

Title	Flair : towards a therapeutic serious game for social anxiety disorder
Sub Title	
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Publisher	慶應義塾大学大学院メディアデザイン研究科
Publication year	2018
Jtitle	
JaLC DOI	
Abstract	
Notes	修士学位論文. 2018年度メディアデザイン学 第660号
Genre	Thesis or Dissertation
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO40001001-00002018-0660

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Master's Thesis
Academic Year 2018

Flair: Towards a Therapeutic Serious Game for
Social Anxiety Disorder

Keio University,
Graduate School of Media Design

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A Master's Thesis
submitted to Keio University, Graduate School of Media Design
in partial fulfillment of the requirements for the degree of
MASTER of Media Design

Ana Y. Romera Sanchez

Thesis Committee:

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Abstract of Master's Thesis of Academic Year 2018

Flair: Towards a Therapeutic Serious Game for Social Anxiety Disorder

Category: Design

Summary

In this paper we describe the creation process of *Flair*, an interactive fiction game that serves as a psychoeducational material for the therapeutic treatment of Social Anxiety Disorder (SAD). We detail some previous serious games that were made for therapeutic purposes and portray how *Flair* works as a support tool for people suffering from this mental disorder.

Along with the game design approach, explanation of the inclusion of cognitive-behavioral therapy (CBT) techniques into *Flair's* story, and the psychological benefits of doing so, is extensively discussed.

Furthermore, we report how the incorporation of CBT approaches facilitates the helping relationship between therapist-patient, and helps the users to learn and remember CBT principles, such as: relaxation and self calming methods, changing unhelpful thoughts, interpersonal and communication skills, and develop new emotional regulation strategies.

Keywords:

Social Anxiety; Game Design; Serious Game; Video Game; Mental Health

Keio University, Graduate School of Media Design

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Chapter 1

Introduction

Social Anxiety Disorder (SAD) is one of the most common mental disorders, is often hard to diagnose (coming with social stigmata) and linked with high cost [3]. Even though its diagnosis and treatment can be complex, anxiety disorders can be effectively treated with psycho-pharmacological and cognitive-behavioral interventions [2].

Previous review studies have suggested that computer games can serve as an alternative or additional form of treatment in several medical areas (schizophrenia, asthma or motor rehabilitation) [8]. “Serious games” are games that hold another purpose rather than entertainment. Appropriating that aim, we have created an interactive fiction game that emblemizes the experience of living with a mental illness, social anxiety disorder. This paper portrays our efforts towards designing an interactive psychoeducational material, to support the healing process of a SAD individual who is currently taking therapy to overcome this particular mental disorder.

1.1. Social Anxiety Disorder (SAD) or Social Phobia

Anxiety disorders are the most prevalent mental health conditions. Although they are less visible than schizophrenia, depression, and bipolar disorder, they can be just as disabling [2]. Social anxiety, which involves fear of being negatively

evaluated in social performance situations, is a normal transient experience for most people [23]. Its lifetime prevalence in Europe and North America is one of the highest among mental health disorders at between 6.6 and 13.3%, with international lifetime prevalence rates in the vicinity of 3.6% [14]. Left unattended, anxiety symptoms are associated with a lower general quality of life [1] and can be said to account for decreased productivity, increased morbidity rates, and the growth of alcohol and drug abuse in a large segment of the population [2].

Rappee and Heimberg [20] proposed a cognitive-behavioral model of social anxiety disorder that emphasizes the perceptual and information processing activities of an individual when confronted with the possibility of social evaluation and how distortions in those processes lead to the elevation and maintenance of social anxiety [23]. As stated in the model, the chain of events that triggers the anxiety levels for a person suffering from social anxiety starts when the person perceives that an audience can evaluate him or her and will form a perception of himself/herself that he or she doesn't have any control of. Unfortunately, the mental images that individuals with social anxiety disorder form are more negative than the images formed by control individuals [23].

The next formation of their mental representation comes when the individual compares their idea of themselves to the expectations that they believe the public holds. The resulting estimation of the likelihood of negative evaluation is the discrepancy between one's mental representation and the expected standards of the audience [20].

Rappee and Heimberg also mentioned that the expected negative estimation brings along behavioral, cognitive, and physical symptoms of the disorder, such as the avoidance of social situations and eye contact evasion for behavioral symptoms. The cognitive symptoms of social anxiety disorder are comprised of the thoughts of negative evaluation that are formed in social situations, such as "They will think that I am stupid" [23], or "I am not good at keeping the conversation going". Lastly, accelerated heart rate, excessive sweating and blushing are manifestations of physical symptoms of the same disorder.

The high prevalence of this disorder, and the suffering that comes with it, is substantial reminder on the importance of developing effective interventions that can undertake this mental illness.

1.2. Serious Games

Serious games or applied games are defined as games that do not have entertainment, enjoyment or fun as their primary goal. They have been developed for “serious” purposes: to educate, motivate, and/or persuade users, in educational, health, and other settings [9] such as mental wellness. This gaming approaches might increase the reach of mental health interventions to some who might not otherwise access help. This is important given the large number of people who experience mental distress and yet receive no treatment [9].

This games differ in style, content, genre, approach, and playable platform, but the promise of applied games lies in the intrinsically motivating features of games, their high accessibility, reach, scalability, affordability, and convenience [1].

Although several naturalistic studies have been conducted showing the usefulness of serious games for enhancing some positive attitudes, increasing problem solving strategies, and modifying some abnormal behaviors [8], reliable outcome evidence from rigorous research designs is needed before these games can be considered evidence-based alternative interventions. Very few studies have tested the effects of applied games according to rigorous scientific standards [1].

1.3. What is *Flair*?

Flair is a interactive fiction game targeted to young adults and above with mild to moderate SAD. This game will be an extra material around their treatment to perceive themselves and their disorder in a different way, in accordance with cognitive-behavioral therapy (CBT) principles, and to identify and tackle negative thoughts, feelings, and behaviors in their daily lives and throughout their healing process. *Flair* has been supervised since its early stage by a professional therapist in order to validate and exhibit its main purpose: being a therapeutic tool that helps treating social phobia.

1.3.1 Motivation

A big reason why *Flair* was created relies on the fact that I have been diagnosed with social phobia since my college years. I can say, by personal experience, that

dealing with a mental disorder can be tough and exhausting. It challenges you on daily basis and it takes away the control that you thought you had of your own life, leaving you with doubts and fear.

Social phobia is as dangerous as any other physical or mental problem, it requires the person who posses it to be patient and endure a long treatment (depending on the gravity of the issue) so that they can live their life without carrying the heavy weight of anxiety.

Therefore, since I am currently going under therapy to treat my SAD, I have luckily met awesome psychologists and therapists that have manifested their enthusiasm and curiosity towards serious games as mental health therapeutic tools, and because of their encourage and my eager to help this community, I started developing *Flair* with the help and guidance of mental health professionals and my supervisors.

1.3.2 Contributions

With the addition of CBT techniques to this interactive fiction game, we can assure that we have delivered a therapeutical outcome to SAD individuals that combined *Flair* with their talked therapy.

Thinking of *Flair* as an instrument similar to a manual or other psychoeducational material, tools that therapists repeatedly incorporate into their treatments, *Flair* facilitated the helping relationship between therapist and patient, a bond of trust and support that is described by Bystritsky and colleagues as a springboard for patients to consider their erroneous beliefs and behaviors that cause them anxiety and fear [2].

Moreover, users were able to learn and remember CBT approaches, such as: relaxation and self calming methods, changing unhelpful thoughts, interpersonal and communication skills, and develop new emotional regulation strategies.

Ultimately, SAD patients that played *Flair*, in comparison with patients that didn't accompany their therapy with any other psychoeducational material, showed an improvement on their healing process, as negative feelings and thoughts decreased on the time they played the game.

Chapter 2

Related Works

In this chapter we will mainly focus on serious games that target mental health as their primary topic to expose some examples of what designers, engineers, mental health experts, and researchers have done in the past few years in favor of giving the players a fun way to be informed or treat mental health issues.

As it was previously stated, serious games differ in their purpose, for that reason, we first need to analyze what is the goal of the game designers before developing the actual game. Sheena Miller in her thesis “The Potential of Serious Games as Mental Health Treatment” [13], proposes an alluring taxonomy that divides serious games into three categories: informative game playing, therapeutic game playing, and therapeutic game designing.

The first category, Informative Game Playing, represents the experience of living with a mental illness so that players can vicariously learn and understand the trials that people with mental illness go through [13].

The second category, Therapeutic Game Playing, refers to games that function as a way of therapy for the person who plays it. The form of therapy that the player may experience is broad and goes from calming the user until ameliorating mental health problems. Usually these games are highly specialized and offer evidence-based treatment practices, since they are direct treatment supplements [13].

Lastly, Therapeutic Game Designing, is similar to the first category as it recreates the aspects of experiencing a mental health disorder but in this case the one receiving a therapeutic outcome is the game designer. The purpose of the game is for the creator to supplement their own therapeutic healing process via the action

of designing a game [13].

For the seek of avoiding confusions of the therapeutic effects on the following serious games, we will use Miller’s Informative Game Playing and Therapeutic Game Playing as the two main categories to present examples of serious games that have mental health as its main topic.

2.1. Informative Game Playing

Games that ended up in this category are the ones that aim to supply the player with knowledge about a mental illnesses. Consecutively, these games intent to create empathy within the person who plays it.

Elude, *Into Darkness*, and *Fluctuation*, along with other two titles, are games designed by Doris C. Rusch, with the collaboration of DePaul University, who refers to them as an interactive documentary project that include games that stages depression, obsessive compulsive disorder (OCD), and bipolar disorder respectively.

2.1.1 Elude

Elude (observe Figure 2.1) is a game created to raise awareness of depression by portraying the main character as a person who is battling with that disorder and who attempts to climb upwards in the game but is vulnerable to the quickly changing “emotional landscape” [13]. The main target for this game is family members of people who have been diagnosed with depression.

2.1.2 Into Darkness

Into Darkness, recreates the desire to repeat rituals, or compulsions, in order to ward off unwanted obsession through gameplay [13]. The game challenges the player to exit a maze, which represents the condition of OCD, but while doing so they will be surrounded by darkness and frightening music, the manifestation of obsessions. Only by withstanding the darkness and frightening music, or the anxiety that accompanies resisting performing a compulsion to ward off an obsession, can the player find the exit and leave the maze [22].



Figure 2.1: Elude

2.1.3 Fluctuation

Fluctuation resembles the bipolar disorder by mismatching the player's input to the character's performance, in other words, the character doesn't respond to the correct game controls when a "mania" time comes, slowly easing out as the time progresses. Overall, the game aims to bridge the gap between potential misunderstandings between people with bipolar disorder and loved ones who want to help, but end up either feeling alienated or doing the alienating [22].

2.2. Therapeutic Game Playing

This section corresponds to games that provide players with therapy while playing it or even after it has already been played. This type of games may vary in their nature, since some commercial games, like *Tetris* for example, have produced a therapeutic outcome (in *Tetris*' case for people with Post-Traumatic Stress Disorder (PTSD)) even though the games weren't designed to produce such results. Nevertheless, studies have shown that playing video games in general can be an effective means of ameliorating mental health problems [13], for

that reason, their intrinsically motivating features, their high accessibility, reach, scalability, affordability, and convenience [11] is that serious games assure a bright future for the next generation treatments for mental health.

Nevermind, *PlayMancer*, and *SPARX*, are excellent examples of games that have shown positive results in their both informal and formal tests, and have attracted scientist and researcher’s attention who are eager to continue exploring these game’s potential impact via clinical trials.

2.2.1 Nevermind

Nevermind (observe Figure 2.2) is an adventure game where you must explore some bizarre worlds to unlock a mystery that lurks within each patient’s inner psyche.

Nevermind is developed to help players become more mindful of their feelings of stress and anxiety levels and help them practice managing those feelings of fear and stress [16]. Along with that, another exciting facet of *Nevermind* is its potential to serve as a full-fledged therapeutic tool for those who suffer from issues-mild or severe-relating to feelings of stress, anxiety, PTSD, or other similar conditions [16].



Figure 2.2: Nevermind - The Greatest Enemy is the One Inside Your Head

2.2.2 PlayMancer

PlayMancer is a video game prototype that treats specific mental disorders. It introduces the player to an interactive scenario (named Islands), where the final goal is to increase emotional self-control skills in patients and self-control over their general impulsive behaviors [8].

2.2.3 SPARX

SPARX is an interactive narrative game with a virtual guide that explains how to play the game and how it's helpful for treating mild depression manifestations by it's own.

SPARX is not a replacement for the services that are already available. Rather, it's another tool mental health professionals and young people can access in their own time. The game borrows from conventional treatments by teaching the player strategies based on cognitive behavioral therapy, which is what would normally be taught in face-to-face counseling sessions [25].

2.3. Mobile Applications for Mental Health

Smartphone-based mental health apps may include many benefits of Internet-based Cognitive Behavioral Treatment (ICBT), such as cost-effectiveness [14], plus the benefit of being almost always available for everyone to use. Another advantage of this implementation consists of text-based bibliotherapy that now can be readily translated to other languages, providing the ability to introduce new populations to mental health services [4].

2.3.1 Pacifica

Pacifica (observe Figure 2.3) integrates several widely-used and empirically-supported treatments for anxiety, depression, and stress more broadly. Its tools incorporate principles and practices from Cognitive-Behavioral Therapy (CBT) and Mindfulness [18].

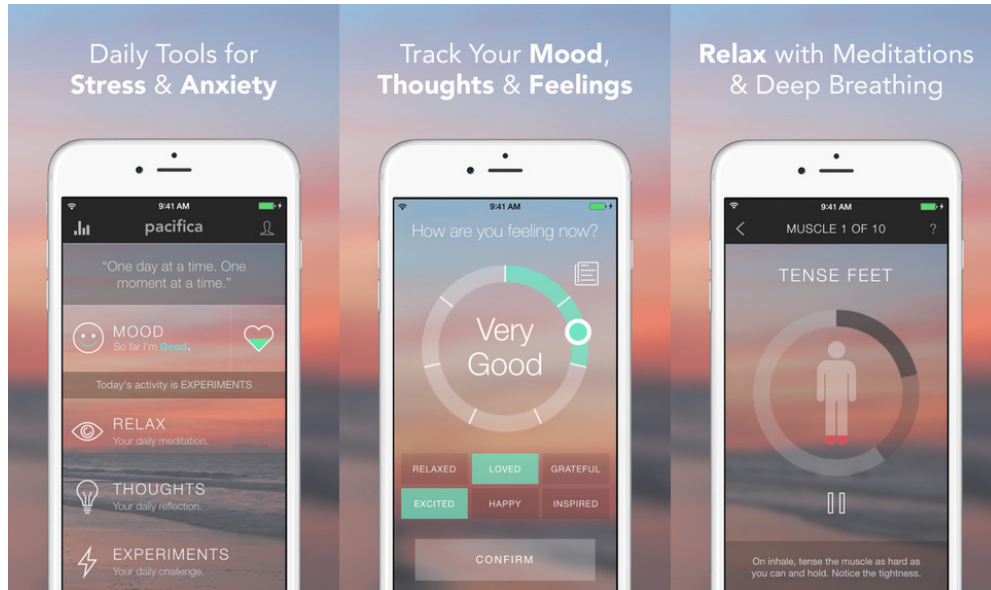


Figure 2.3: Pacifica’s screenshots

2.3.2 SuperBetter

SuperBetter is a Cognitive-Behavioral Therapy-based (CBT) gamified application that uses a positive psychology program in which players earn points and “level-up” as they progress thought activities [24]. *SuperBetter* is presented in a mobile interface that claims to increase “resilience” (the ability to stay motivated and optimistic even when facing a hard time) by setting goals and encouraging the users to accomplish them. Playing *SuperBetter* for 30 days improves mood, reduces symptoms of anxiety and depression and increases belief in the ability to successfully achieve goals [21].

