user received will be generalized, and the identity of the users remain anonymous. The Untold is targeted for people that are not currently in their stable emotional state, especially people who are feeling anxious, fearful, or stressed. The Untold has two parts of the installation, the Conveyor and the Listener. The Conveyor will be able to share their stories to the Listener, while Listener will be able to give feedback based on Conveyor's emotion. This exchange happens in real time, therefore both sides need to be present at the same time. The location of both installations will be separated, and both users would not be able to identify the other user.

Design Process

The Untold has been polished through several iterations. Team Placebo received repairing self as the theme of the project. Initially, we explored the realm of repairing self physically for our project. Our initial idea for the project is an installation about diet which I proposed. User will be able to scan certain foods that they think they will eat for the day, then user will be given an overview regarding those foods and total calorie intake that they will receive. The team encountered several problems regarding the project, unique and meaningful physical interaction is the main problem that the team encountered. After several iterations, the team decided to explore the realm of repairing self mentally instead.

An interview with one of the board members of an Indonesian mental health movement and a focus group discussion was conducted regarding their actions when they are feeling down (See Appendix A & B). We found out that people want to feel acknowledged when they are feeling down. People feel better when they share their stories with other people, but they do not necessarily want an answer to be given to them as they just wanted to be heard. Sometimes, people feel more secure telling their stories to strangers instead of their close friend because of the fear of being judged. Based on this interview and the focus group discussion, we developed a new project idea about story sharing. People would be able to tell a story into a device, and the device would be able to detect the emotion that the person felt. Then, supporting messages from other users will be shown on the screen to make the user feel that there are many people cheering on them.

Iterations to the project kept being done to improve and polish the project. We moved from single interactions to multi-user interaction. The project now consists of two different booths that users can interact with. We had an idea to make the users of both booths to be able to communicate in real time between the booths. The core idea of the booths still revolves around emotion detection, although we are still not sure about the interactions between both users. I think it would be better to have a real-time interaction between the users rather than showing a collection of messages to the user. By having real-time interaction, user will feel that there exists someone that cares about them out there. Which creates more intimate and personal interactions that the users could reflect on.

To polish the interaction between the users, we conducted an open discussion with the school of psychology students at UQ regarding our project. From this open discussion, we found out that people want to be accompanied by another person when they are feeling down. They also stated that our project is in the correct direction, and it would be better for us to handle each emotion differently. For example, people that are feeling sad could be helped by reminding them that this problem will

pass, and the future will be brighter. Based on this discussion, we iterated and polished the project several times, which resulted in the current state of The Untold. We also decided to make the Listener to give feedback based on emotion instead of the other person story. This way, the anonymity of the user will be kept, and it answers the challenge of acknowledging others without giving them a solid answer on their condition. The communication between the Conveyor to the Listener will be done through light strips that will change color based on the emotion that the Conveyor felt. The feedback that the Listener gave to the Conveyor will still be played through audio.

Development process

My role in the team was the developer of the project. It is my responsibility to create and list technical specifications for the project. After several considerations, I decided to build the project using Raspberry Pi instead of Arduino as they are more versatile. The project itself will be coded on Python. The reason behind this action is because most of the library that will be useful for the project is available on Python. After specifying basic requirements for the project, I did research regarding emotion detector API. I found out that there are three different categories for emotion detector, which are facial detector, text to emotion, and speech to emotion. I choose the text to emotion category as uploading video or audio data will take longer time. For the API itself, the project used Watson Tone Analyzer API that is developed by IBM.

Then, I created the underlying connection between the two devices. I built an API using a Heroku server. The idea is to create a master database that could be retrieved and updated using the API that I have created. This way, the state between the two devices will be the same as they were updating and retrieving from the same database. I designed the main state of communication between the two devices by looking at the interaction that will happen between the Conveyor and the Listener. Basically, the Conveyor will initiate the interaction and start sharing their stories. After the Conveyor finished on their side and the emotion has been detected, the emotion will be sent through the database and will be retrieved by the Listener using the API. Then, the Listener will be able to record their feedback based on the emotion that the Conveyor felt. This feedback is then uploaded to AWS S3 server and can be downloaded from the Conveyor side. The Conveyor will play the feedback that the Listener gave along with 4 other random feedback on the same emotion category.

The project uses recorded audio files to guide the user while using the project. The audio files itself consists of explanations on using The Untold. The audio files also consist of comforting words that play depending on what the user felt. These audio files were created to give a personal experience for the user and make the user felt that the feedback is made especially for them. I inserted the audio files following the interaction diagram that was created by other team members (See Appendix C). I felt that the audio files help give context to the user interactions. By having an audio recording that guides the user while using the installation, user will be able to understand and comprehend the meaning of the actions that they have just done. Unique recordings that will be played depending on the user emotion will also help the user to reflect on their actions and makes more meaningful interaction.

Conclusion

The Untold succeed to achieve its main goal to repair the user's emotional state. After using The Untold, feedback that the user received makes them feel better as they felt that there exist people that care about them, even though they do not know each other. Audio recordings and feedback that the user received, compliments each other as the recording serves as a built up for the feedback. The booth design and the usage of aromatherapy in the booths also help the user feel comfortable and relaxed while using the booth, which also helps them to calm down. Although, there are several problems that exist with the current form of The Untold. The current booth size was too small for some users, and it forces them to sit in an awkward position. The waiting time between the Conveyor sending the emotion to the Listener and receiving feedback from the Listener takes too long. Some user left before they received feedback, thinking that the interaction has finished.

