

Title	MI using game mechanics to portray hiding behaviors associated with depression
Sub Title	
Author	何, 詩源(He, Shiyuan) 大川, 恵子(Okawa, Keiko)
Publisher	慶應義塾大学大学院メディアデザイン研究科
Publication year	2017
Jtitle	
JaLC DOI	
Abstract	
Notes	修士学位論文. 2017年度メディアデザイン学 第576号
Genre	Thesis or Dissertation
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO40001001-00002017-0576

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the Keio Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.

Master's Thesis
Academic Year 2017

MI

Using Game Mechanics to Portray Hiding
Behaviors Associated with Depression

Keio University
Graduate School of Media Design

Shiyuan He

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

Shiyuan He

Thesis Committee:

Professor Keiko Okawa	(Supervisor)
Professor Masa Inakage	(Co-supervisor)
Professor Hideki Sunahara	(Member)

Abstract of Master's Thesis of Academic Year 2017

MI

Using Game Mechanics to Portray Hiding Behaviors
Associated with Depression

Category: Design

Summary

As one of the most common yet serious mood disorder, depression has become the leading cause of disability worldwide. While effective treatments are available and even the most severe case can be treated, less than 50% patients actually receive those help. The social stigma associated with depression is the major barrier that blocks patients from getting help. Fears of being judged, criticized and isolated tend to drive patients to press their symptoms and pretend to be normal.

MI is a game that addresses this hiding behavior associated with depression. It utilizes motion control and interactive storytelling to metaphorically replicate the experience of a depressed patient. While players can interact with the normal side of the main character, they can also sense the depressed side of her by peeking on the downward facing screen. The result of play testing and evaluation has shown that this game has the capability of creating emotional impact, and after playing it, most players have demonstrated will to be more caring and empathetic for people with depression.

Keywords:

Design, Game, Depression, Motion Control, Storytelling

Keio University Graduate School of Media Design

Shiyuan He

Acknowledgements

I would like to thank my parents, for their love, support, understanding and daily pictures of Doudou.

I would like to thank my sister Licia, for being the 2.0 version of me and always inspires me for the better.

I would like to thank Leandro, for reaching confidant level 10 with me.

I would like to thank Professor Keiko Okawa, for guiding me through this project and helping me on many aspects during my time at KMD.

I would like to thank my friends at KMD. Dira, Silmi, Helen Helen, Phoenix, Ivy, Sergio, Marcel and many, many more. You guys made those two years very colorful and memorable for me.

I would also like to thank depression, for teaching me what is important in life, and for showing me that I have to define meanings for and by myself. The short encounter I had with you was dark and unpleasant, but it was beautiful in the long run.

Table of Contents

Acknowledgements	ii
1 Introduction	1
1.1 Depression	1
1.2 Game	2
1.3 Concept of MI	3
1.4 Reasons and Expectations	3
1.5 Thesis Structure	4
2 Related Works	5
2.1 Studies On Depression	5
A Common Yet Serious Mental Disorder	5
Stigmas Around Depression	6
Help Seeking Factors	8
2.2 Game	8
Game as an Interactive Media	8
Game as a Storytelling Tool	9
Game as a Emotional Generator	9
Games about depression	10
3 Design	13
3.1 Introduction	13
Game and Game Experience	13
Game Design Document	14
3.2 Overview	16
Why Depression: A Personal Story	16
Inspiration	17
Concept Overview	20
Target Player	23
3.3 Management	24

TABLE OF CONTENTS

Project Timeline	24
Equipment	28
Work Flow	30
Game Structure and Asset Spreadsheet	31
3.4 Art Style	33
Zentangle: What, How, and Why?	33
Design Principles for Art of MI	36
Creation Process	40
3.5 Story	46
MI: The Complete Story	46
Character Building: MI and the Player	52
3.6 Engineering and Mechanics	53
Technical Overview	53
Motion Control in Unity With C#	54
Sound Design	55
4 Evaluation	56
4.1 Method	56
4.2 Result: Mechanics	56
Version 1	57
Version 2	59
4.3 Result: Graphic Related Discussion	60
4.4 Result: Depression Related Discussion	61
5 Conclusion	63
5.1 Concept Validation	63
5.2 Possible Future Plan	64
References	65
Appendix	68
A Text Asset Utilized in Game	68

List of Figures

2.1	Depression Rate and Its Correlation with Age	6
2.2	80% patients received no treatment	7
2.3	Jenova Chen’s Game Emotion Wheel	9
2.4	Actual Sunlight	10
2.5	Depression Quest	11
2.6	Elude	12
2.7	Another Day	12
3.1	Game Design Document Captures the Web of Design Decisions .	14
3.2	Main Inspiration: Breel’s TED Talk	17
3.3	David Shrigley’s Unique Style	18
3.4	Abstract and Metaphorical Exploration with Game	19
3.5	Metaphor: Human Connection as Hands Reaching Out	19
3.6	Metaphor: Human Connection as Plug Connectors	20
3.7	Motion Control With Flipping and Peeking	22
3.8	Flat Design Concept Sketch	25
3.9	Previous Project: The Eyes	26
3.10	Result of Word Association: Beauty-Butterfly-Flower	30
3.11	Creating Detailed Animation Frames	31
3.12	Work Flow Cycle	31
3.13	Assets Spreadsheet	32
3.14	A Zentangle Art	33
3.15	An Example of Zentangle Creation Process	34
3.16	Intentionally Avoiding Straight Lines Using Brush Pressure . . .	36
3.17	Colored Zentangle Might Induces Eye Straining	37
3.18	Eyes as a Symbolic Pattern	39
3.19	Using the word “No” as a Pattern	39
3.20	Using the word “Me” and “OK” as Patterns	39
3.21	Character Sprite: Step 1	40

LIST OF FIGURES

3.22	Character Sprite: Step 2	41
3.23	Character Sprite: Step 3	42
3.24	Character Sprite: Step 4	42
3.25	Character Sprite: Step 5	43
3.26	Additional Step: Detailed Animation	43
3.27	Animation Sprite: Step 1	44
3.28	Animation Sprite:Step 2	45
3.29	Animation Sprite:Step 3	45
3.30	MI Breaking Out From an Egg	47
3.31	MI's Three Dreams	47
3.32	Manifestation of MI's Dreams	48
3.33	Manifestation of MI's Dreams	48
3.34	MI Working to Achieve Her Dreams	48
3.35	MI Receives a New Level For Her Hard Works	49
3.36	MI Continues to Work for Her Dreams	49
3.37	MI Receives a Lotus Flower Head	49
3.38	MI Hides Her Depression While Phone Facing Down	50
3.39	MI Tries to Hide Depression and Continue Working	50
3.40	On the Flip Side, MI Is Feeling Empty and Depressed	50
3.41	Positive Ending	51
3.42	MI's Break Down	51
3.43	MI's Suicide	51
3.44	Core Code in C#	55

List of Tables

3.1	Equipment List	29
3.2	Software List	29
3.3	List of Online Courses	29

Chapter 1

Introduction

1.1 Depression

Depression is a common yet serious mental disorder. The sufferer often experience prolonged sadness different from usual fluctuations. Unlike short-lived, normal emotional responses, depression comes with continued loss of pleasure or interest, disturbed sleep pattern, and affected appetite. Moreover, it also increase the feeling of tiredness, self-guilt, while decreasing the patient's concentration and self-worthiness.