2.3.3 7 Cups of Tea

7Cups provides free, 24/7, emotional support to users through a web or app-based messaging system [17]. This application enables users to chat with trained listeners about their mental health problems in order to seek some advice or just a casual conversation to lower their anxiety levels.

2.4. Interactive Fiction Games

By definition, interactive fiction games are an adventure or mystery story, usually presented as a video game or a book, in which the player or reader is given choices as to how the storyline is going to develop.

2.4.1 Lifeline

Lifeline (observe Figure 2.4) is a playable, branching story of survival against all odds. A deep, immersive story of survival and perseverance, with many possible outcomes. As the creators say: “You will help Taylor make life or death decisions, and face the consequences together. A totally unique experience, this story plays out in real time. As Taylor works to stay alive, notifications deliver new messages throughout your day” [19].



Figure 2.4: Lifeline example screens

2.4.2 Mystic Messenger

Mystic Messenger (수상한메신저 Susanghan Messenger) is a female-oriented mobile game produced by Cheritz in 2016 (refer to Figure 2.5). Users can experience a love story through an interactive messaging app via receiving phone calls and texts depending on the relationship with other characters [5].

Mystic Messenger was the primary inspiration for *Flair* thanks to its absorbing and fascinating story, enjoyable playability, and heart touching characters. *Flair*'s team tried to emulate the experience of playing Cheritz's creation and we added mental health awareness for the aim of constructing an entertaining and beneficial video game.

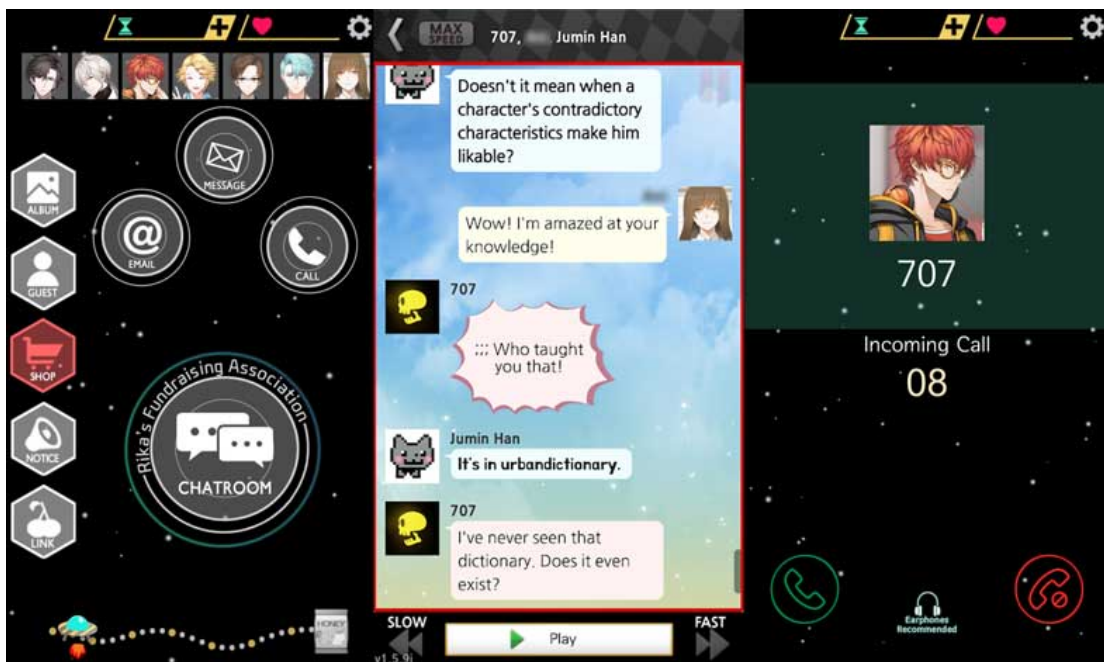


Figure 2.5: Mystic Messenger example screens

Chapter 3

Game Design Approach

Flair's goal lies in being a therapeutic support tool for social anxiety disorder (SAD) or social phobia interventions, and with the aim of doing so, this game uses cognitive-behavioral therapy (CBT) techniques (therapy that we will cover in this chapter) to help a professional psychologist to treat this mental disorder.

Now we will proceed to present *Flair* production pipeline, story creation and psychological techniques used on it.

3.1. Overview

3.1.1 Cognitive-Behavioral Therapy (CBT)

Research has shown that cognitive-behavioral therapy (CBT) is the most effective treatment for depressive and anxiety disorders, surpassing medication and other types of therapy in its ability to ameliorate suffering and prevent relapse [10]. Licensed psychologist Dr. Seth Gillihan, specialist in the use of cognitive-behavioral treatment for anxiety and depression, in his book “Retrain Your Brain: Cognitive Behavioral Therapy in 7 Weeks” introduces CBT to the reader in the following way: “We’ll work to understand how thoughts, feelings, and behaviors are related... Each element affects both of the others. For example, when we feel anxious, we tend to have thoughts of danger and want to avoid the thing we fear. Additionally, when we think something is dangerous we fear it (feeling) and want to avoid it (behavior)” [10].

Although a variety of treatments have been developed, a cognitive-behavioral approach to the treatment of social anxiety disorder appears to be efficacious in many studies [23]. In CBT, people are taught to recognize feelings related to anxiety (i.e., emotions and bodily sensations), to identify and challenge anxious self-talk, to develop coping skills, and to evaluate and reward skill use [1]. In addition to the talked therapy, people are exposed to threatening situations and taught to use relaxation techniques in the face of these threats, a key element of CBT [1].

A multitude of well-controlled randomized clinical trials suggest that CBT is efficacious in treating anxiety disorders. Furthermore, several meta-analyses of randomized controlled trials (RCTs) of CBT for anxiety disorders have demonstrated the long-term efficacy of CBT in research. Thus, the efficacy of CBT appears to persist well after treatment discontinuation [7].

3.1.2 Psychological Technique and Target Persona

Cognitive-behavioral group therapy (CBGT), is a CBT-based behavioral therapy group that is formed by people who share the same mental disorder (in this case social anxiety disorder), and they share their daily experiences or tips on how they have dealt with anxiety-triggered situations to the other members as a way of showing support and understanding to each other. This way of therapy is essential for helping patients to learn relaxation and self calming methods, changing unhelpful thoughts, communication skills, and develop new emotional regulation strategies. Furthermore, in a study of CBGT for social anxiety disorder, Heimberg and colleagues [12] found that the CBGT group's ability to continue to use their cognitive skills might have increased the utility of the treatment in the long-term compared to credible attention-control placebo interventions.

Thinking of CBGT as the physical form of what *Flair* tries to emulate, in the game, the members of the therapy group will be represented by the game characters and the user himself/herself. The user will listen to their concerns and advice the characters in a way that will help them to overcome that stressful situation.

Patients that are currently going through CBT will be taught self-monitoring and symptom-reduction techniques that can be explained as mental hygiene to raise one's threshold for the onset of alarm reactivity and for increasing the pa-

tient’s ability to notice whether an alarm reaction is mounting over the course of the day [2], same that will need to be taught back to the game characters for the purpose of increasing their motivation to confront their disorder.

As the game progresses, the user will guide the characters into doing small positive actions that will lead them to realize their anxiety disorder or, in the case of a “bad ending”, not being helpful to the characters in their attempt of overcoming their fears. Ultimately, at the end of each route, regardless of obtaining a good or bad ending, every character will recognize that he/she doesn’t want to continue being limited by their fears and that seeking professional help is right and crucial for their wellbeing.

3.1.3 Hypothesis

By including CBT techniques into *Flair* we are aiming for it to be consider as a therapeutic tool that will be beneficial in the following aspects:

- Support the process of healing of a patient who is currently taken therapy to overcome SAD.
- Bring emotional disclosure to the people who play it.

With the purpose of proving the previous points we intend to conduct monitored tests where the patients of a therapy clinic will play *Flair* and others won’t. Surveys will be applied to both parties and interviews will be carried out. After those procedures, the data will be analyzed and the results will be presented on Chapter 5 of this thesis.

3.2. Introduction to *Flair*

Flair is an interactive fiction game and, as many games in this genre, its main interface resembles a chat-room, environment that can be compare to popular chatting applications like Line, WhatsApp, KakaoTalk, or WeChat. The player will interact with other characters by choosing between two to three options when their time to make a reply in the chat comes, delivering a message to the other characters like if the player had just typed their own answer to the previous

interaction. Most interactive fiction video games tend to simulate the way social applications work because they can provide the player a known environment in which the need of explaining how the game should be played is almost unnecessary. *Flair* tries to emulate a chatting application along with the following approaches:

1. Chat-room
2. Image sharing
3. Text message
4. Voice message
5. Phone call

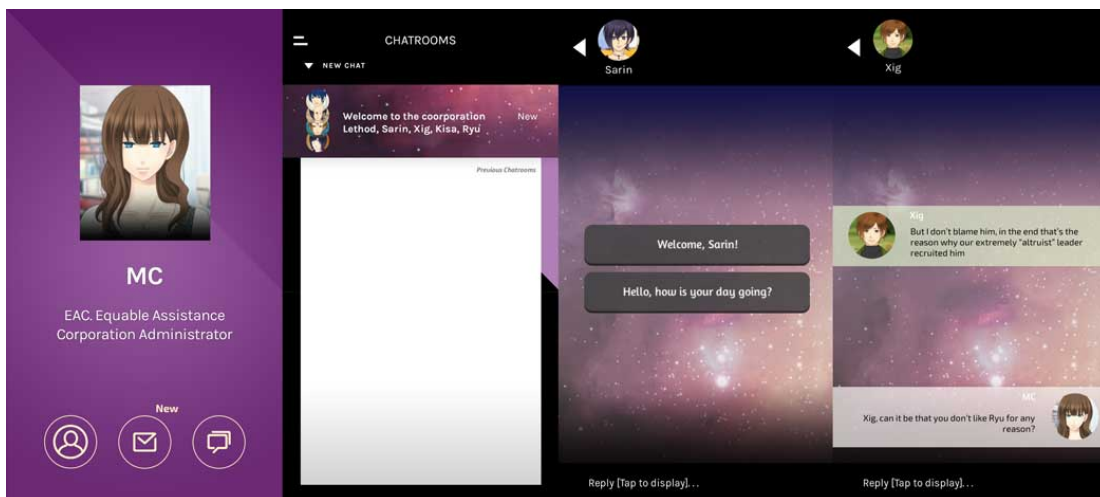


Figure 3.1: *Flair*: example screens

The characters that will participate in the chat-rooms, phone calls, and private messages may vary, starting from one to one interaction (one character and the player) to five to one interactions (five characters and the player). Depending on the player's choices and how much they interact with the characters the game will branch into one of the characters' routes.

In order to achieve the best ending possible to every character's route, finale that we will be identifying with the name of "good ending", the player will need to:

a) Choose an answer that will increase the likability points of the player (motivate the characters, be kind to them, support them when they are facing difficulties, etc.); or b) Choose an answer that will lead the characters to acknowledge and fix their problem by finding ways to overcome their anxiety.

More details about the gameplay and some graphic examples will be shown later on.

3.3. Story and Game Structure

The Equable Assistance Corporation (EAC), a top secret organization which handles VIP requests, hires the player who will work together with his/her colleagues, the dealers, to fulfill a designated mission, which can be from delivering a late birthday gift, to assuring the protection of a person. The player should be the support and strength of the team to ensure a successful errand and endure wellness to the other dealers.

The characters will introduce the player to this fantasy world where a secret team that calls themselves as “the dealers” will be asked to perpetuate an action for their customers, extremely wealthy or powerful people, in exchange of a monetary compensation.

There are five main characters in this game, four males and one female: Lethod (male, 22 years old, Hacker), Xig (male, 23 years old, Doppelgänger), Sarin (female, 25 years old, Tactician), Kisa (male, 25 years old, Peacekeeper), and Ryu (male, 27 years old, Leader). All of them belong to the Equable Assistance Corporation’s secret team, team that is known inside the corporation for the outstanding skills that each dealer has:

- Lethod, the Hacker. Expert in cyber security.
- Xig, the Doppelgänger. A man who disguises himself to imitate anyone’s appearance and personality.
- Sarin, the Tactician. She is the one who ideates the action plan.
- Kisa, the Peacekeeper. He is the team’s physical force as he is the one who has been trained to provide protection.

- Ryu, the dealer’s leader and CEO of the EAC.

As the story progresses, the player will have the opportunity to interact and get to know the characters in a casual way throughout six common route chats, phone calls, and private messages. If the player wants to know more about a certain character they will need to interact more with him or her and choose the correct answers to their messages before the game branches.

Game Structure

1. 6 common route chats
2. Game branch = character’s story (6 chats as well)

A game branch means that the game system will count how many times the player has successfully communicated with one character and, depending on whom that character was, the game will continue with its story within one out of the four routes: Lethod’s route, Xig’s route, Sarin’s route, or Kisa’s route (Ryu doesn’t have a route to play, more information about this will be provided on his character design explanation). After the game has branched, the player will unlock the character’s backstory, dreams and ambitions, and social anxiety manifestations, which briefly are: the evasion of crowds and/or one-to-one interaction, being unable to be in public without an dearly object or cloth, not being able to eat in public, and the avoidance of taking phone calls.

As an interactive fiction game, each route possesses a “good ending” and a “bad ending”. Needless to say, the player would preferably aim to get a “good ending” in order to make the most out of the gameplay experience. In the next section we will explain what is a “good ending” as well as a “bad ending”.