The Untold has several success criteria to measure the success of The Untold. The success criteria were interactivity, engagement, usage understanding, and data understanding. On interactivity, the duration and quality of interaction between the user and the installation will be marked. Engagement sees how many people are interested in using The Untold. Usage Understanding sees if user needs guidance in using the project. While Data Understanding success criteria sees if the user understand the data that were shown to them. All success criteria have been met, with interactivity and engagement receives excellent marks, and the others receive satisfactory marks. The reason behind this is because some users still need guidance while using the installation and small portion of the users mistranslated the emotion color.

The Untold has proven that telling stories to other people makes them feel better. The implementation of The Untold in public areas will also help in raising awareness about mental health and its problems. The current state of The Untold is still not enough to be deployed in society and should be improved to make the interaction between the users more meaningful. Further improvement to The Untold will surely be helpful towards the research of treating anxiety and in helping to break the stigma in society.

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Appendix A

Interview Raw Data

Participant: Bayu (one of board member of Kariib, Indonesian mental health platform)

Interviewer: Can you tell me what Kariib is?

Interviewee: It is an online emotional support platform that helps people to connect and consult their personal problem with a psychologist anonymously, privately and in real-time. However, since I moved to Australia, I am no longer part of Kariib, but sometimes I still help and spread the awareness campaign.

Interviewer: Mostly, what are the reasons of people going to Kariib?

Interviewee: Basically, in Kariib. Each topic has their own psychiatric that handles specific daily topics/problems like school problems, relationship problems, etc. Since we're moving in university scope so mostly we cover general daily problems like mentioned, and we might never see a problem like wanting to suicide or something similar to that.

Interviewer: So, I can conclude that Kariib is sort of a platform to tell your stories right? And how impactful is it actually?

Interviewee: Well, I think Kariib really helps university students to become a place for telling stories or like a diary but real. At first Kariib is a non-paid service but seeing the high demand, now it has a subscription option. All I can say is that all of our users are very happy and relieved once they finished the session.

Interviewer: Do you see any problem from the users in using Kariib?

Interviewee: In terms of a problem, I think that people mostly are afraid at first. In Indonesia, there is a stigma saying that "if people are seeking help, they will be labeled as crazy or other bad things", and that is why people need this platform of anonymity. It is like when people are having flu, did others say that they are crazy? Of course not and I think mental health is just the same as the other sickness and no need to differentiate and think it's bad.

Interviewer: Talking about that, what are people's barriers and how do they overcome it?

Interviewee: I think it is people awareness and people acceptance. When people know something's wrong with them, they need to find a mechanism right and then people need that courage to use the available resource like Kariib.

Interviewer: What did the psychiatric do in that session?

Interviewee: Like i told you Kariib act as a friend to them. Most people just want to pour and tell everything they felt to us, and our job is to give support and acknowledgement. The problem with most people is that people tend to give a really instructional advice or support to them, and that is a wrong thing to do. Basically it's like i'm there for you, and that's it. By becoming a companion or friend is a powerful and impactful way that will simply decrease the mass that people hold.

Interviewer: how to differentiate people who need instructional advice and who needs acknowledgment?

Interviewee: That's hard, it depends on the stories. I can't really tell.

Interviewer: Is there another way to help people from depression other than what Kariib offers?

Interviewee: yes a lot, Kariib is only one way out of a thousand ways to help people from mental health. There is no fixed way and every person has their own way, but i believe that what Kariib offer is what everyone shares in common. Another way that really help i think is meditation, there is an app that assist people to do meditation and they have different kind of meditation depending on your problem, like meditation for anger, anxiety, etc.

Interviewer: is there any activity that could help people as well?

Interviewee: There is a method called emotion regulation, so it is just like a mindset. However, depressed people won't work with just changing a mindset, no not as simple as that. So basically depressed people need to stable their mind first in order to change/activate the mindset. And to be stable there are lots of ways, like for instance simply having a companion beside you is a way to stable the mind.

Additional notes

Interviewee: It depends on the problem, but mostly people need acknowledgement and support rather than instructional solution. They perhaps just need a pat on the shoulder, a hug, or simply just be there for them. An acknowledgement meaning that if i am going through a tough things, then don't say that that is just a simple things. And it's normal to feel that way, so don't worry you are not the only one who's having a rough time, even though perhaps in a different level.

Appendix B

Focus Group Raw Data

Participant: Albert ,Rarres, Riva, Richard, Cia, Haniya, and Sheryl (UQ students)

The team's have synthesized the raw data into a summary of answers. However, a very unique data is still included.

Have you ever felt down, or depressed or things like that?

Interviewee: Mostly anxiety, and it kills. I could just stay at my room for the whole day and just checking everything like for instance checking on my email one-by-one, or just looking at the roof and keep thinking about it. Somehow the anxiety just came without any kind of reasons, when i'm having a lot of stuff to do and it was just my mind panicking then the anxiety strikes. That anxiety will just stick with me until 2 days mostly, and it is a very unpleasant feeling. Overthinking is also a major thing student feels, feeling depressed due to having a feeling that i will not succeed in doing something or the feeling of not doing good at something.

Do you have a way to get rid of that feelings?

Interviewee: It depends on the problem, if it comes to overthinking and anxiety mostly all they do is being alone at home. It really helps and calm the mind, to just have a me time alone and doing nothing. However, for other problems or feeling they tend to share the same thing in common which is to have a companion or friend. Having a companion and friend as someone to share the problem with is really relieving and makes you not feel alone. But sometimes being with a friend is not a good solution as well since they tend to ask a lot of things and giving a bunch of solution that we're not actually need.

Tell me about your experience of telling stories to your friend

Interviewee: not every friend can be the right person to tell stories to, even with close friends. But mostly close friend are the best one to tell our stories with since they know the type of person we are. In telling someone about problem/stories all we need is actually for them to listen and not giving any kind of support that coerce. Because mostly when people listen to a problem they just want to give advice and sometimes that advice is not what we need.

Appendix C

Interaction Diagram