Depression can have long-lasting effect that challenges everyday life. It is capable of "substantially impairing" the patient's ability to deal with regular daily life. When depression reaches a certain intensity, it may turns in to a serious health condition that affects the normal functioning of an individual, and turning common situations like working, studying or even living itself into sources of suffering.

In severe cases, depression may result in suicide. Every year, nearly 800,000 people take their own lives, and more than 90% of those have a dignosable mental disorder(WHO 2017).

Currently, more than 300 million people are struggling with depression. According to the World Health Organization (WHO) and the World Economic Forum (WEF), among all health issues in the world, mental illness is causing the "biggest economic burden." In 2010, this issue has cost around 2.5 trillion dollars worldwide, and this number is going to increase to roughly 6 trillion by 2030(Friedman 2014) .

The seriousness of depression is contributed by the fact that most patients never receive any form of care. Studies have shown that about 60% of people who suffer from mental health conditions have not received any medical attention. This number drastically increases to 90% for people in developing countries(Friedman 2014).

Ironically, depression is a curable disorder that not only can be reliably diagnosed, but also can be effectively treated. For those who have mild conditions, they can even be treated without medications and by non-specialists. However, barriers such as social stigma are still preventing them from accessing effective care.(WHO 2017)

Overall, as the “leading cause of disability worldwide,” it is a serious disease that requires social attention(WHO 2017).

1.2 Game

Video game is a prospering new media that comes from a long history of gaming. In 1938 the Dutch historian Huizinga suggested that the play element is a necessary and primary condition of the generation of culture, and that gaming activities has been prevalent throughout human history.

While games can take shape in many forms, video games is a sub-branch that has attracted much attention and publicity till the point that the word “game” is often used to refer directly to video game. It was a form of game that developed alongside with video processing technologies, and the earliest video game can be traced back to 1930s(Kent 2010).

Within 80 years of development, video game has experienced drastic increase in number, variety, quality, and most importantly, popularity. Nowadays video game stands for a giant head in the entertainment industry. Studies have shown that more than 2 billion people are gamers in 2016, and this number has been increasing with a high speed. Due to this popularity, the video game market is growing at “tremendous rate,” and within 2016 it has generated 91 billion US dollars in revenue(Newzoo 2016, SuperData 2016).

As the game industry develops, video games has expended its reach beyond the traditional dynamic, and in recent years the industry has been exploring and incorporating other forms of media and platform to create innovative and entertaining experiences. Some trends in this advancement include using video game as a vehicle for artistic expression, combining interactivity with cinematic for new storytelling, and developing games to represent need or feelings of individual or a small group.

In short, video game is a versatile media that encompasses many opportunities in terms of market growth and content innovation, and on a grand level it stands for a promising field for further experimentation and exploration.

1.3 Concept of MI

This thesis project is about capturing an aspect of depression by designing a video game. It includes two components: a mobile game about depression, and a research essay that documents the studies, design decisions and creation process of the game. It is worth noticing that since both the research project and the game are titled “MI,” in the course of this essay, the name “MI” is used to refer to the game. When referring to the research project, this essay uses keywords such as “this project” or “project MI” for the purpose of differentiation.

Specifically, the project MI is created as a design project that aims to use game mechanics and interactive storytelling to portray the hiding behaviors associated to depression, and in order to achieve this goal, it approaches the design of MI in four aspects.

Firstly, MI is a game addressing the double sided life a depression patient has. It aims to portray the fact that people suffering from depression tend to hide it from public by acting like normal. The goal of the game is to raise awareness on this hiding behavior associated with depression.

Secondly, MI is a mobile game that uses motion control as its main play mechanic. It relies on the accelerometer built in smart devices to capture players’ motion input, and provide feedback based on those input.

Thirdly, MI adopts Zentangle art style and strives to be an artistic experience. While the interactive experience is important for this project, this game also focuses on using game as a form of artistic experiment. By utilizing a specific art style, it strives to provide players with unique graphic experience.

Last but not least, MI is a metaphorical capturing of depression based on real personal story. It uses visual storytelling to portray a character suffering from depression while hiding it from the public.

Overall, those four characteristics together form the structure of the game, and are essential pillars in terms of describing the design and making process throughout this thesis project.

1.4 Reasons and Expectations

This project is created based on four reasons: to raise awareness of depression, to share personal experiences, to conduct explorations of graphics, and to experiment and innovate on game mechanics.

The major reason of initiating this project is to raise awareness of depression. It does not aim to provide players with general knowledge or any kind of treatment concerning depression, but instead focus on illustrating the hiding behavior that depression patients tend to have in common. Meanwhile, this project is also used as a vehicle of sharing personal experiences with artistic expression. It aims to reach out for a community with common aesthetic taste. Moreover, this game is also an experiment on game play mechanics. It uses motion control as its main input and strives to create a new technical experience for players.

Starting from those four reasons, this project also targets four expectations related to depression and game design. Firstly, it aims to shed light on the hiding behavior generated by depression, and let players know that it can lead to serious consequences. Furthermore, it aims to change players' perceptions on depression, and to stir up their interest in learning more about it. In addition, it is also designed in the hope to receive feedback on elements of graphic and game design.

Most importantly, the game is about creating empathy towards those who are suffering, and a successful result would be that after playing this game, players start to care instead of fear, and are inspired to help instead of avoid.

1.5 Thesis Structure

1. Chapter 2: related studies on depression, game and mobile devices
2. Chapter 3: game design document about every aspect of the game
3. Chapter 4: evaluation method, process, result and discussion
4. Chapter 5: conclusion and possible future improvement

Chapter 2

Related Works

2.1 Studies On Depression

A Common Yet Serious Mental Disorder

Depression is a serious mental condition that involves mood, cognitive and physical symptoms. Studies have shown that major depression is “one of the most common mental disorders.” According to data from the World Health organization, among all mental and behavior disorders, major depression has the highest chance of causing disability. In the year of 2015, in the United States more than 16.1 million adults (6.7% of US adult population) have had “at least one major depressive episode in the past year.(U.S. Department and Services 2012)”

Studies have shown that females have higher rate of depression, and age is a parameter that influences the rate of depression. Among youth aged from 12-17, the rate is 5.7; For those aged 18-39, the rate is 5.8%; Adults aged from 40-59 has the highest rate of depression, which is 7.2%.

As a wide-spread mental disorder, depression can impair the normal functioning of patients and prevent them from performing common daily routines. Around 90% of severe depression sufferer have reported that they have difficulty dealing with work, home or social activities. As depressive symptoms increases in intensity, difficulty of normal functioning in daily situations also increases, from 45.7% among patients with mild symptoms, to 88% among patients with severe symptoms.

Rate of treatment for depression is low, despite the fact that effective diagnosis and medications are available. For patients with severe depression, only 35.3% of them have received professional help. For those with moderate depressive symptoms, only 20% have seen a professional on mental health(Laura A. Pratt and Debra J. Brody 2014).