3.3.1 Good Endings

Before in this thesis we have used the terms “good ending” and “bad ending”, but what does that mean? Briefly putted, a “good ending” is the true ending of the game, an ending where the player reaches the game’s goal and helps the character learn something about themselves, evolve as human beings, overcome their fears and/or do something in order to overcome those fears. In this ending, the

characters will reach a healthy mental state by identifying their anxiety triggers and will be provided with psychological tools to help them lower their anxiety levels so that they can live a normal life.

This ending can be achieved by understanding the character's story and their anxiety triggers, after that, the player can help them to find a solution to their problems without forcing them to act in a way that they don't feel comfortable (that means forcing them to confront their fears or imply that their fears aren't important). If, overall, the player supports the character and encourages them to treat their SAD, then they will most likely obtain the character's "good ending".

3.3.2 Bad Endings

Contrariwise, a "bad ending" is a final where the character mistakenly realizes that their anxiety is something they can't cure, leaving them hopeless and without finishing the mission they got entrusted on. Even if each character has a different "bad ending" on its own, the message that they convey is the same: mental disorders are real, dangerous, and painful.

Even though we don't advise pursuing this ending, there are two reasons why we imply that a player may get it: 1. They want to know what the "bad ending" is about, because of curiosity; and 2. The player doesn't know how to support the character. If the player obtains this ending, the game will reinforce the importance of reaching out for professional help if the player felt identified with the characters (specifically talking about the anxiety triggers) and they would like to treat their malaise.

We will continue using the terms "good ending" and "bad ending" during this thesis so we suggest the reader to come back and read this section again if they feel like they got confused with the way these terms were used on this thesis.

3.4. Character Design

Describing the personality, ambitions, fears, flaws, as well as giving a graphic representation of the characters is a fundamental exercise for any content creator. This exercise helps us portraying our idea of how the character is and, if we represent it successfully, the reader will understand essential information about

our story and, in the best case scenario, feel identify with them and the world we have created. That being said, the next section contains data from the characters that will help the reader get an idea of how the character is and what situation triggers their anxiety.

Before proceeding introducing the first character, we need to clarify that four out of the five characters that will be presented will serve as an example of a person with mild to moderate SAD. These characters as based on SAD study cases and don't represent a particular individual. It is important to clarify that the way the characters will behave in the game doesn't particularly reflects how a real person would behave, even though there might be some personality aspects shared in common with real-life people, the game should be viewed as a concise portrayal of how a SAD individual may act during a time period where their mental disorder hasn't been treated yet.

3.4.1 Lethod: The Hacker

Lethod is an easygoing, funny and charismatic guy who believes that friendship should always be protected. Lethod, as the corporation hacker, protects the dealers' personal information as well as their "real job" (a job that they do to mask their job as dealer) from any external threat. He is the youngest out of the members of the corporation, feature the he uses in his advantage to act childish or make things go his way, but in reality, he is an intelligent man with great deductive reasoning. Nevertheless, his empathic temperament makes him look upon others more than himself.

Lethod's facts:

- He hates bugs and arachnids.
- His "real job" is being a research student on information security under EAC's supervision.
- He constantly struggles with daily life greetings.
- He often makes fun of his lack of social skills in the chat-rooms.
- He doesn't have a plan on getting a job any time soon, so he keeps extending his research year after year.



Figure 3.2: Lethod, Equable Assistance Corporation's Hacker

- He speaks several languages.
- He would like to form a family someday.
- He is the mediator in most of the dealers' discussions.
- He will often bring up funny comments when he is feeling anxious and make the other characters feel like he is in control of the situation.

Lethod's SAD Symptoms:

Lethod is a knowledgeable guy with a brilliant academic success, but his main impediment for living a normal life is his fear of social interaction. Greetings, small talk, eye to eye contact, hands shaking, ordering food to the waiter, paying money to the cashier, among others, are situations that Lethod will avoid as much as he can. His fear of messing his order up or replying incorrectly to a simple question like "How are you doing?" keeps him from interacting with other people outside of the EAC. Nevertheless, Lethod is not afraid of showing himself on the chat-rooms and will often call the player in order to communicate his thoughts more easily.

Lethod's anxiety triggers are some of the most common SAD triggers, ones that probably most of SAD individuals have sensed in one way or another. This makes Lethod the easiest character to relate on the game, therefore, the easiest character to get his route out of the four routes.

3.4.2 Xig: The Doppelgänger

A coquettish but excellent imitator that can impersonate anyone he wants. Xig is a short-temper man whose ability to observe and recreate male or female personality and style got him to obtain the title of "The Doppelgänger". Most of the dealers would agree on affirming that is hard to take Xig seriously until he starts doing his job as an imitator. Usually he would be the one who starts the mission by recollecting all the important data that will be needed later on, responsibility that is crucial to the success of the mission and makes him extremely proud. Xig particularly dislikes being told what to do, characteristic that he often finds in Ryu (the leader) and Kisa (the peacekeeper) making him having a grudge on them. Ultimately, despite his flirty attitude while being single, when he has a relationship he is a loyal man who is willing to give everything for the person he loves.



Figure 3.3: Xig, Equable Assistance Corporation's Doppelgänger

Xig's facts:

- He is a very clever impersonator, with a single photo he will know the person's way of acting and will imitate it perfectly.
- He often acts silly and playful, he cannot take things seriously.
- He loves food but he doesn't eat pork for personal preferences.
- He doesn't feel comfortable by being outside without an identity to match, in other words, he needs to be imitating someone else in order to feel secure.
- He comes from a family that suffered economical problems, that is the reason why he is very conscious about the money he earns, he calls it price or gift.
- He has hedgehog pet named Riccio, which he adores.
- He considers himself "invisible" and he doesn't feel like he belongs.
- On the contrary of other dealers, he is the only one who doesn't possess a "real job".

Xig's SAD Manifestation:

Xig is a frank character that isn't afraid of communicating his uneasiness when he feels anxious. He will emphasize in his disagreement with going outside his home without an matching identity. He feels like he needs to cover himself in order to be capable of going outside. Because of this lack of identification with himself, he feels like he doesn't know who he is and that keeps him from building his own future. Riccio, his hedgehog, is what brings Xig comfort, he will regularly talk about Riccio as if the hedgehog could understand and accept Xig as he is, but besides Riccio, Xig can't form a connection with anyone else, although he wants to, he would cease to proceed with the relationship after feeling that he doesn't have anything to offer.

In real life, Xig's case may be seen in people who can't feel at ease without a possession or doing an action that reminds them of their safe zone, for example, a girl that can't meet someone else without wearing makeup; a person who is starting to loose some hair and feels the necessity of wearing a hat; someone that

can't leave home without their cellphones, etc. This anxiety trigger was combined with the lack of self-knowledge in Xig's case for story purposes, but it is not uncommon to find people that may act like everything is fine in their life but in reality they don't know what they truly want, and that way of acting felt right for Xig to represent as an individual who will start the game with doubts and deficit of self-esteem but will end up knowing himself and what he wants in life.

3.4.3 Sarin: The Tactician

Sarin is a meticulous woman with extreme eye for detail, she decides an action plan and directs each dealer's movements before, during, and after a mission. Daughter of a chief, Sarin grew up listening to her father's plans to catch convicted criminals, so she has a natural detective mind. Assertive and deductive are some of her most remarkable qualities, as well as her cold attitude and her complete ignorance towards sarcasm, which she often mistakes as a true statement. Regardless of her distant personality, Sarin deeply cares about her team members, as she recurrently shows in her tactics, she will always put the dealer's safety first.

Sarin is Kisa's older fraternal twin, although it may not seem like they are close to each other, Sarin has an enormous respect for her twin brother, since she knows how capable he is.

Sarin's facts:

- She is a cat person.
- She doesn't like eating in front of others.
- Her "real job" is being EAC's receptionist, job that she dislikes.
- She doesn't know how to receive compliments.
- She acknowledges how much she and her brother had suffer since the lost of his father, but she never talks about it.

Sarin's SAD Manifestation:

Sarin will despite the idea of eating or just taking a bite of food when she is being watched. She declines every food-related invitation like going out for lunch



Figure 3.4: Sarin, Equable Assistance Corporation's Tactician

or dinner, or a gathering in someone's place to cook and enjoy the food together. She will even avoid eating during her working hours, she will wait until her shift finishes so she can reach home and feed herself. In the story, the reason why Sarin avoids consuming food with someone else around is because her father was killed on a dinner with the police department. She will eventually avoid any gathering that involves having food around her because it reminds her of that tragic moment.

This anxiety triggering situation may frequently be mistaken with an eating disorder, but it is not, and sadly it is more common than expected. In less severe cases, people with social phobia can experience it by avoiding eating in crowded places like the school's cafeteria. They will often order delivery of food to eat at home or, if they can tolerate the anxiety that eating in public presents, they would probably insist not to be looked at when they eat.

3.4.4 Kisa: The Peacekeeper

Guns and persuasion expert, Kisa is the dealer who will be called just if everything else has already failed. Wise and kind he repeatedly gets mistaken for a cold and self-centered man because of his non-talkative nature. As Sarin's younger

fraternal twin, Kisa knows the way the police works and, as his sister, he inherited a police mind. When his father was murdered, immersed in depression and without any income to support him and his sister, Kisa and Sarin had to work for the mafia, in order to survive. Kisa ended up turning into a hitman who followed Sarin's strategies so that they could get what the mafia leader desired. After some years on that job, the siblings were encouraged to assassinate Ryu, EAC's CEO, but Ryu, in a wise move, convinced them to join the corporation and leave that life of theirs for a better one as EAC's secret team members. After the siblings joined the team, Kisa was eternally grateful and loyal to the leader to the point that he only shares personal information with him, leaving the other dealers clueless about his past.



Figure 3.5: Kisa, Equable Assistance Corporation's Peacekeeper

Kisa's facts:

- He might be serious but he can joke around, specially if by doing that the Doppelgänger gets angry.
- He loves reading books, that is the reason why his "real job" is working at a library.

- He doesn't like talking by the phone.
- As well as the Hacker, he knows several languages.
- He calls every dealer by their code names.
- He truly enjoys traveling.
- He finishes his part of the job quickly to come back and chat with the leader if he can.
- He just wants to live a peaceful life, but he doesn't know how to ask for it.

Kisa's SAD Manifestation:

Kisa, as well as Sarin, developed SAD after a traumatic episode in their life: the murder of his father. In the story, Kisa was sitting next to the police radio when his father died, so whenever he hears distort voices, like a voice recording or how our voice gets altered when we communicate via phone call, he gets extremely anxious, that is the main reason why he avoids phone calls and voice notes.

Kisa's anxiety trigger can be easily found in people with mild SAD as well. Answering the phone to an unknown number, or even to a friend or relative can cause anxiety to some people and even though this can be easily joked about, this is a serious sign that the person may have social anxiety. If this isn't treated, it can evolve until becoming a burden in their lives, as it is for this character.

3.4.5 Ryu: The Leader

Altruist but distant would be perfect adjectives to describe EAC's CEO, Ryu. He is the founder of the Equable Assistance Corporation, which, disguise as an insurance company, is the place where our story begins. This corporation secretly receives requests from powerful or wealthy people that need professional assistance.

Ryu's backstory starts in an attempt of helping a friend get a heart transplant in order to save his life. During that period of time, Ryu started to ideate the beginning of what EAC was going to be, but by the time when he could get his friend's organ transplant, it was already too late for him. With the grief of losing

a dear friend and his wish to help others, Ryu will create a cooperation that helps others by making their lives easier to live in, even if that means that he will take in any kind of request regardless of its nature.

As part of his protective personality, he knows every strength and weakness of his team. He trusts his team a 100% and will do anything to assure their happiness, that is the reason why he contacts the player, to help them being at peace with themselves.

Note: Ryu will not be a playable character, he is just the intermediary between the dealers and the player. He will guide the player to a “good ending” when the climax of each route comes.



Figure 3.6: Ryu, Equable Assistance Corporation’s Leader

Ryu’s facts:

- He believes the purpose of the corporation has slightly changed as the years went by. He wasn’t planning on helping VIP guests with their uncommon requests but things started to get darker and he lost the control of it.
- He will support the player on every route they are in, he just wants his team to be happy.

- He thinks the lost of his friend was due to his lack of action, thought that will constantly hunt him.
- He is the representation of a therapist inside the game, a character whom the player and the other characters can ask for help whenever they feel lost.

3.5. Route Design

In this section we will proceed to explain a summarized version of how the character's route will be, the steps to follow in order to obtain a "good ending", and some psychological notes about the message that those endings will convey.

3.5.1 Lethod's Route

The hacker gets requested to do a quality checkup of the amusement park that has just being remodeled near the city. Lethod feels exited at first, knowing that there is a mission that involves a free day pass to "Super Duper Land", but gets instantly frightened by the idea of going alone since the rest of the dealers are busy with other missions and the player, which is still going under some security inspection, can't join either. Notwithstanding, Lethod decides to fulfill his job as a dealer and goes by himself to the land of joy, the amusement park. After a series of awkward situations during the trip, he reaches his limit and tells the dealers that he wants to leave the place without finalizing the mission. In order to obtain a "good ending" the player needs to address the situation in a way where Lethod would calm down and starts thinking about a way to finish his duty without damaging his mental health.

As we have stated before, Lethod's SAD fears are, as the Social Anxiety Association says, some of the most commonly experienced SAD triggering situations, and that lead us to decide to make his route as relatable as possible. Basing us on the character's personality we added some humor to Lethod's story, making this plot lighter than the others, meaning that the story will guide the player to its best ending by itself. This decision was made with the purpose of sharing a concise message: if the player feels that their anxiety has stop them to live a normal life, the game encourages them to talk about it with a therapist. This

ending emphasizes on the help that a professional can bring upon a patient, by doing this, the good and bad ending will strengthen the patient-therapist bond in a hope of a more understanding healing process.

3.5.2 Xig's Route

Xig's story will start like a normal day in the Doppelgänger's life, he will be entrusted with a mission in which he needs to deliver a late birthday present to the guest's girlfriend. Due to his stubborn personality, he insists on delivering the birthday present in person by imitating the guest, but the guest's girlfriend ends up discovering that Xig is a copycat. Xig runs away in fear and shock of being discovered for the first time. Afflicted by failing the mission Xig starts questioning his abilities and refuses to go back and finish the quest. The player has to identify his anxiety triggers and help him find a way to fix EAC's reputation before the guest knows what happened to his request.

3.5.3 Sarin's Route

Note: Since Sarin and Kisa are fraternal twins, they will share a common story in the first stage their game branch. After that first stage is completed, the game will continue to Sarin or Kisa's own story.

Sarin and Kisa's common story: The dealers receive a new mission that requires the security and patrol of an extremely wealthy businessman's daughter.

Here is where Sarin's story starts: Meanwhile the dealers watch over the businessman's daughter, Sarin suggests to secure her in a hotel before they know how to proceed with the mission. Being the only dealer that was being monitored to assure successful results, Sarin starts feeling weak as a result of her lack of nutrients and her thoughts start to get blurry. The player will need to help Sarin overcome her fear of eating in public so that she can recover her energy and conceive a reasonable plan to complete the mission.

3.5.4 Kisa's Route

Note: Please read "Sarin and Kisa's common story" in Sarin's route section in order to know how these two routes connect at the beginning of their stories.

Let's proceed with Kisa's story: The Hacker detects an intruder in the security force that is guarding the businessman's daughter, he asks the Doppelgänger to know who he is and then communicate that to Kisa so she can assure the girl's safety. After some interrogation Xig, who is sure about his deduction, calls Kisa who approaches to the person who everyone thinks is the infiltrator, but that person ended up being innocent. Lethod, Sarin and Xig work together to keep the situation under control as Kisa encounters a phone call from the intruder that will confirm that he has the girl under his custody now.

In order to obtain a "good ending" in Kisa's route, the player will have to help Kisa to bring his anxiety levels down to pick up the intruder's phone call and get more information about their whereabouts.

Chapter 4

Implementation

Chapter 4 will illustrate the game development process, gameplay and CBT techniques implemented in *Flair*.

4.1. Game Development

Numerous softwares were used on *Flair's* creation. Starting from the initial design ideas until the final product, we will present a summarized version of the programs that were mostly utilized for the game making process.

Mock-up, 2D Assets, and UI Design

The design softwares used to implement the game are summarized on Table 4.1.

Software	Purpose	Details
Adobe Photoshop & Adobe Illustrator	Mock-up design & more	The application design and 2D assets were done in Adobe Photoshop due to its versatility. [Note 1]
Sketch	Prototype design 1	The first prototype was made in Sketch. It was mainly done for reference purposes.
Adobe Edge Animate	Prototype design 2	The second prototype was a playable program that allowed a better understanding of <i>Flair's</i> interface.
Adobe After Effects	Promotional video	A promotional video was made in order to present <i>Flair</i> as a developing project. [Note 2]

Table 4.1: Mock-up, 2D Assets, and UI Design

Code, Plug-ins, and Gaming Device

The developing softwares used on *Flair* are described on Table 4.2.

Software	Purpose	Details
Unity	Coding & game development	Unity was the main program used for coding in JavaScript and C#.
<i>Fungus</i>	Plug-in	This plug-in gave the chat-like functionality. [Note 3]
Audacity	Music editing	This program was used to edit the music and adapt it to the game needs. [Note 4]
Smartphone	Visualization & playability	<i>Flair</i> is available for iOS and Android devices.

Table 4.2: Code, Plug-ins, and Gaming Device

4.2. Gameplay

In Chapter 3, section 3.3 “Story and Game Structure” we briefly introduced the gameplay, but in this section we will explain it in detail.

Flair consists in 6 common route chats where the game mechanics will count how many positive interactions the player makes with the characters before deciding which route will be presented to the player. The character who obtains more positive interactions will be the one whose branch will be played (the branch consists in 6 chats as well). Throughout this 12 chats there will be some phone calls and private messages for the player to gain positive interaction points that will lead to the “good ending”.

For the purpose of exemplifying how the game looks and how the interactions will be made we will provide some screenshots of the game on Figure 4.1 and 4.2.

- Screen 1: Represents the game home screen.
- Screen 2, 2.1 and 2.2: Private message menu. This screen exemplifies how a private message will look when opened and how to reply to a private message.
- Screen 3 and 3.1: Phone call screen. How the phone call screen will look after the call was answered.

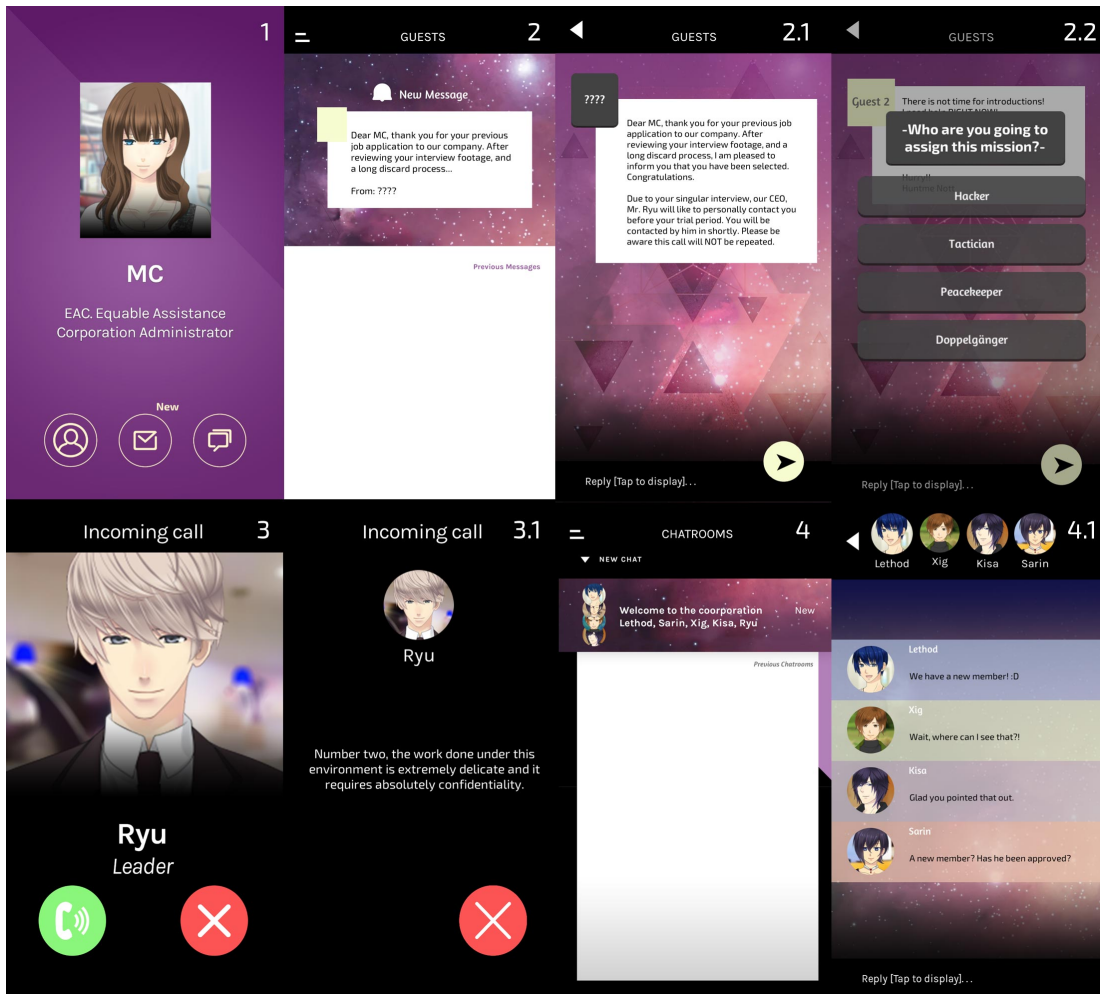


Figure 4.1: Gameplay example screens (read from left to right)

- Screen 4 and 4.1: Chat-room screen. How the chat-room will look when it is open.

Ultimately, the way the player replies to the interactions, being messages, phone calls or chats, will be made by selecting between two to three choices and tapping on the one they like the most. The graphic model can be seen on Figure 4.2.

Since *Flair* tries to emulate real mobile chatting applications, we believe that its interface will be easy to understand if the player has already used this type

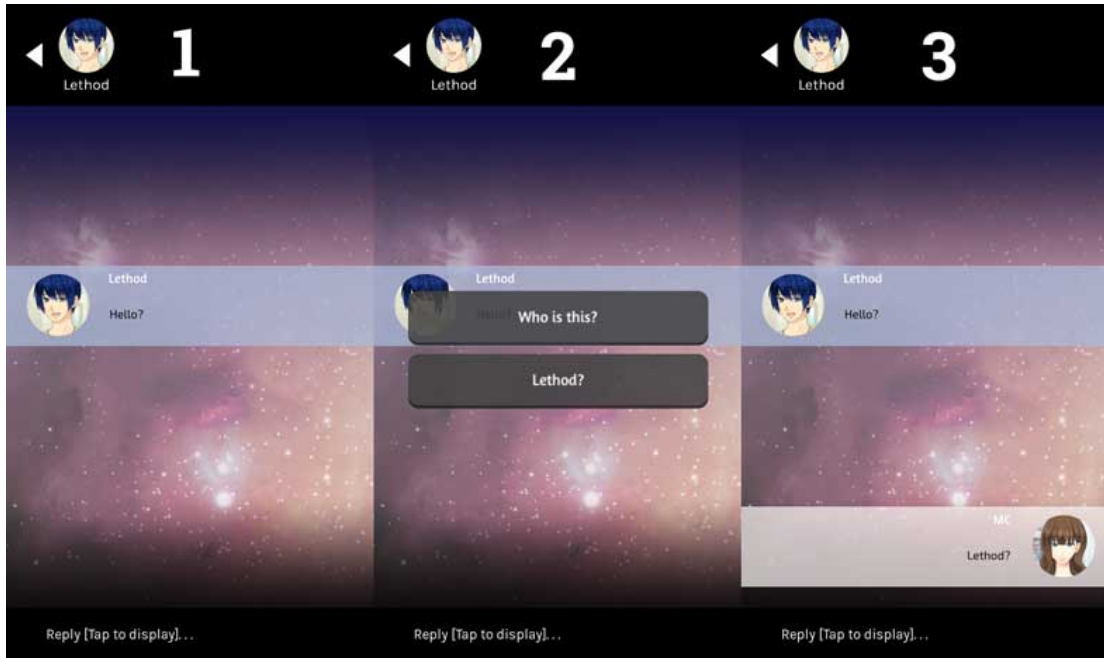


Figure 4.2: Chat interaction example screens (read from left to right)

of apps before. The player just have to keep in mind that answering the phone, replying to chats or private messages inside *Flair* will be done by tapping on the choice that better fits their desire.

4.3. Therapeutic Approach Over Interactions

Previously we have mentioned how CBT techniques would be implemented on the reply choices in the game. Patients will need to learn these techniques in their talk therapy so that they know how to act and choose the correct answer that will lead them to a “good ending”.

Now we will present four cases of situations in one of the character’s route: Lethod, the Hacker. Lethod’s fear to social interactions keeps him of doing activities that he would like to take part in because he is constantly afraid that his actions will embarrass him or that he may be judge by the spectators. Lethod’s symptoms are the base of any level of SAD, consequently, we have chosen his route

to illustrate four scenarios in which CBT techniques will come across the game interactions.

Remembering that in essence CBT requires people to undertake a meta-cognitive task in which they think about their thinking in a personalized but abstract manner, observing their thoughts, realizing the impact on their mood and behavior, gradually learning and applying new ways of thinking and behaving [6], our basic action line will be the following:

1. Understand what the character thinks.
 - Is it a positive or negative thought?
 - Where does that thought comes from?
2. Identify how the character feels.
 - Is it an anxiety trigger?
 - Does he/she identifies that it is a positive or negative feeling?
 - How does the character explains what he/she is feeling right now?
3. Study how the character behaves.
 - How is the character reacting to the situation?
 - Are there any kind physical responses to the situation (sweating, blushing or trembling)?

The bullet points represent some common thoughts that people may come across when thinking about the numbered list, they are not mandatory to follow, but the points 1-3 are essential for the purpose of successfully perform CBT techniques into any chapter of the game.

Note: This segment will contain spoilers of Lethod's route. We will present some chat dialogues, the name of the character to which that dialogue belongs to will be written at the beginning of the sentence. The name "MC", short for Main Character, refers to the player.

4.3.1 Situation 1: Avoidance of social circumstances

At the beginning of the branch, Lethod is asked to conduct a quality inspection on a new themed park. Despite giving an enthusiastic first reaction, without realizing, Lethod starts thinking about how he prefers to stay indoors because he would like to avoid any circumstance that will increase his anxiety.

Chat 1:

- Lethod: I think somebody else would do a better job than me in this mission, Sarin.
- Sarin: That's not possible. The instruction was clear. One of us should go and analyze the service in order to give a constructive critique out of it. Only you have the profile the guest is seeking for.
- Lethod: ... I just don't think I am the best dealer for this mission. It would be better if someone who enjoys this kind of places goes instead of me.

After reluctantly accepting that the mission, Lethod talks to the player. In this part is where the player will need to choose between two options to interact with the character, choice "a" and choice "b".

We will exemplify how the chat will progress in both instances.

Chat 1: Continuation with choice "a"

(Observe Figure 4.3 to see the illustrated example).

- MC: What's keeping you from going to the themed park?
- Lethod: Am I weird for not wanting to go? I just don't like this... It will be soooo crowded... and I would need to talk to the employees to ask them about the park's services and stuff.

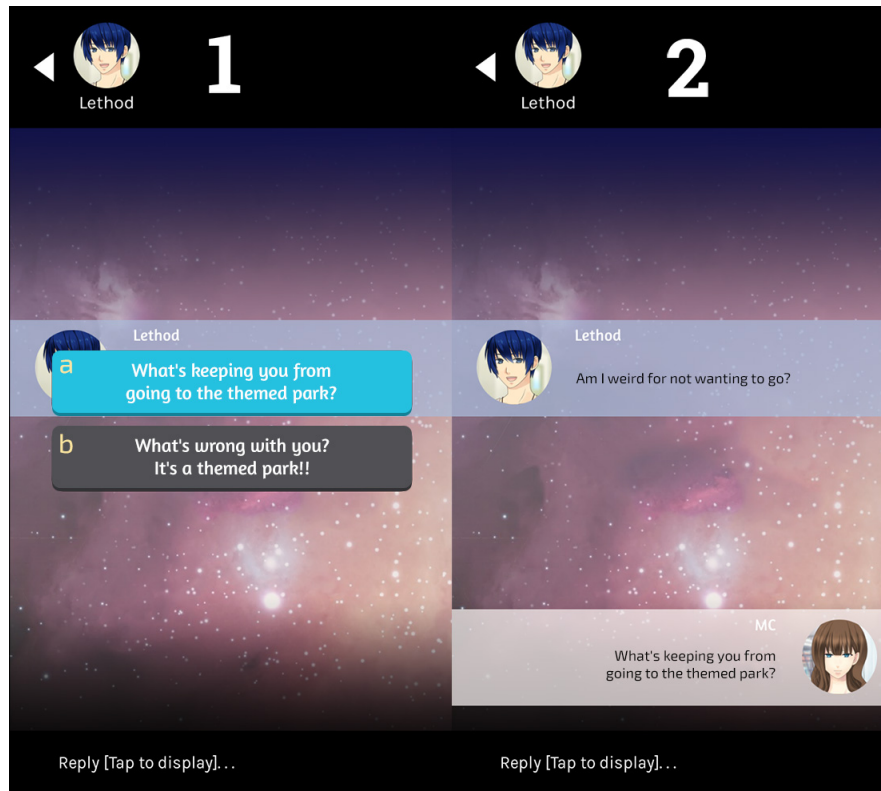


Figure 4.3: Chat 1: Choice “a” (read from left to right)

Chat 1: Continuation with choice “b”

(Observe Figure 4.4 to see the illustrated example).