Figure 1. Percentage of persons aged 12 and over with depression, by age and sex: United States, 2009–2012

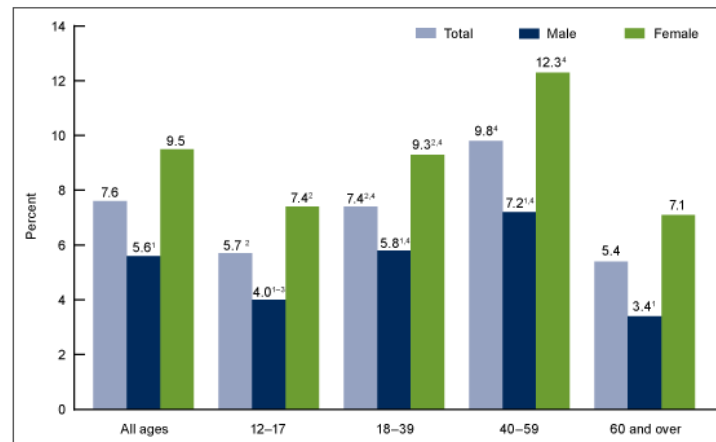


Figure 2.1: Depression Rate and Its Correlation with Age

(U.S. Department and Services 2012)

Stigmas Around Depression

Patients of depression tend to face a common yet serious struggle, which is whether to reveal their depression condition to others. This struggle is rooted in the fact that depression usually comes with many social stigmas, both external ones and internal ones.

Researches have suggested that stereotypes and negative attitudes towards people with depression is very common. Stereotypes such as “crazy,” “weird” and “dangerous” are often attributed to those who are suffering from mental conditions. Part of those negative attitudes can be contributed by how mental illness was treated historically. Before effective diagnosis and treatment were discovered, patient with mental illness tend to be isolated or even punished for their conditions, due to the fear of them losing control. This historical root leads to a wide-spread and wrong perception that mental illness is incurable and the only way to stay unaffected is to keep a distance from patients.

Meanwhile, modern media is also contributing to the increasing negative stereotypes. It is common to see attribution of mental illness to fictional characters who are violent and dangerous. Despite the fact that those extreme behaviors can only happen in extreme cases of specific types of mental illness, the whole category of mental illness was tagged with the same stereotype (Link et al. 1999).

Studies have shown that this stigma not only exist in the mind of those who do not have special knowledge of mental health, it also exist among the mental health staff community. Patients with mental illness tend to encounter negative treatment or attitudes from physicians and other mental health staff(Thorncroft et al. 2007). Study suggests that the better knowledge of mental health professionals and their support of individual rights neither entail fewer stereotypes nor enhance the willingness to closely interact with mentally ill people(Nordt et al. 2006).

To summarize, stigmas associated with depression might includes:

- People with depression lack willpower.
- Depressed people's emotions are out of control.
- Depressed people are a danger to others.
- People with depression are "defective," like broken machines.
- Depressed people are just whiny and make excuses.
- People with depression are antisocial.

Because of those stigmas, patients are hesitant to seek help, because of the fear of being judged. It is therefore common for patients to pretend as normal, which is likely to increase the intensity of depressive symptoms.

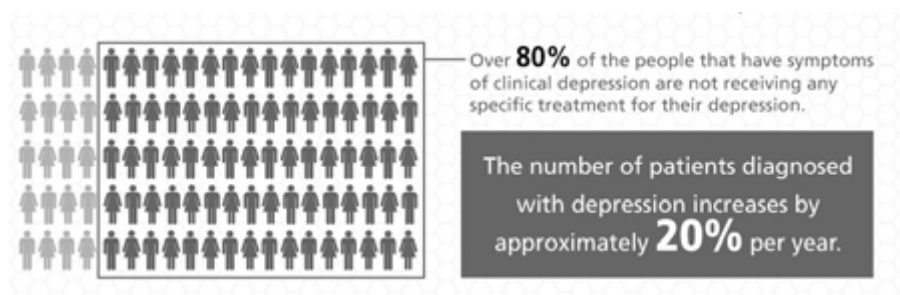


Figure 2.2: 80% patients received no treatment

(Healthline 2012)

Help Seeking Factors

Studies have shown that patients are reluctant to seek help from mental health professionals because of not only perceived stigma, but also self-stigma. Self stigma makes patient believe that revealing depression is a form of self-embarrassment. Overall those self and perceived stigmas are prevalent in the community.(Barney et al. 2006)

According to studies, major help-seeking determinants include sex, age, severity of the illness, and co-morbidity. Specifically, female is more likely to seek help; patients who are under age 45 are more likely to seek help; those with more severe depressive symptoms are more likely to seek help; and people with multiple illness (comorbidity) are more likely to seek help.(Bland et al. 1997).

In addition, demographic, network, and personality variables can also predict help-seeking orientation.

Meanwhile, social support is also also an important factor that influences health seeking behavior. Knowing someone who have had experience with professional help can significantly increase an individual's likeliness to seek help. Furthermore, even having someone who encourages seeking help from professionals would increase the chance of help seeking. (Rickwood and Braithwaite 1994). Another study supported this result and suggested that of patients who sought professional help, around 75% "had someone recommend that they seek help and about 94% knew someone who had sought help(Vogel et al. 2007)."

2.2 Game

Game as an Interactive Media

Interactivity is an important feature that "truly distinguishes a game."(Friedl 2002) Having interactivity means players are actively involved in game. Unlike many form of media, where communications are done only from one direction to another, interactivity allows games to communicate both ways, and in many cases, instantly.

The advantage of having interactivity is that player can have control over certain aspects of a game. As Schell suggested, "the point of interactivity is to give the player control, or freedom, over the experience."(Schell 2014)

Game as a Storytelling Tool

Since the beginning of history for video games, stories have always been an important factor that creators try to incorporate. Even for games published 30 years ago, storytelling was adopted as a necessary motive for players to advance the game.

Because of the interactivity that game has, stories within video games are often interactive. Players are often asked to make decision on the plot, which allows the player to become “part of the story and not just an inactive participant.(Times 2015)”

This participation can establish emotional connections between game characters and players, and those emotions are powerful drives that encourage players to continue along the journey. (Times 2015).

Game as a Emotional Generator

Storytelling in the video game medium is changing rapidly. In recent years, the indie game movement started challenging the traditional, mainstream games that tend to have similar and “increasingly redundant” stories. (O’Brien 2014) Since indie games are developed by a relatively small team, and sometimes even just by one person, the decision of the story is likely to be more flexible and personal.

Game designers and storytellers start to view games not only as a form of entertainment, but as a vehicle to generate emotions.



Figure 2.3: Jenova Chen’s Game Emotion Wheel

(Chen 2016)

Jenova Chen, the designer of a renowned game “Journey,” has revealed his theory of game and emotions. He categorized game genres available on the market and realized that games tend to focus on generating emotions such as empowerment and expansion. He suggested that there is a lack of other types of emotions in the current game industry, and encourages designers to explore a variety of emotions with game. (Chen 2016)

Games about depression

While depression is certainly not a popular theme for game, there are still several titles available in the market that are designed around the idea of depression. While each of those games is unique in many ways, they tend to share one characteristic in common.