- MC: What’s wrong with you? It’s a themed park!!
- Lethod: Mmm, yeah, you’re right... I don’t know. I think I should go now.

If the player chooses the reply “a”, the character will explain himself and share his thoughts about the situation. In case the player chooses the reply “b”, Lethod will take the comment as an aggression and he will not go into detail about his behavior. Briefly, choice “a” is correct, because this choice will help us know more about the character and study his fear, and choice “b” will have the opposite reaction. If we get to know more about the character, we will slowly understand his point of view (thoughts), fears and beliefs (feels), and how he reacts in such

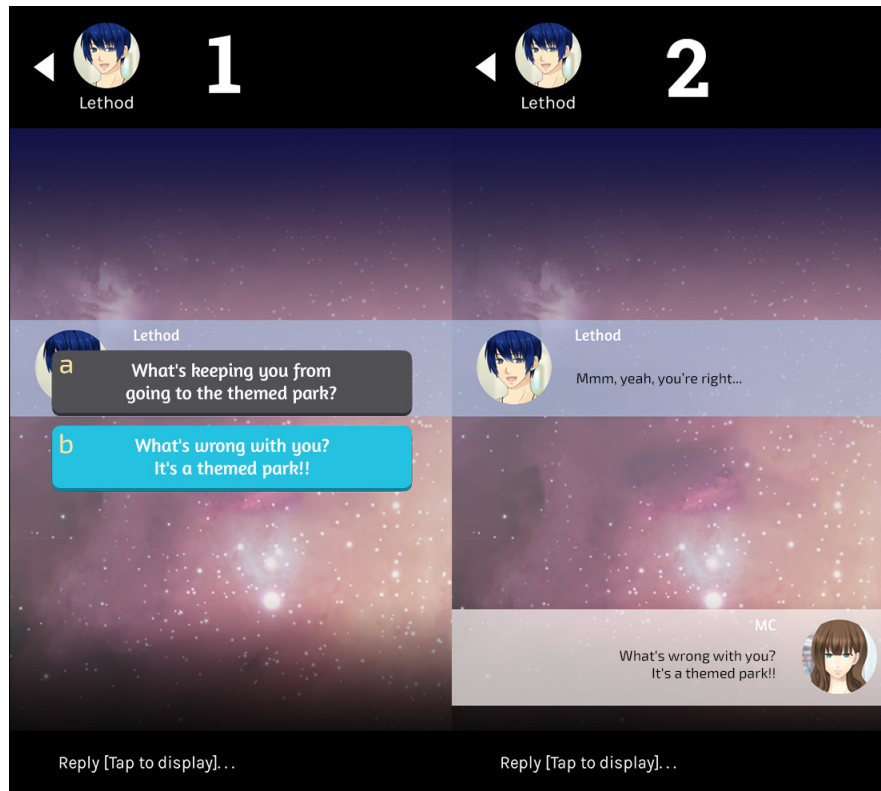


Figure 4.4: Chat 1: Choice “b” (read from left to right)

circumstances (behaviors). CBT principles are applied to the decision making process, done correctly, the character will uncloset and the game will progress until its “good ending”.

Furthermore, if the player chooses the correct answer, and basing on the list that we previously described, by the end of the former interaction the player will be able to identify the following factors:

1. Understand what the character thinks = Going to a crowded place and talking with the employees is something he doesn't like.
2. Identify how the character feels = He feels anxious and uncomfortable.
3. Study how the character behaves = He tries to avoid the mission by convincing other characters to take his place.

This last demonstration is the basic outline for the interactions throughout *Flair*. As the game progresses and the character uncloses the player will have more opportunities to help him/her to understand his/her fears and overcome them with the help of CBT guidelines.

4.3.2 Situation 2: Extreme apprehension in social interactions

After arriving to the themed park the character starts his mission and one of the tasks that needs to be executed is trying the restaurant food.

As part of his fear of social interaction, Lethod needs to mentally rehearse what he is going to say to the waitress before ordering food. When the waitress comes to his table without giving him time to think about what he was going to say, this is what happens:

Chat 2:

(Xig and MC are chatting when Lethod logs in and sends a photo)

- Xig: Is that a grape cake? That's just the dessert, right?
- Lethod: No, that's the whole meal.
- Xig: Did you just ordered dessert as the whole lunch course?!
- Lethod: It was the first thing that I saw in the menu, I opened it in the desserts part.
- Xig: So what?!
- Lethod: Well... right after I opened the menu the waitress came to me and asked me if I was ready to order. I wasn't, but she kept looking at me waiting for my answer! I couldn't even concentrate enough to keep reading!!! So I freaked out and I asked for the first thing that I saw...
- Xig: Dude...
- Lethod: I don't even like grapes!!

In this example we can observe that his anxiety restricted him from keep reading the menu and he abruptly chose a dessert for his lunch course.

The following part will show the continuation of the chat after the player has chosen one option.

Chat 2: Continuation with choice “a”

- MC: The key is to ask for more time to check the menu ;)
- Xig: Yeah, don't feel restricted! It's your food after all.
- Lethod: I guess I should try doing that...

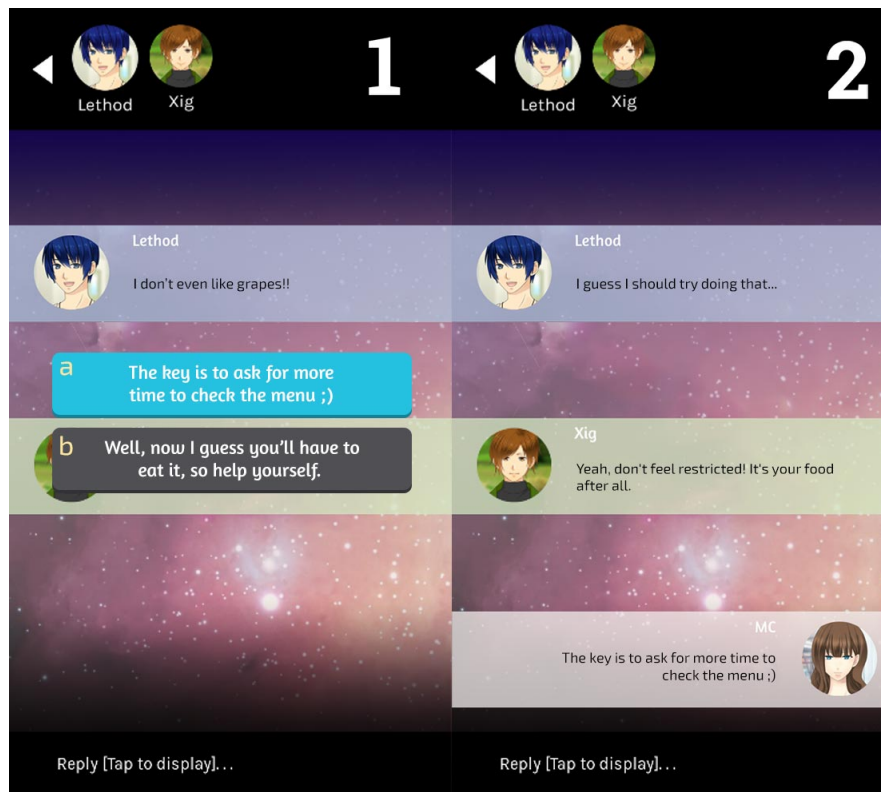


Figure 4.5: Chat 2: Choice “a” (read from left to right)

In this case we can see a CBT approach on this choice, as in talk therapy is taught, giving a helpful advice on how to approach certain situation that may be

troublesome for a SAD individual is always a positive way to motivate yourself and others to confront complicated circumstances.

Chat 2: Continuation with choice “b”

- MC: Well, now I guess you’ll have to eat it, so help yourself.
- Lethod: Ahhh! I feel so guilty for freaking out!!
- Lethod: I can’t eat this!

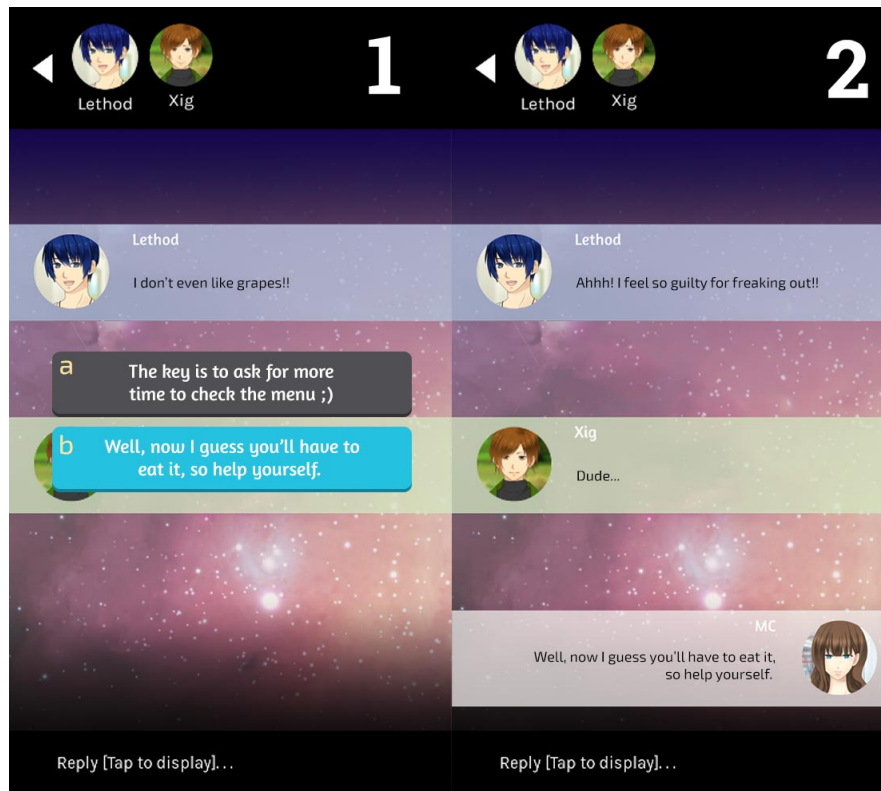


Figure 4.6: Chat 2: Choice “b” (read from left to right)

On the contrary to choice “a”, choice “b” has a slight blaming tone in it, one that may be consider as rude or even as a reinforcement on their idea that whatever happens to them is uncommon or “silly”. As Dr. Gillihan says “Blaming

will left the person feeling bad about themselves for not facing their fears” [10]. For that reason, we can conclude that choice “a” is the correct one.

4.3.3 Situation 3: Panic attack

As we approach the climax of the story, we come across a Lethod that is tired of faking his apprehension towards the pressure he is feeling when facing this mission. Lethod, as many SAD individuals have experienced, breaks down and feels unable to finish the quest.

The next interaction comes across a phone call between Lethod and the player.

Phone call 1:

- Lethod: Is this a freaking joke?!! I got your mail, the guest wants me to give him the report personally... is this for real? I thought we said it was going to be a written report!

-Skipped some dialogues in between-

- Lethod: This is not about how long it will take, it’s the fact that I need to go and talk to a stranger for several minutes about how “Super Duper” my day was! It also means I have to stay here longer than expected. Ah... I don’t like this at all!!!

In this instance, the player needs to approach the character in a wise way to help him come through his panic attack.

Phone call 1: Continuation with choice “a”

- MC: Hear me out for a second: Take a slow breath in through your nose.
- Lethod: How is that supposed to help?!!
- MC: Just trust me, okay? Now, hold your breath for 1 or 2 seconds.

In choice “a” the player teaches the character a breathing method called “calm breathing”. Calm breathing (sometimes called “diaphragmatic breathing”) is a CBT relaxation strategy that helps to slow down the breathing when feeling stressed or anxious.

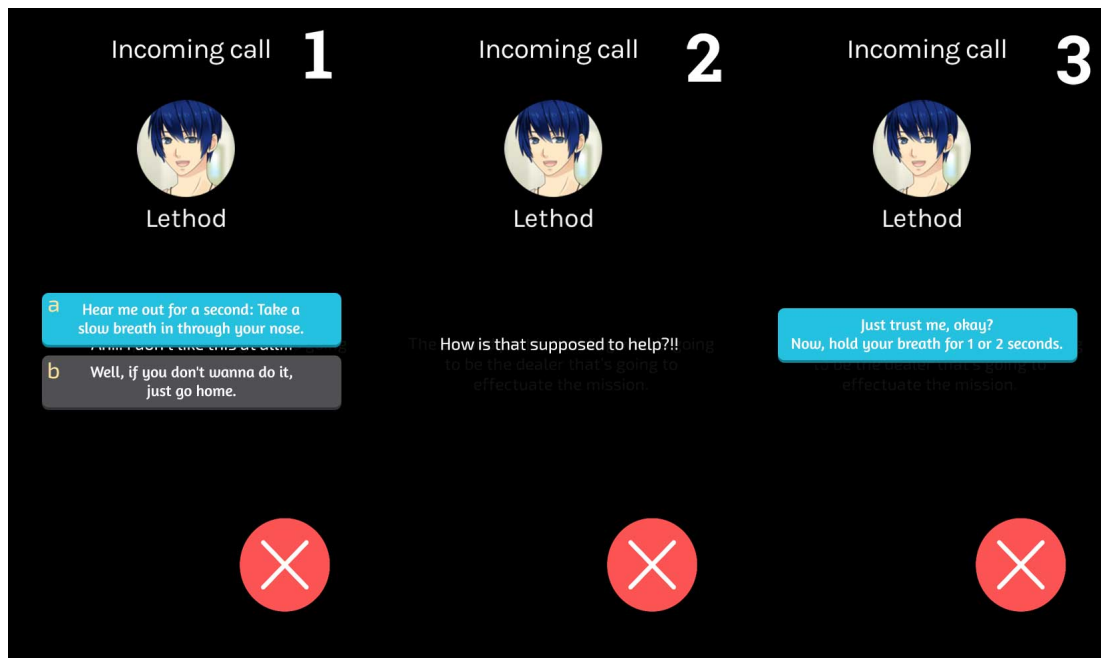


Figure 4.7: Phone call 1: Choice “a” (read from left to right)

Phone call 1: Continuation with choice “b”

- MC: Well, if you don’t wanna do it, just go home.
- Lethod: I certainly want to! I am positive that there are more people now than they were in the morning. Tons of people... it’s just so overwhelming.