Those games tend to be relying on text to tell the story. Because depression is a emotion difficult to describe, language appears to be the easiest tool to convey character’s mind, and many designers decided to make text-heavy games such as interactive novels. par

This session will present a brief introduction of four related games: Actual Sunlight, Depression Quest, Elude and Another Day.

- Actual Sunlight

Actual Sunlight is a short interactive story built with RPG maker. It is

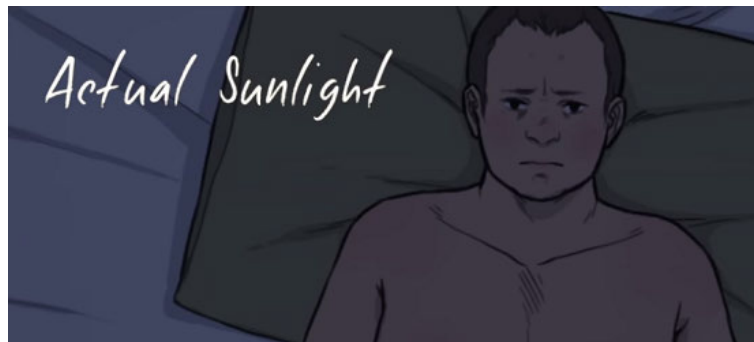


Figure 2.4: Actual Sunlight

(WZOGames 2014)

about love, depression and the corporation.

In this game, the player take control of Evan Winter, a young professional in Toronto, as he moves through three distinct periods of his life.

It uses linear storytelling to allow players to experience the main character's perceptions. By making decisions for him, players gradually gets to understand the inner world of a young man struggling with depression.

- Depression Quest

Depression Quest is an interactive fiction game that allows player to play as someone struggling with depression. Players are presented with a series of daily event, and have to make decisions to manage many aspects of life under the influence of depression.

The game aims to “show other sufferers of depression that they are not alone in their feelings, and to illustrate to people who may not understand the illness the depths of what it can do to people.” (Quinn 2013)



Figure 2.5: Depression Quest

(Quinn 2013)

- Elude

Elude is a platformer game that mirrors the struggle against depression , as well as the search for happiness. It aims to metaphorically capture the feeling of depression and allow those who have never experienced it to be more informed about it. It is a game designed to be used in “a clinical context as part of a psycho-education package to enhance friends’ and relatives’

understanding of people suffering from depression about what their loved ones are going through.” (Rusch 2011)



Figure 2.6: Elude

(Rusch 2011)

- Another Day

Another Day is a simple click game that allows players to enter a patient’s

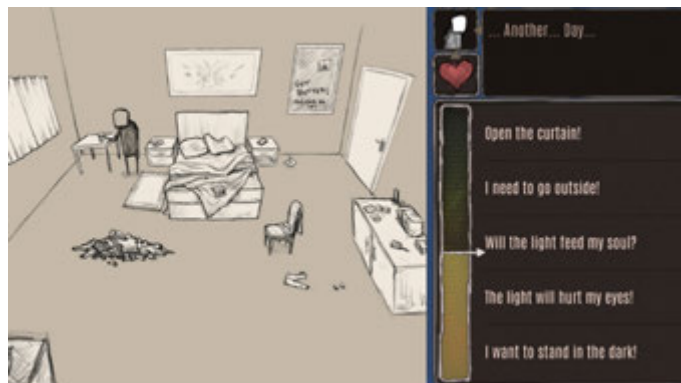


Figure 2.7: Another Day

(Lago 2016)

universe, and the goal of the game is to understand how difficult it is to do simple actions that are banal for ordinary people (Lago 2016).

Chapter 3

Design

3.1 Introduction

Game and Game Experience

As Schell stated, game design is “the act of deciding what a game should be.” The design of MI is a journey of making countless decisions based on specific objectives and available resources.

During the design process, a web of game elements started to form. This system contains not only large-scale factors such as platform, art style and mechanics, but also minor details such as the color of a button, or the font of a specific UI text. Though those game elements varies greatly in terms of scale, they are all connected, either directly or indirectly. To a certain extent, creating and balancing this intricate web is the core of game design, as “changing one element affects all the others, and the understanding of one element influences the understanding of all of the others.” (Schell 2014)

However, the creation of this system only contributes to part of the difficulty for game design. The major challenge that game designers face is that the experience they strive for is ultimately arbitrary. While this web of design decisions is the bone and flesh of a game, the experience this system generates is what the player would taste. Certain elements might lead to certain gaming experiences, but just as taste varies for each individual, gaming experience also varies based on factors such as play styles, environments and personal preferences. Ultimately “the game enables the experience, but it is not the experience.”

This arbitrariness not only posts challenges for the decision making process, but also for the documentation of games. In other words, specific game elements can be explained, but the game experience itself cannot be captured in its most authentic form.

Therefore, while this chapter strive to present a cohesive and complete account

of the game MI, it cannot replicate the experience of playing it. Readers are highly recommended to try this game themselves, in order to experience its mechanics, art style and story line directly and authentically.

Game Design Document

As previously explained, the game design process is a journey of decision making. In the game industry, Game Design Document(GDD) is the standardized tool for designers to capture and review their design decisions.

While there is no fixed format for GDD, its content is usually determined by its main purposes, which are “for memory and communication.” (Schell 2014) To serve those purposes, GDD generally focuses on six main groups of topics: design,players, management, art, writing, and engineering.

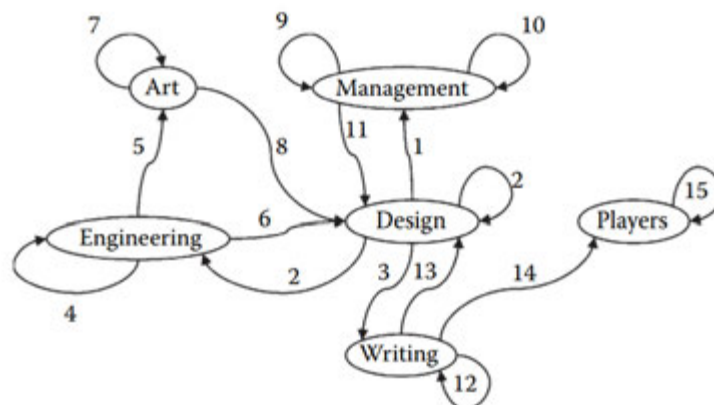


Figure 3.1: Game Design Document Captures the Web of Design Decisions

(Schell 2014)

The creation of MI’s GDD started from October 2016 and the document was originally written in Chinese. Since MI is a one-person project, the main purpose for this GDD is more for memory than for communication. Hence the original document was written in a personal style, with scattered inspirations and glimpses of thoughts in forms of pictures, doodles and succinct sentences. In May 2017, the

original document was translated into English, and updated based on the progress of the game. Meanwhile, it was reorganized into five sections.

It starts with an overview that discusses the experience MI is aiming for, sources of inspiration that brought its theme, and design prototypes created along the way. This section also includes an high-level design description for the entire game, as well as a discussion of target player.

Building on the overview, section two deals with the management side of MI's creation: its project schedule, asset spreadsheet, and equipment list.

Section three proceeds to talk about the art style of MI. It introduces a drawing style called Zentangle, and explains why it was chosen for this game specifically. Furthermore, this section also explains the design principle and process of creating sprites and animation.

Following descriptions on the art side, section four focuses on the story of MI. It provides character introductions, a written version of the main story, and discussions on specific language usages.

Last but not least, the Game Design Document examines the engineering side of MI. It delves into details of tools and methods that this game relies on. It also talks about motion control mechanics and how it was enabled in programming. Additionally, this section also presents details of sound design of MI.

3.2 Overview

Why Depression: A Personal Story

While a well designed game is capable of creating something meaningful for players, it should also be purposeful for game designers. As Schell stated, before coming up with specific ideas, game designers need to “be certain of why [they] are doing it.” (Schell 2014) As MI is a game focusing on emotions, it is relevant and important to shed light on the personal story behind its creation.

The main reason that settled depression as the main theme is the following sentence:

“You didn’t look like someone with depression. If I knew that, I could have helped you.”

This sentence is not only the defining factor that brought the game MI into being, but it is also the essential experience that MI is aiming to create for players.

This sentence came from my friend Wujing, after I revealed to her the fact that I had depression. In 2013, I suffered from a varieties of symptoms of Seasonal Affective Disorder, which is a type of major depressive disorder. It had impeded or even impaired many aspects of my daily life, and was therefore very impactful on a personal level. My struggle with depression lasted for about a year, but it took nearly three years before I could reveal my condition to others.

When Wujing heard about my experience, she told me that she was also suffering from depression at the same time. “The problem is,” she said, “you didn’t look like someone with depression. If I knew that, I could have helped you.”

Wujing’s words stirred up a mixed emotion, because I also did not connect her with depression, even though I used to meet her on a daily basis during that period. It was regrettable and ironic that we went through the same turmoil, in the same space, at the same time, but we both hid it so well that neither of us could reach out to give or receive help.

This experience is the eureka spot for the creation of MI, because it exposed a problem about depression: that people suffering from depression tend to hide symptoms and pretend to be normal.

To design a game is to design an emotional experience. In MI’s case, the experience it strives to create is about realizing that those who looked fine on the surface might actually be struggling with depression.

On the emotional level, MI is aiming to make players experiencing a mix of surprise, sorrow, and most importantly, empathy.

Inspiration

Inspirations that brought MI into existence came from many sources. While many of those sources only created loose and abstract connections to the final project, a few of them ended up impacting several key aspects of design decisions in MI's theme, content and art style.

The most important inspiration source is a TED talk titled “Confession of a Depressed Comic.” In this talk, Breel revealed that as a patient of depression, he lived two different lives: one that seems to be successful, sociable and cheerful, and another that is suffering, powerless, and suicidal. He also stated that the lesson that he learned from this double life is that depression should be accepted, both on the society level, and on the personal level. Social stigmas and taboos are not only keeping people from accepting and understanding depression, but also barring patients from seeking help. He yearns for a society that is brave enough to face the dark side of human emotion, and believes that only in such a society can depression be fully and properly treated for all.

“My solution was three simple words,” Breel said, “I have depression.” His message serves as an influential inspiration throughout the design process of MI. On a grand level, the goal of game is to contribute to the brave society that Breel brought out in this speech.

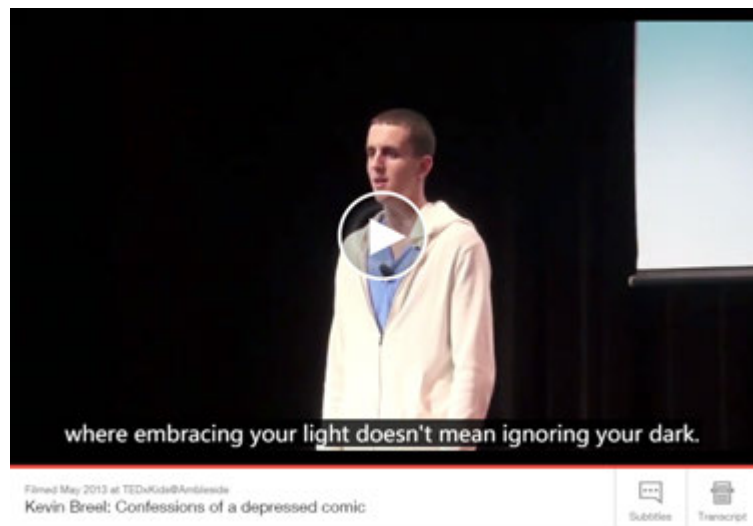


Figure 3.2: Main Inspiration: Breel's TED Talk

(Breel 2013)

While Breel’s talk serves as the inspiration for theme, art works from David Shrigley is the source of inspiration for the art works of MI. Shrigley is a British visual artist with an unique style. His frequent uses of rough lines, deformed and exaggerated forms, as well as witty and ironic hand-written text have altogether produced an iconic style that is humorous yet serious.

While depression is a heavy topic, it is possible to use graphics and text to mitigate this weight. In this regard, MI is trying to achieve the same humorous yet serious atmosphere as Shrigley’s works do. During the design process, they inspired two design guidelines for this project: firstly, all sprites should be black and white, and secondly, all graphics should be hand-drawn, with rough and thick lines that form an abstract style.

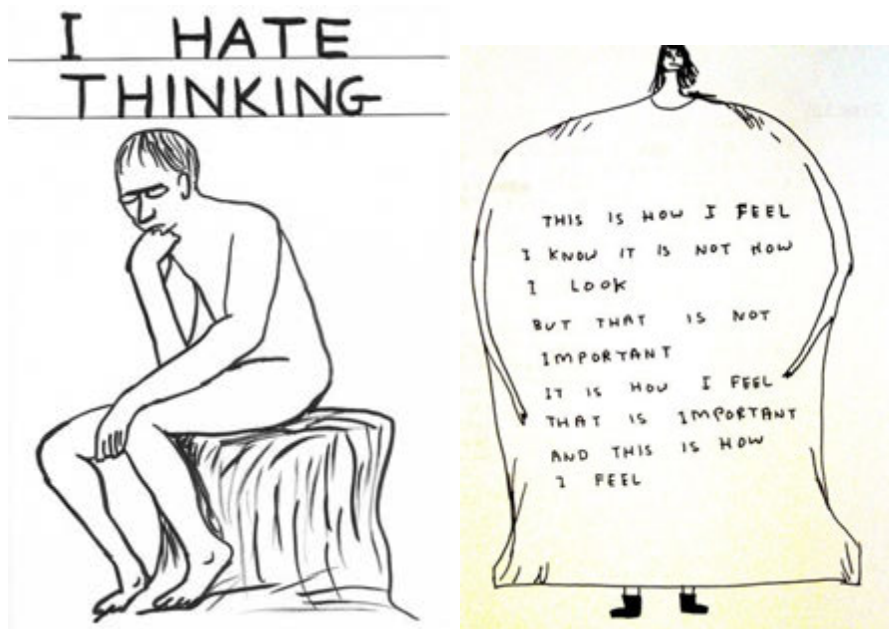


Figure 3.3: David Shrigley’s Unique Style

(Shrigley 2003)

While MI is intended to be a game, it is also designed to be an exploration of art, storytelling and motion control mechanics. In the past few years, many artist have started utilizing game as a vehicle for interactive art experience. While several of those games provided inspirations for MI, a game called “Plug & Play” has been the most influential title.