Reassuring a negative thought will never help the healing process. In choice “b” the player encourages the character to leave the place confirming the idea that the character would be better if he wasn’t there at all. We need to prevent the panic attack and change the unhelpful thoughts when it can’t be avoided [10]. For that reason, choice “a” is the correct one.

4.3.4 Situation 4: Realization

Before Lethod can realize his issue and how to tackled it, the player will need to support a change in his thoughts so that his feelings can change and lastly his behaviors.

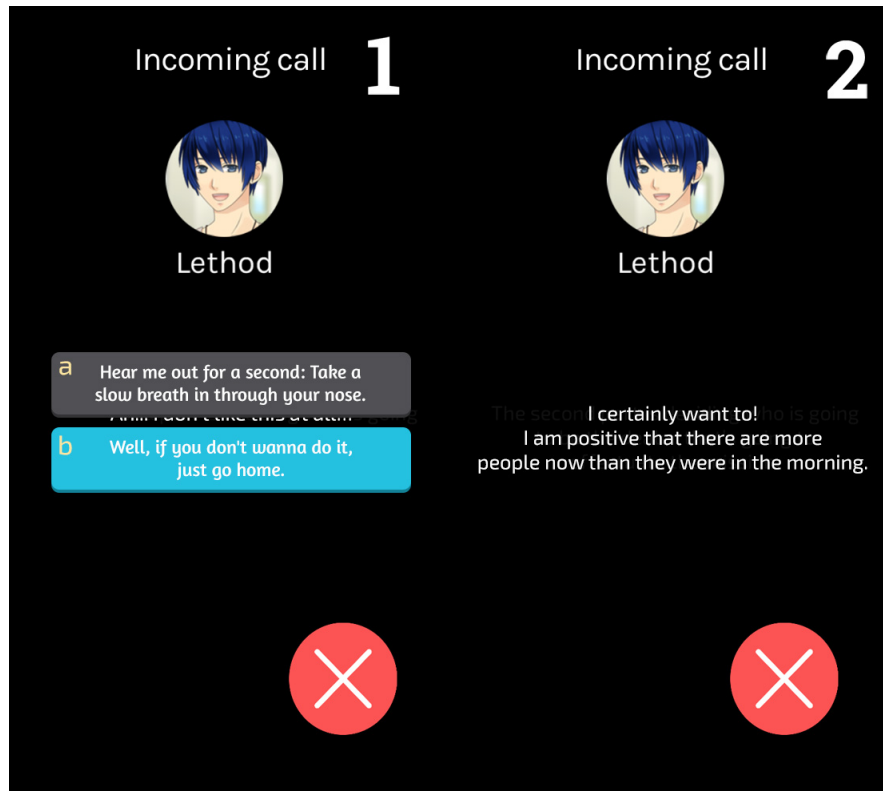


Figure 4.8: Phone call 1: Choice “b” (read from left to right)

Chat 3:

- Lethod: This is just normal for me. Not wanting to go to a place because of the crowd, or meeting new people... Just the fact of knowing that I’ll be interacting with strangers drains me so much. Sometimes I even end up not going to the places I want to go because I just don’t feel like going anymore. But it’s okay I guess... I’ve learned to live with this.

Chat 3: Continuation with choice “a”

- MC: Booring! But I agree that dealing with people is so annoying!!!
- Lethod: Glad to know that I am not the only one who thinks that way.

It is needless to say that reassuring this thought would not be beneficial to

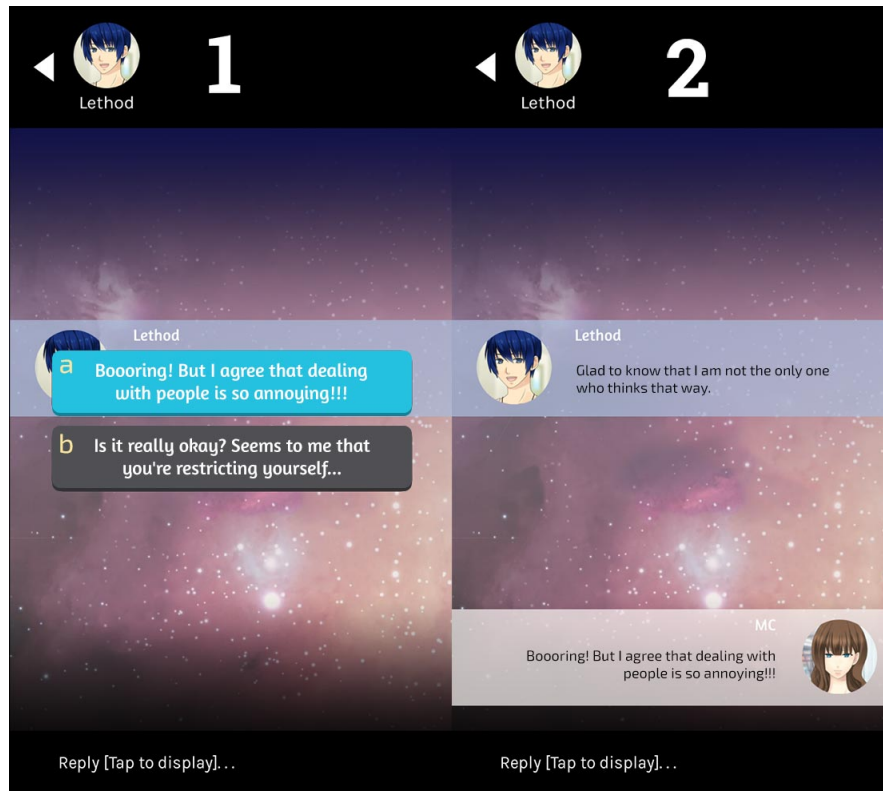


Figure 4.9: Chat 3: Choice “a” (read from left to right)

the character, it doesn’t help him in anyway. So we can assume that picking this choice would be incorrect.

Chat 3: Continuation with choice “b”

- MC: Is it really okay? Seems to me that you’re restricting yourself for the things you want to do because you’re feeling anxious.
- Lethod: Anxious... Maybe I was feeling too anxious to do something, whatsoever. I just don’t want to face people. I like feeling like I have the control of my environment. I prefer not to interact with others. Or at least that’s what I’ve always thought.

If the conversation between them is kind and heartening, the realization of having a mental disorder will come afterwards.

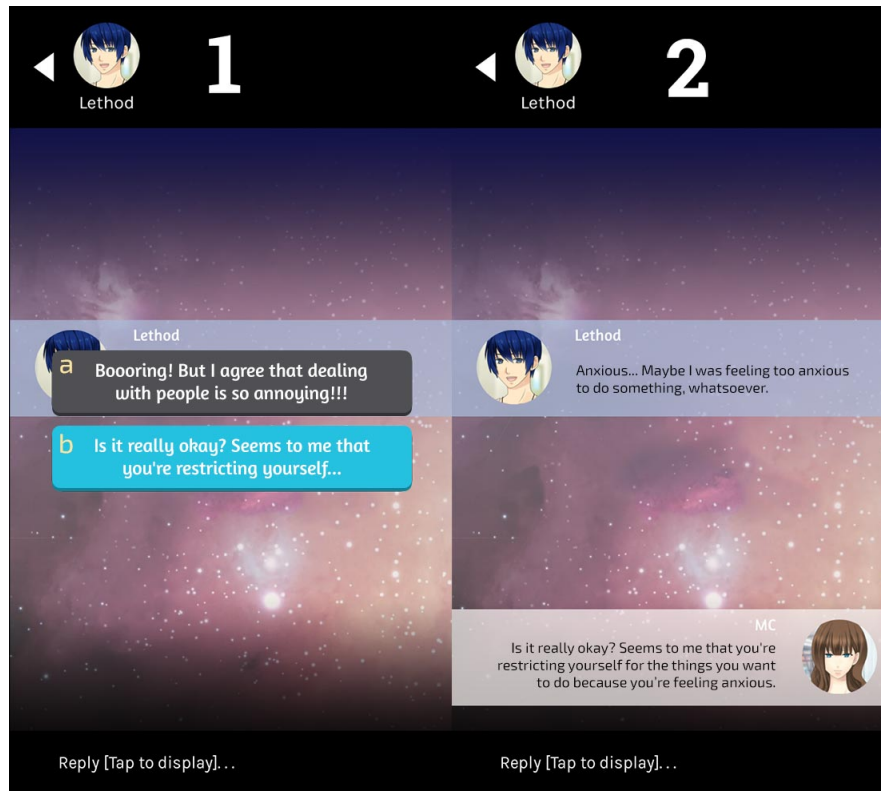


Figure 4.10: Chat 3: Choice “b” (read from left to right)

Chat 3: Realization

- MC: I think that you’re perceiving that something is keeping you from fully enjoy some events that you may come across.
- Lethod: Yeah... that sounds right. I want to be able to go to different places without being afraid to relate with people. I want to do what I like to do.
- MC: Going to the amusement park, enjoying a concert, or staying at home and read some books, but being yourself without any restriction :)
- Lethod: That’s right!!! Being myself without restrain. Feeling at ease, anywhere, anytime!!!

After that conversation, it depends on the player to continue following the action line proposed before to obtain a “good ending”. In case the player decides

to promote negative thoughts and misbehaviors, the game will finish with a “bad ending”.

Notes

1. The character design was made by とくだ屋.
2. The promotional video can be watched on Vimeo on the following link: <https://vimeo.com/272941150>.
3. *Fungus*, by Fungus Games, is a free plug-in for narrative-based games available on the Unity Asset Store.
4. The music and sound effects are creations on the following artists: Sougetsu-on.net, Pocket Sound, and Musmus.

Chapter 5

Evaluation

Flair has gone through a series of tests and data gathering on its development time. In this chapter we would like to share some of the most relevant tests and results that we have encountered in our two years of development.

Testing method

The general testing method was the following:

1. Pretest application. (Appendix A)
2. *Flair* gameplay.
3. Post-test application. (Appendix B)
4. Interview.

This method was applied on most of the game evaluations, but it is important to mention that one test, section 5.5 “Branched Game Use Case”, included a separate group of testers that were intended to be interrogated about their therapy progress without the support of a psychoeducational material. The comparison between parties will only be presented on section 5.7 “Physiological Benefit: Contrast between patients that played and didn’t play *Flair*”.

5.1. Story Examination

Before we started developing a digital version of the game we wanted to test if the story was entertaining and appealing for our target persona. With that in mind we made a paper prototype of the game and we gathered a total of five people that at that time were going under treatment to treat their SAD to participate in our evaluation. The participants were three males and two females, with ages between 18 to 25 years old.

A professional in the field conducted a psychological evaluation before the testers played the game to know more about their mental health status, selecting one person for each social anxiety manifestation that the game included. The following part describes the connection between the tester with his or her phobia and the corresponding game character that shares the same fear:

- Woman #1: 20 years old, university student. Dependency to makeup or an item that hides her natural face, which corresponds to the character named Xig.
- Woman #2: 25 years old, employee. Difficulty of eating in front of other people, which corresponds to the character named Sarin.
- Man #1: 22 years old, university student. Avoidance to phone calls, which corresponds to the character named Kisa.
- Man #2: 18 years old, high school student. Evasion of crowds, which corresponds to the character named Lethod.
- Man #3: 21 years old, university student. Restriction of social interaction, which corresponds to the character named Lethod as well.

These five testers “played” the paper prototype, meaning that the chats were printed on paper and slowly giving to the testers for them to read. When the time for an interaction came, two papers were presented, representing the answer choices available for that same interaction. The testers chose one of the choices and the story continued depending on the choice they made.

Each tester played two chats, which breaks into 10 minutes of story content and 5 interactions with the characters. The interaction parts were designed to

count as likable points for each character, meaning that depending on the answer that they chose, more information about one character would be displayed, leading to that character's route at the end of the test.

When the testers completed both chats the character route in which they ended up was presented. After that, a post-test and a Q&A session was held.

5.2. Story Examination Results

At the end of the experiment our five testers ended up matching with the character that had the same fear as they have.

The Q&A session consisted in asking the experiment participants their thoughts about the characters and why they pursued that specific character. Here are the results:

1. Three out of five people said that the characters were likable and fun to “chat” with.
2. Five out of five thought that the character represented their fear in an empathic way.
3. Two out of five people said that they pursued a character because they liked their personality.
4. Five out of five people stated that they were pleased to end up in the character route that had the same fear as them because they were eager to know more about the character and how he/she deals with his/her anxiety.

The rest of the feedback provided by the testers basically acknowledged the fact that each tester was willing to help the characters to overcome their fears by choosing the correct answer when an interaction was provided. The only major change that was suggested by the testers was to include more hints about the character's anxiety triggers in order to create more expectation towards each character's route.

After analyzing the data collected during the testing of the paper prototype we decided that the story was good enough to proceed with a digital version.

5.3. Digital Evaluation

After three months of development, a digital version of the game was finished [Note 1] . This version of the game contained the common route chats-rooms with their respective private messages and phone calls. When the testers reached the branching point, they were told which route the game was going to follow but they weren't able to continue forward with the gameplay.

For this test, eleven people participated. We will now present some information about the testers:

- Ages between 15 to 30 years old.
- Their background was middle and high-schoolers, university students, and employees.
- Six females and five males.

The structure of this test is the same as the general testing method described at the beginning of this chapter: 1. All the eleven testers were handled a pretest to fill; 2. After the pretest was finished, the testers were given a phone where they played the game; 3. After the completion of the game, we conducted a post-test and an interview.

One point that we consider important to clarify is that the possibility of obtaining a negative response that could affect the mental state of the testers was considerably low because the player didn't have the possibility to obtain a "bad ending".

Before moving forward to the next section, we will explain what the pretest and the post-test were about. These tests consisted on series of questions targeting the testers' SAD knowledge, their personal well-being questions (e.g how are you feeling after playing the game?, does any of these situations relate to you in any way?), and game related questions (e.g which one was your favorite character?). This surveys were designed in order to test the level of engagement and identification the player had towards the game, as well as knowing if it had some potential to evolve to be a support therapeutic tool for other mental health conditions, like GAD (General Anxiety Disorder).

5.4. Digital Evaluation Results

After conducting the test, we analyzed the data and asked for the testers' feedback. Firstly, we encountered some interesting opinions that the testers had in common, here is one example: "I kind of like the idea of all of them to have something they struggle with... it reminds me of a CBT group therapy session where you get to know everyone's fears and you help each other to overcome them" (female, 24 year old). This comparison was more common than we had expected, having 8 out of 11 testers suggesting the similarities between the game and a therapy group. With these statements, we could confirm that our wish of mimicking a CBGT on *Flair* was conveyed.

The second most common impression is represented by the the following quote: "I know I have social phobia but I didn't know that being afraid of eating in public is another manifestation of my disorder... this means that I may know some people that have this disorder and they probably don't even know about it" (male, 18 years old). On the pretest we asked the testers if they felt like their knowledge about SAD was broad enough, 9 out of 11 times the response was "yes". We asked the testers to elaborate on their answer and they agreed on saying that there was plenty of information about their disorder portrayed on the media and that was the main reason why people are starting to get more information about mental health disorders. But, as we can see from the last quote, not every representation that the media portrays as a mentally unstable character should be consider as the whole spectrum of what mental disorders are and how they manifest.

More importantly, it was clear that the testers felt attracted to the character that resembled themselves. The testers wanted to know the character's development throughout the story. Furthermore, it was encouraging to see that their curiosity wasn't limited to just one character, meaning that they would be more likely to play the game again in order to know the other characters' story.

Improvements

Taking in consideration the testers' feedback, we implemented some changes into the game, on the gameplay, game interface, story, and in the way we should test the following version for the next experiment. We will now present some useful

feedback that we received on this test:

1. Text heavy: Most of the testers commented on this aspect of the game. They thought some chats were text heavy and they didn't resemble the way a real person would text in a real chat-room.
2. Few images: One way the game could have been better was by adding more pictures and *emoji* (a small icon used to express an idea or emotion) in the chats.

These points were discussed and applied for the following evaluation.

5.5. Branched Game Use Case

The branched game use case is a continuation of the previous evaluation. Taking one branched game story as a starting point, fifteen testers were gathered to play the game until its termination. Next, we will present some general information about the testers:

- Ages between 15 to 32 years old.
- Middle and high-schoolers, university students, and employees.
- Nine females and six males.

Firstly, we applied a pretest before installing the game on the tester's smartphone. Secondly, we permitted the testers to play the game for one week. They were allowed to play through one story of the branched game (Lethod's story) until its conclusion. Lastly, after finishing the game and regardless of the ending the testers had obtained, a post-test and an interview was conducted.

The decision of letting the testers play just one of the four routes was proposed because most of our testers shared similarities with the anxiety triggers that this character has (as we said before, this route was designed to be the most relatable one out of the four routes). For the previous reason, we considered that testing this route would be the safest option for this test and would help us to obtain some feedback for the further improvement of the other routes.

5.6. Branched Game Use Case Results

In this section we will explain the most outstanding results of the branched game use case. Firstly, and the most important remark in these tests, is that the entire group of testers finished the game and successfully reached the “good ending”. Secondly, we will present the results divided in “mood-wise” and “story-wise” points.

Mood-wise test results:

- Testers showed a positive change in their mood based on the comparison between the pretest and the post-test (more details will be given on the next section).
- There was a decrease in the likeness of the following statement: “My fear of embarrassment keeps me from speaking or expressing the way I want to”. (Refer to Figure 5.1).

Story-wise test results:

- 93.8% of the testers thought the character resembled what a person with SAD would behave in real life.
- 87.5% of them thought the “good ending” accurately represented a healed version of the character.
- Overall, testers agreed on the way the character was presented and the way the character developed.

Finally, some remarks of the testing were the following:

- None of the testers needed psychological support (due to negative thoughts or feelings that the game may have caused) before, while, or after playing the game.
- Bad ending: Testers that finished playing the game before the time limit asked to play the branched game again in order to obtain a “bad ending” out of curiosity. None psychological damage was presented after obtaining this result.

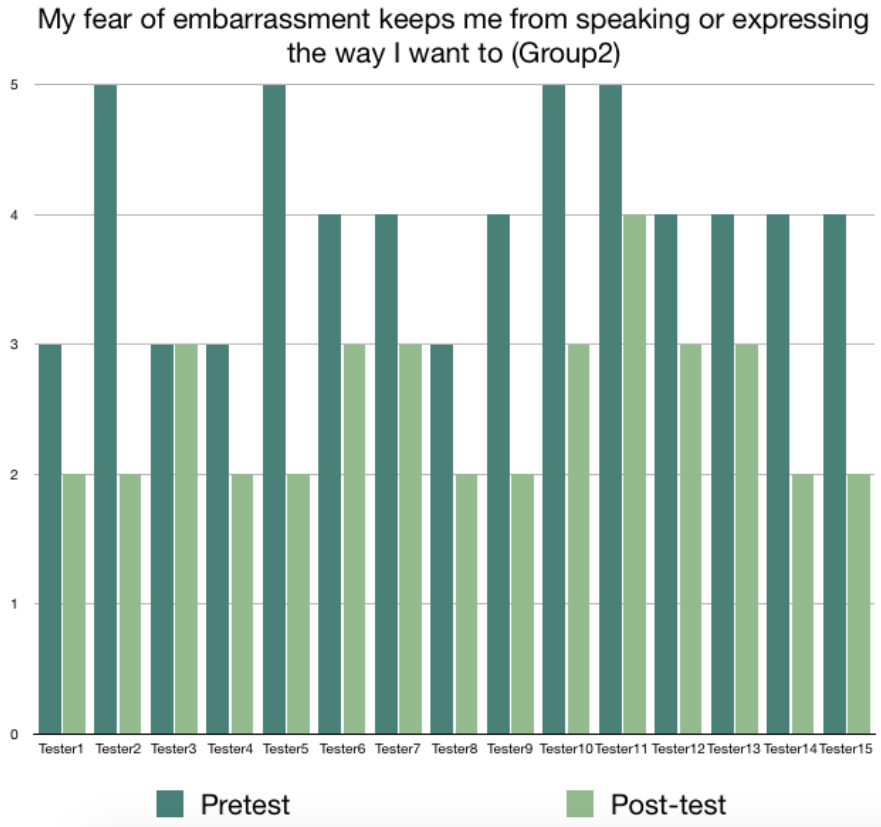


Figure 5.1: Comparison between pretest and post-test on a scale of 5 to 1 (5 being the highest score)

- By a consensus, 75% testers agreed on the following declaration: “Overall, I think this game helped me with my SAD healing process”.

5.6.1 Interviews

After completing the game and filling the post-test we inquired the testers with their opinion on *Flair* as a therapeutic support tool.

Firstly, we will address about *Flair's* fun level. Younger testers seemed to enjoy more the gameplay and how the game ended (“good ending” and “bad ending” as well). Older testers commented that the interactive fiction genre wasn’t one of their favorites, but regardless of that preference, they enjoyed playing the game.

Secondly, we asked about the CBT techniques and the difficulty level of choosing the correct answer on the interactions. Most of the testers agreed on how “natural” the correct answers were presented against the incorrect answers making it simple to advance in the game even without knowing CBT principles. 7 of the testers even suggested to allow people that are indirectly affected by SAD (like friends or family members of a SAD individual) to play the game so that they know more about this disorder and how to help their SAD loved ones.

Thirdly, we asked about how relatable were the characters and if the testers found their story truthful to what a person with SAD may have experienced. Here are some of the responses to that inquire:

- “I have been in Lethod’s shoes when talking to a cashier. I can’t believe how other people don’t understand the struggle I go through every time I go for shopping... It was funny to read the chat and see that I am not the only one who battles with that” (Woman, 20 years old).
- “I love aquariums but I can never go to one because it’s full of people. I understood that Lethod wanted to go to Super Duper Land (the themed park) but later he backed up because he was afraid of the crowd” (Man, 18 years old).
- “One part that touched me was when he was about to leave the themed park... I felt like crying for how much he had progressed during the day but in a matter of seconds everything just crumbled. That is a reality that most people don’t know about because they haven’t experienced it.” (Woman, 26 years old).

After hearing those comments we asked the testers if they felt relieved after helping the character and appreciating that their actions led him to a happy ending. This reply summarizes what most of them responded: “It made me realize that I have been neglecting my own healing process because I have always thought that there was something wrong with me and that I was the only one who felt this way... You can always read about this (SAD) in books or watch a movie about someone who miraculously gets cured of their mental disorder but seeing how this character evolved and how the game wasn’t that far from reality, it made me feel good about myself”.

With that last remark, we consider that our first hypothesis (Support the process of healing of a patient who is currently taken therapy to overcome SAD) was accurate.

Room of improvement

We will now introduce the aspects of the game that testers considered important to refine for future versions.

Testers appreciated the reduction of the text in the game as well as the inclusion of pictures and *emoji*. Regardless of that, the desire of the game to be fully voice supported was more recurrent than in the last tests. One tester commented “I wish I could hear the character’s voice more often, it would make me feel more immerse in the game”.

In regards to the game experience, testers found the game interface easy to understand but the notification system and the saving system were aspects that they suggested to improve.

These last remarks should be fix on future versions of the game in order to enhance the user experience and game engagement.

5.7. Physiological Benefit: Contrast between patients that played and didn’t play *Flair*

In order to prove our second hypothesis, the previous testing (section 5.5) was divided into two groups: group 1 (testers that didn’t played the game) and group 2 (testers that did play the game). Considering that the general testing method applied only to group 2, for group 1 the testing method was the following:

1. Test application. This test is identical to the pretest mentioned on the general testing method. (Appendix A)
2. Therapy session.
3. Therapy session one week after.
4. Repetition of the first test. (Appendix A)

5. Interview.

Group 1 consisted in five people, three females and two males, with ages between 18 and 25 years old; high school students, university students and employees. Initially, we asked group 1 to fill a pretest before their therapy session (week number 1). Next, after having their therapy session the following week (week number 2), we requested them to fill the same test and participate in an interview. Between week number 1 and week number 2 (time that group 2 used to play the game) this group wasn't provided with any additional psychoeducational material to support their therapy.

The comparison between the two groups will be performed by contrasting the results of the two tests that were applied to both parties and mention if there was a significant difference between them. We will include some points that were discussed on the interview as well for further interpretation.

Group 1

1. Testers rated their feeling of sadness as high (in a scale of 1 to 5) on both tests.
2. Unsubstantiated negative thoughts like "An intense fear that I will do or say something that will embarrass me" or "I am being watched and judged" were highly rated on both occasions as well. (Refer to Figure 5.2)
3. This group used neutral words to describe their healing progress ("It's going fine", "It's okay").

Group 2

1. An improvement of 40% on the testers' mood could be appreciated. (Refer to Figure 5.3)
2. Group number 2 used more affective or positive words to describe their healing progress ("I am improving", "I am feeling better than last week").
3. On the post-test, we can appreciate a decreased on the fear for making a mistake. (Refer to Figure 5.4)

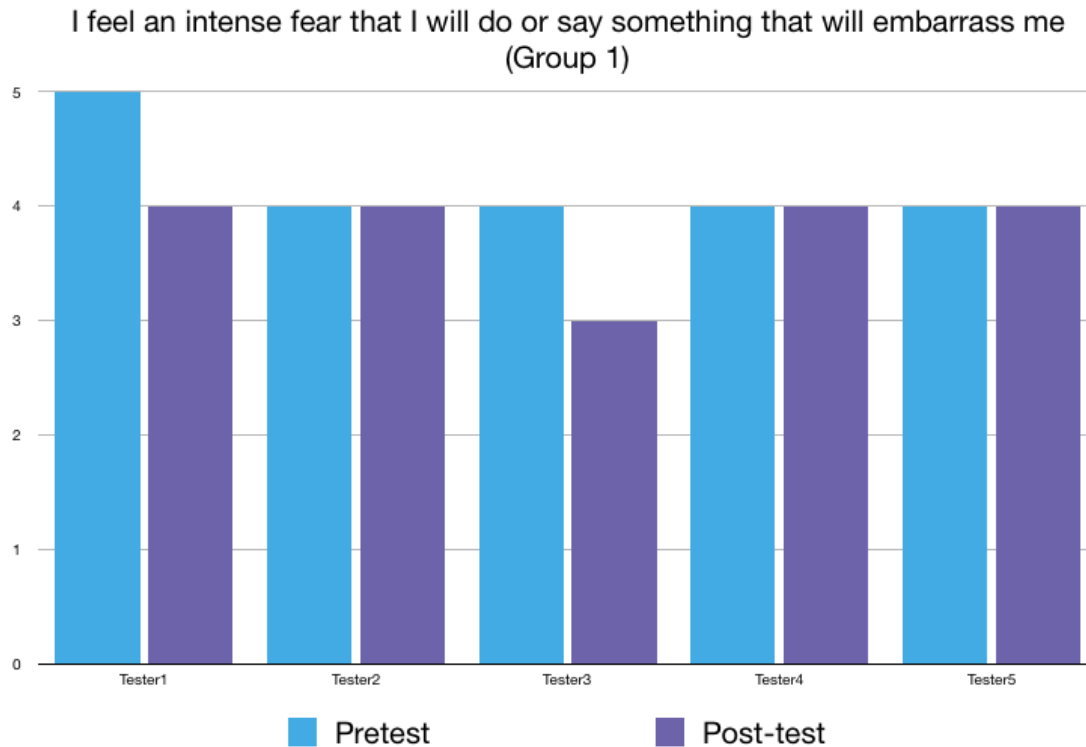


Figure 5.2: “I feel an intense fear that I will do or say something that will embarrass me” (Group 1)

Another important element to mention is the disclosure the patients could get after playing *Flair*. For group 1, both tests showed a persistent fear of a social situation in which people might judge them, as well as a fear that they will be humiliated by their actions, even during therapy time. This ideas presented a resistance in how much patients were likely to reveal their thoughts and feelings to their therapist, slowing down their healing progress.

On the contrary, group 2 regularly mentioned about the improvement they noticed in themselves when they were talking with the therapist (refer to Figure 5.5). Fear of speaking out or sharing experiences was valued as low. 6 out of 15 testers emphasized on the importance of having a “common topic” between patients and therapists, so that they can address it whenever they don’t find the words to express their thoughts.