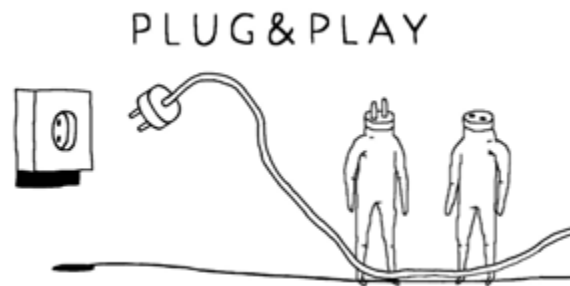


Figure 3.4: Abstract and Metaphorical Exploration with Game

(Michael Frei 2015)

“Plug & Play” is originally a short hand-drawn animation produced by Swiss animator Michael Frei. It utilizes monochrome rough lines to portray an abstract journey of encountering and interacting. One of the key features of “Plug & Play” is the use of metaphorical and symbolic images. For example, human connection is portrayed as two hands constantly reaching out for each other.



Figure 3.5: Metaphor: Human Connection as Hands Reaching Out

(Michael Frei 2015)

Another example of metaphorical usage of image is the head of humanoid characters. In this story, characters’ heads are replaced with plug connectors, and through plugging and unplugging those connectors, those humanoid characters form an abstract and even bizarre web of relationships.

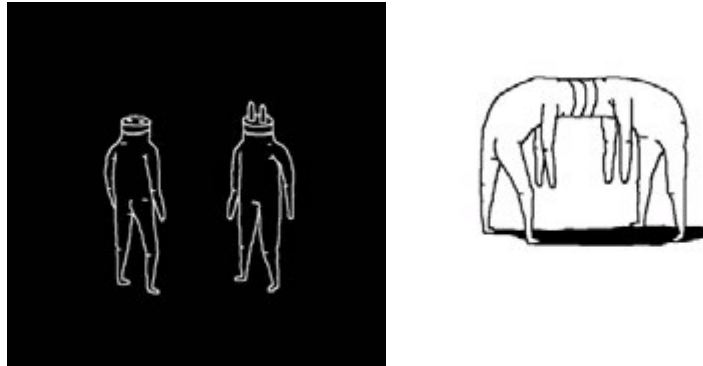


Figure 3.6: Metaphor: Human Connection as Plug Connectors

(Michael Frei 2015)

The game edition used the major scenes in the short animation and added click-based interactions to enrich player experiences. While those interactions are simple, they add a layer of play to the original animation. Overall, “Plug & Play” is an unique artistic exploration within the domain of game play. Its art style, metaphorical messages, and simple game play provide inspirations for the creation of MI.

Concept Overview

- Name: MI

The name “MI” comes from three Chinese characters “谜”, “秘” and “密” (all pronounced as ‘mi’,) which, respectively, means “mystery,” “secret” and “private.” Those words accurately describes the depression experience that this game is trying to convey: it is a hidden secret that the sufferer tries to keep.

Meanwhile, the pronunciation of MI also coincides with the word “me” in English, which adds another layer because this game is based on real personal story.

In many ways, this game is an exploration and revelation filled with personal characteristics, and because of this nature, “MI” stands out as the best fitting name.

- Theme: Depression (explained in chapter 2.1 and 3.2.1)

- Genre: Story-Rich, Rhythm, Indie

Story-Rich: The core of the game MI is its story about depression. While other features are also important, they are designed to assist character building and smooth story flow. Overall this game should be categorized as a story-rich game.

Rhythm: In this game, players are asked to flip the smart phone at specific points, within a limited time, for a prescribed period. While both audio and visual cues are provided to hint this flipping action, music is the main method to induce this action. Meanwhile, the main measurement of player performance is calculated based on player's reaction time for music's tempo; therefore, this game should be categorized as a rhythm game.

Indie: This game is created without any financial support from a publisher.

- Platform: Android (iOS version working in progress)

MI is developed using the game engine Unity. As it requires accelerometer to run, it will only be available for mobile devices. While the android version is the main version used for developing and testing, an adaptation for iOS version is included in the future plan.

- Mechanics: Motion control using accelerometer

MI is a motion control game that uses the built-in accelerometer in smart devices. Within the game there are two types of actions: flipping and peeking.

Firstly, players are asked to flip the smart phone based on visual and audio cues, and their performances are measured by flipping speeds. At the end of each section, the total amount of time that the player delayed or advanced will be shown. As a result, the player is asked to flip the phone to the back and take a short intermission, which is based on the result of last round.

When the phone is facing down, players are hinted to perform the second action: peeking. In the context of this game, peeking means flipping the phone slightly from the side, or lifting the phone above one's eyes so contents from the screen can be seen. The peeking stage is where players discover the hidden depression from the main character.

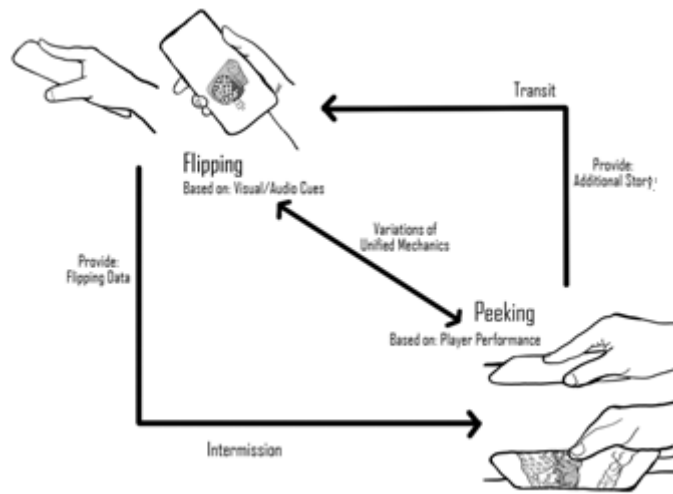


Figure 3.7: Motion Control With Flipping and Peeking

Overall, both flipping and peeking are designed to carry out the atmosphere of hidden depression, and more details on those mechanics will be explained in sections 3.6.

- **Art Style:** Zentangle, Hand-Drawn, Black and White, Abstract
This game features a hand-drawn, black and white art style inspired by Zentangle, which is a form of abstract drawing often adopted for art therapy. The design of art sprite follows a set of creation principles, which will be explained in section 3.4. In general, those design principles are created to capture the feeling of depression.
- **Story:**
MI is a character living in the phone. As a game host, her job is to build games for players to enjoy. While players see her bright side as she works hard to chase her dreams, they can only get to know her dark, depressed side through peeking. Throughout the game MI is trying to press her depression symptoms by pressing them under the surface, and only when she was unobserved can she release her negative emotions. MI's ending is dependent on the player's decision, and based on the specific game play, she will either have a happy ending in which she gains strength to live, or a tragic ending in which she decides to end her own life.

Target Player

While MI is a game designed to raise awareness of the general public, its characteristics also determines a specific target group that are more likely to have access to, as well as being attracted by this game.

Firstly, MI is designed for gamers, and, in the current stage, specifically for mobile gamers with access to Android devices. While iOS version of this game is included in the future plan, currently this game is only available on Google Play store.

Within the mobile gamer community, MI is a game targeting users with special interest in story rich games. Ideally those players enjoy stories with interactivity, and are willing to spend time to understand characters, instead of only seeking casual and simple game play.

Meanwhile, the game MI is also aiming to attract those who are interested in unique and innovative play style. While many mobile games use motion control as part of their mechanics, few games in the market are utilizing flipping and peeking. In this regard, MI's play style differs from most mobile games, and this innovation can potentially be another attractive point for players.

Moreover, since MI features an unique art style, it strives to reach out for players who enjoy abstract art and animations. From this aspect, it shares the same target user as the game "Plug & Play," which is discussed in section 3.2.2.

Last but not least, MI is targeting those who support indie games, which are games created without financial support from a publisher. In recent years, indie games have gained much public attention and there is a solid community of players who specifically seek out to support small, indie productions like MI.

3.3 Management

Project Timeline

This thesis project was initiated from September of 2016, and is expected to be finished in August of 2017. During this one year working period, a schedule was planned and followed. This schedule explains this project's progress milestones in details, while capturing the whole production experience following from the time perspective.

- 09-10,2016: Theme Decision

During this initial stage, a wide range of topic was explored as potential themes for this thesis project. Firstly game was set to be the target medium, and secondly inspirations discussed in section 3.2.2 shed light on the problem of depression, and thus settled the theme of this project as creating a game about depression.

- 10-12,2016: Research on Related Studies

In those two months, a preliminary study on related literature, technology and products was carried out. Based on existing studies about depression, the theme was further specified to focus on the hiding factor of depression sufferers. Meanwhile, examinations of games about depression were also conducted during this period. Those analyses serve as the basis for the design process, because they revealed strengths and weak points that games in this category tend to have in common.

- 01-02,2017: Ideation and Prototype

With preliminary studies completed, brainstorming sessions were conducted in this stage. Those brainstorming sessions produced design ideas on four aspects: art style, story, genre and play mechanics.

Art Style:

Art style was the first element determined in this process. There were two styles that could be potentially suitable in this project. The first is flat design, which features a variety of bright colors, clean lines and refined shapes. Since flat design is often used to convey a modern, stylish and

positive atmosphere, it can be suitable for this project because it can create a sudden contrast to the depression theme.



Figure 3.8: Flat Design Concept Sketch

The second art style considered in this process is the hand drawn monochrome style, which is more often used in works discussing depression. The advantages of using this style include relatively faster production, a wide range of references, and a sense of mixed seriousness in style. After examining and experimenting with both styles, the monochrome hand drawn style stood out as the more fitting style.

Within this narrowed scope, further explorations were performed according to the black and white, hand drawn criteria. After several style tryouts, Zentangle was eventually settled to be the main art style. More details of this style will be discussed in section 3.4.

Story:

Together with art style, the general story line was also determined during this phase. The game strives to create a journey of discovery and revelation. While the specific plot cannot be determined yet, the overall story is about a female character who suffers from depression but does not want to show it. Since she was hiding depression from everyone, it becomes more serious and gradually consumes her both physically and psychologically. Even though details of the story were not specified, two story elements formed the core experience that the game tries to convey. The first element is that the main

character has frequent suicidal thoughts, and she has considered taking her own life by drowning in the ocean. The second element is her revelation of depression. Those two scenes remained critical for the whole designing process and eventually became the endings of the game.

Genre:

At the initial stage, the main genre of the game was puzzle platformer, which is often characterized by guiding an avatar to move between platforms and traverse the screen.

It was an decision influenced by several factors: firstly, puzzle platformer is a very well explored genre with many developed mechanics that can be easily adopted for storytelling. Secondly, as the game was originally targeting the PC platform, the genre puzzle platformer can explore many types of input, such as keyboard, mouse and controller. Thirdly, during the Innovation Pipeline 2 in KMD, I have developed a puzzle platformer called “The Eyes,” and originally “MI” was set to be a succession of its style.

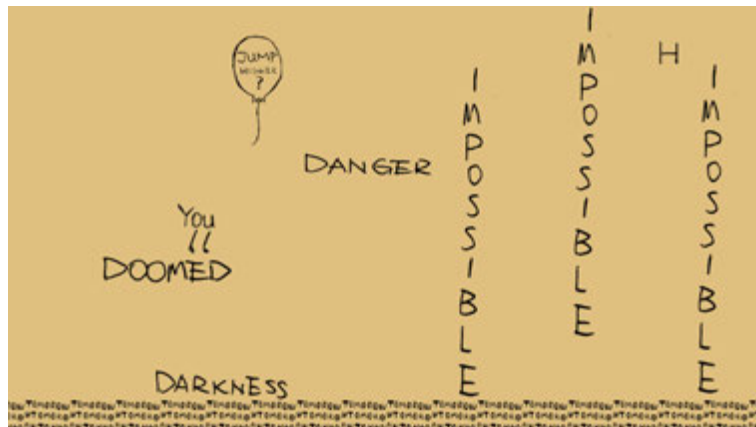


Figure 3.9: Previous Project: The Eyes

However, the decision on puzzle platformer gradually became confining during the process. While there are many existing titles to reference, they also limit the opportunity to create new and innovative play experiences. Moreover, the action element related to platformer games requires players to focus on skills such as jumping and attacking, which tend to generate emotions related to excitement. When trying to convey emotions such as

depression, this factor might influence the overall experience.

Upon careful consideration, the platform of the game was switched to mobile, and the genre was redirected to rhythm.

Play Mechanics:

As previously stated, the initial play mechanics of this game was to be the ones commonly utilized by puzzle platformer games, which includes jumping, docking, and evading. After the change of platform and genre, the design direction turned to focus on the inputs that PC games do not generally have access to, such as touch and motion control.

After several testings, flipping and shaking stood out from rest of mechanics to be the most fitting play method for this game. During this stage, a mechanics demo was developed to test the applicability of those two mechanics, and the result was optimistic in terms of fitting with the depression theme. However, after other design aspects started to take in shape, some adjustments in the play mechanics also took place. On one hand, shaking is no longer used in the game because of the inaccuracy of measurement. On the other hand, the flipping mechanics turns out to be more versatile and many play style can be generated from it. Therefore, the game started to use flipping as its main play method.

Overall, during those two months, a variety of options and ideas were generated and tested, and at the end of February a general guideline of the game MI has been sketched for future use.

- 03,2017: Art and Assets Creation

In this month, most efforts were directed towards creating the assets and sprites of the game. While the design process for Zentangle art is straightforward and easily replicable, it is also time consuming. The more detailed creation process will be discussed in section 3.4.