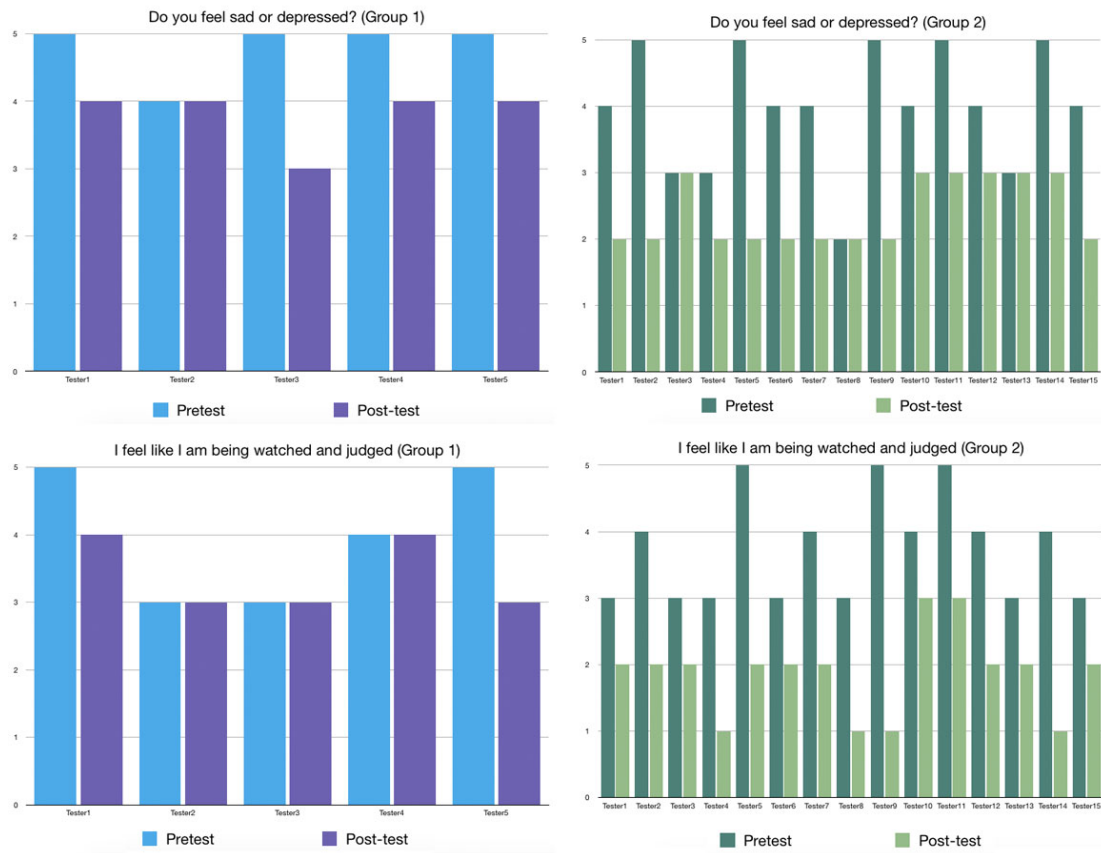


Figure 5.3: Comparison between group 1 and group 2

All things considered, based on the results obtained on the surveys and interviews, we can conclude that bringing emotional disclosure to people who played *Flair* was possible.

Notes

1. Check Chapter 4, section 4.1 “Game Development” in order to read more details about this topic.

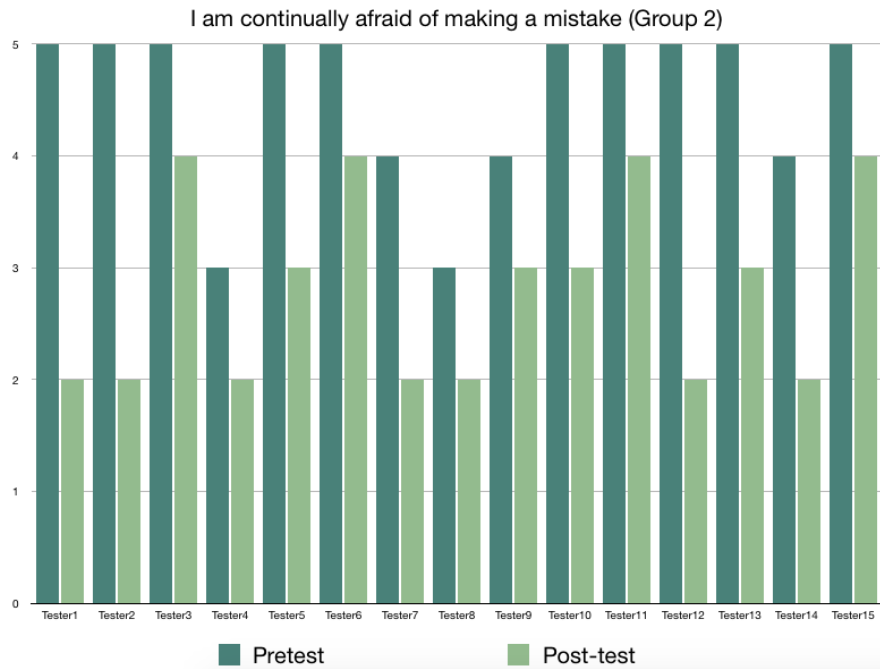


Figure 5.4: “I am continually afraid of making a mistake” (Group 2)

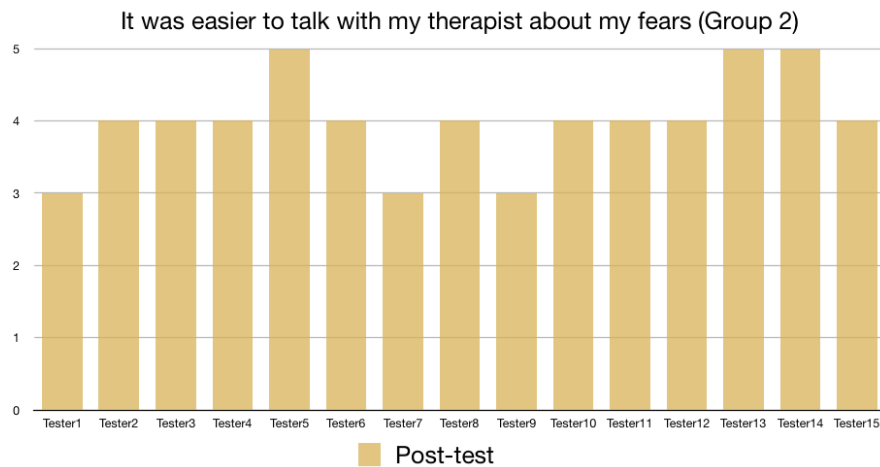


Figure 5.5: Rate of the statement “It was easier to talk with my therapist about my fears” (5 being the highest punctuation)

Chapter 6

Conclusion

6.1. Concept Validation

This research intended to prove the concept of *Flair* as an interactive fiction game that acts as a support material for SAD treatments. Guarding our validation on interviews and multiple tests, evaluations that started since the story verification until the playthrough of one route, we can state that the results indicate that:

1. SAD patients felt comfortable using *Flair* as a tool for their therapy.
2. *Flair* brought disclosure to the ones who used it, even in a supportive manner of the client-therapist relationship.
3. There was no psychological harm produced by the game, as the “bad ending” didn’t negatively affect any of the patients who played it.
4. SAD individuals felt identified with the game characters and story.
5. Patients that used *Flair* as a support tool declared an improvement in their healing progress.

6.1.1 Limitations

From the beginning of this thesis we have stated that *Flair* was designed to support conventional therapy interventions, and in a wish of exploring innovative

ways to promote a fun healing process *Flair* went through many changes to be what it is now.

Although the results are promising, definite evidence on the clinical effectiveness of *Flair* will require a larger scale of clinical trials. We can't state that by itself *Flair* would be enough therapeutic support to a SAD individual, but this thesis offers good initial evidence of the potential of *Flair* as a therapeutic game.

Considering that, we can declare that further research must be conducted on the area of serious games as fully therapeutic materials because its clearly on its early stages. As Fleming and colleagues wrote: "The field is ready for further development, as the feasibility and range of possible approaches has been shown, and there is an urgent need for engaging, appealing effective mental health interventions which reach large numbers of people will be needed" [24].

Personal message

This study was motivated by the desire to implement psychological wellness into one of my passions. The creation of *Flair* was a roller coaster of emotions since the day that I started its ideation. This journey has showed me that there are different ways to tackled mental disorders and that we should explore non-conventional treatments.

I would like to suggest to my readers, if they have SAD or know someone who has it, to support new ways of treatment. If you suffer from SAD and common interventions don't work with you, don't be afraid to try something else. If you need information about SAD or any other mental disorder, ask the community or counselors around you; read or play psychoeducational materials; listen to people's experiences, maybe it can help you to get the right treatment for you. Remember that even the smallest step towards a healthy mental state counts.

Last but not least, I would like to encourage society to destigmatize any mental health issue, support the ones who are seeking for help, promote treatments, and incite research for new remedies.

6.2. Future Work

Although the finalization of this thesis marks the end of *Flair's* development, there are two main areas that we could approach in a near future if we have the opportunity: one, testing the other three character stories that the game has to offer; two, testing *Flair* in different environments and therapeutic approaches.

In our opinion, there is a lack of studies made on the use of video games as therapeutic and/or awareness raising materials, specially when it comes to cognitive-behavioral interventions for social anxiety disorder, regardless of the support that it has been receiving in the medical community this past few years.

Serious games possess a great potential as mental health treatments. A promising future awaits the development of serious games, but before that further research should be conducted in this field. For that reason, it is certain that works like *Flair* could be expanded and improved in order to bring a better therapeutic outcome.

Social anxiety is treatable. As Bystritsky and colleagues stated: “We should continue to test alternative therapies for treating and preventing anxiety disorders and to help patients whose anxiety is resistant to conventional treatments” [2].

Acknowledgements

First of all, *Flair's* team appreciates the collaboration of the psychologist Anayanzi Ruiz Ibañez and the patients who participated in this research. Thank you for your feedback and your support on this project.

Secondly, I would like to thank my family and friends from back home, without their constant support and love I wouldn't be where I am right now. I love you all.

Thirdly, I thank my supervisors, official reviewers, the KMD alumni, and the friends I made in Japan. This research wouldn't have been possible without all of you, thank you for all the knowledge and wonderful times that you have given me.

I don't know if it is possible to convey in words the sense of gratitude I feel. This experience in KMD has shown me a world full of possibilities and challenges. Luckily, in a near future, I will be able to unlock some of those wonders, and I hope you, whoever is reading this now, do as well.

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Appendix

A. Pretest Questions

Are you troubled by the following? Please choose between Yes or No for your answer.

1. An intense and persistent fear of a social situation in which people might judge you.
 - (a) Yes
 - (b) No
2. Fear that you will be humiliated by your actions.
 - (a) Yes
 - (b) No
3. Fear that people will notice that you are blushing, sweating, trembling, or showing other signs of anxiety.
 - (a) Yes
 - (b) No
4. Knowing that your fear is excessive or unreasonable.
 - (a) Yes
 - (b) No

More days than not, do you feel... Please reply the next section by selecting one of the options knowing that “a” is the lowest (Highly unlikely) and “e” is the highest (Most likely).

1. Sad or depressed?
 - (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely

2. Disinterested in life?
 - (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely

3. Worthless or guilty?
 - (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely

When talking to a therapist, I feel... Please reply the next section by selecting one of the options knowing that “a” is the lowest (Highly unlikely) and “e” is the highest (Most likely)

1. An intense fear that I will do or say something that will embarrass me.

- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
2. Continually afraid of making a mistake.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
3. Like I am being watched and judged.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
4. Feelings like embarrassment or humiliation keep me from doing things you really want to do.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
5. My fear of embarrassment keeps me from speaking or expressing the way I want to.

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

B. Post-test Questions

Do you feel... Please reply the next section by selecting one of the options knowing that “a” is the lowest (Highly unlikely) and “e” is the highest (Most likely).

1. Sad or depressed?

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

2. Disinterested in life?

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

3. Worthless or guilty?

- (a) Highly unlikely
- (b) Unlikely

- (c) Neutral
- (d) Likely
- (e) Most likely

Story-related questions Please choose one of the presented following choices for your answer.

1. Do you think the character resembled what a real person would do when he/she has SAD?
 - (a) Yes
 - (b) No
2. Which of the following help you more in advising the character before or during any kind of feared social situation, when he felt more anxious?
 - (a) Yes
 - (b) No
3. Did you find useful to share the knowledge you have obtained from your therapy (self-calming techniques, identification of unhelpful thoughts, and development of new emotional regulation strategies) with the character?
 - (a) Yes
 - (b) No
4. Why was it useful? (open question)
5. Do you think that trying to help the character to overcome his fear kept you playing the game until its finale?
 - (a) Yes
 - (b) No

Good ending Please skip this part if you couldn't obtain the "good ending" in the game.

1. I think the “Good ending” accurately represented a healed version of the character.

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

2. Do you think the “Good ending” could be considered as a desired goal for people that are suffering this disorder?

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

Bad ending Please mark “NA” if you couldn’t obtain the “bad ending” in the game.

1. How did you feel when you got the “Bad ending”?

- (a) Sad
- (b) Depressed
- (c) Hopeless
- (d) Anxious
- (e) Encourage to try to play again
- (f) Other

2. Do you think the final message in this ending is good enough to encourage people to get help if needed?

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

After playing Flair, when talking to my therapist, I feel... Please reply the next section by selecting one of the options knowing that “a” is the lowest (Highly unlikely) and “e” is the highest (Most likely)

1. An intense fear that I will do or say something that will embarrass me.

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

2. Continually afraid of making a mistake.

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

3. Like I am being watched and judged.

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely

- (e) Most likely
4. Feelings like embarrassment or humiliation keep me from doing things you really want to do.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
5. My fear of embarrassment keeps me from speaking or expressing the way I want to.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
6. It was easier to talk with my therapist about my fears.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
-
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely

(e) Most likely

7. Overall, I think this game helped me with my SAD healing process.

(a) Highly unlikely

(b) Unlikely

(c) Neutral

(d) Likely

(e) Most likely

After playing Flair, it was easier for me to... Please reply the next section by selecting one of the options knowing that “a” is the lowest (Highly unlikely) and “e” is the highest (Most likely)

1. Express my feelings with my therapist.

(a) Highly unlikely

(b) Unlikely

(c) Neutral

(d) Likely

(e) Most likely

2. Compare the characters’ situation with mine in order to give an example.

(a) Highly unlikely

(b) Unlikely

(c) Neutral

(d) Likely

(e) Most likely

3. Feel like my disorder isn’t as uncommon as I thought it was.

(a) Highly unlikely

- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

4. Share my experience with other people suffering from SAD.

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

5. Know how to convey my knowledge about SAD or SAD calming techniques to other people.

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely
- (e) Most likely

Engagement Please reply the next section by selecting one of the options knowing that “a” is the lowest (Highly unlikely) and “e” is the highest (Most likely)

1. I would play Flair again.

- (a) Highly unlikely
- (b) Unlikely
- (c) Neutral
- (d) Likely

- (e) Most likely
2. I liked the way the character was presented.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
3. I liked the way the character developed.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
4. I think Flair was fun to play.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely
5. I would recommend people with SAD to play Flair.
- (a) Highly unlikely
 - (b) Unlikely
 - (c) Neutral
 - (d) Likely
 - (e) Most likely