- 04-05,2017: Development, Testing and Remaking

During this period, the main goal was the actual development of the game. Most of the development was done in Unity, a well established game engine. Due to the nature of game developing, many design decisions discussed

above have been adjusted to fit the technical aspect. In the middle of May, a testing version of MI was finished and was used to test. The result of play testing reflected many problems concerning the current design, which contributed to the decision of making another version of the game. The rest of the month was spent in developing version 2.

- 06,2017: Version 2 Testing, Adjusting and Writing

June started with testing of the version 2 game. While the game can still be improved in many areas, it is also important to document the design process. Therefore in June, a large portion of efforts was directed towards writing.

- 07,2017: Final Presentation

The final presentation is scheduled in the mid of July, and it will be an important milestone that showcases the final result of the project.

- 08,2017: Conclusion

In August, ideally all feedback from testings and presentations will be reflected on the newest version of the game, as well as on the updated thesis document. The final submission will mark the conclusion of the project.

Equipment

As MI is a one-person indie project, the resources and equipment available were limited. While the project budget is limited, a set of hardware and software is indispensable. The following section will present a minimal list of equipment utilized in the creation process, together with their technical specifications and method to access.

During the creation process, a list of online courses on game development was also used to establish a solid knowledge ground about the game engine Unity. This list will also be included in the following session.

Table 3.1: Equipment List

Category	Name	Specification
PC	Lenovo Y700	- Intel Core i7 Processor - Windows 10 Home
Digital Drawing Pad	Wacom Bamboo	Model: CTH-470
Android Phone	LeTV Max X900	- Android 5.5 - Resolution: 1440*2560
	Meizu M5 Note	- Android 6.0 - Resolution: 1080*1920
Condenser Microphone	Mugig	

Table 3.2: Software List

Category	Name	Specification
Game Engine	Unity	- Version 5.3.3
Image Processing	Adobe Photoshop	- Creative Cloud Version
Audio Processing	Audacity	- Version: 2.1.3
	FL Studio 12	- Version: 12.4.2

Table 3.3: List of Online Courses

Course Name	Name of the Instructor	Platform
Learn to Code by Making Games: Complete C# Unity Developer	Ben Tristem	Udemy.com
Scripting in Unity	Jesse Freeman	Lynda.com
Unity 5: 2D Essential Training	Jesse Freeman	Lynda.com
Advanced Unity 2D: Platformer Player Movement	Jesse Freeman	Lynda.com

Work Flow

Although in different stages the design process might vary slightly, in general the work flow of this project follow a specific order. This flow can be considered as a cycle of procedures, and the creation of MI is conducted by repeating this cycle.

In the beginning, a brainstorm based on word association is performed. This step utilizes free association in design thinking in order to generate a core experience that this stage is trying to convey. For example, in one part of the game, the main concept is to show a dream come true moment of the character, in which she transformed herself into a beautiful being. In the brain storming session, the original word was “beautiful,” and words that have associations with it include “Butterfly” and “Flower.” According to those words, several concept arts were generated to guide the next step.



Figure 3.10: Result of Word Association: Beauty-Butterfly-Flower

With initial artwork in hand, the next step is to design the suitable mini game and story. This part is conducted through many design questions. Following the previous example, when the character levels up to be more beautiful, some of the design questions are: “how does she accomplish the transformation?” “What emotions does she have at the moment of transformation?” “What is a suitable flipping tempo for this part of the story?” Those questions lead to more specified design decisions, which serves as the basis for the next step.

After making the specific design decisions, the next step is to go back to art creation and generate detailed animation frames.

With the animation step accomplished, the following step is to implement sprites into Unity and program the specific actions they belong to. After assigning

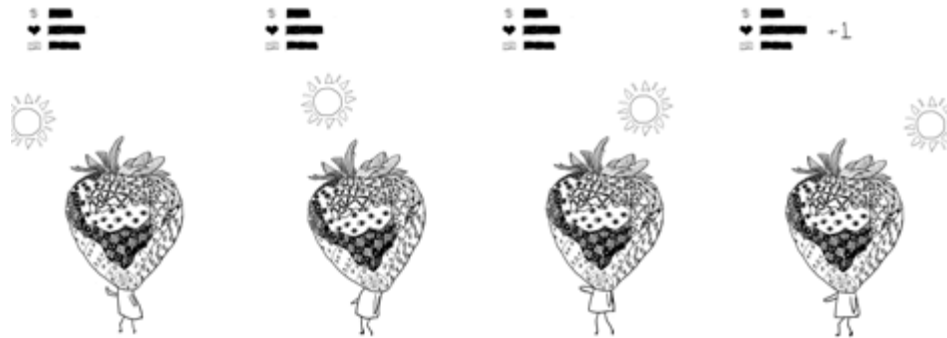


Figure 3.11: Creating Detailed Animation Frames

all elements to their right places, it is necessary to test and debug before move on to the next cycle.



Figure 3.12: Work Flow Cycle

Game Structure and Asset Spreadsheet

The game can be divided into six parts: Intro(tutorial), Song 1, Intermission 1, Song 2, Intermission 2, Positive Ending and Negative Ending.

This section will list out assets used in each part of the game. Those assets are sorted into three categories (Sound, Text, Sprite) in the order of their first appearances in the game. This asset spreadsheet aims to provide a snapshot of “building blocks” that co-construct the game.

Stage	Category	Name	Number of Items	Purpose
Intro	Sound	Piano Octave Sounds	10	Indicate counting down time
	Text File	Self-Intro and Tutorial	1	Self-introduction from MI
	Sprite	Egg Cracking Animation Frames	5	Starting screen
		MI-Regular(Blinking+ Steppping)	7	Introduction
		Hand-Flipping	4	Mechanics demo
		Hand-Peeking	6	
		Hand-Play In Bed	5	Player warning
Counting Hand(5-0)	6	mechanic trials		
Song 1	Sound	Bourrée in G major, B. 160b2 (Chopin)	18*1.2sec	First song
	Sprite	Money Related Dreams	16	Illustrate MI's wish for money
		Love Related Dreams	16	Illustrate MI's wish for love
		Knowledge Related Dreams	12	Illustrate MI's wish for knowledge
Hope	6	Illustrate MI's motivation		
Intermission 1	Sprite	MI-Running(Blinking + Leg movement)	15	Running Animation
	Text File	Hurrying text	1	Indicate MI's eagerness to achieve
Song 2	Sound	Eccossaises, Op. 72 no. 3 - I. In D major(Chopin)	44 * 1 sec	Second Song
	Sprite	Stairs - level1	6	Demonstrate MI's wish to achieve higher
		Running Mechine	8	MI doing physical training
		Coding	8	MI learning code to advance knowledge
		Working-Setup Game	12	MI working to earn money
		Level up -regular to Strawlberry	14	MI transformed into strawlberry head
		Coding 2	8	Strawberry MI learns coding
		Dance	8	Strawberry MI dances to gain strength
Game Controller	12	Strawberry MI set up game controller		
Intermission 2	Sprite	Strawberry MI-Sitting+Shaking Head	6	First sign of depression
	Text File	MI's depressive thought	1	MI's inner thought related to depression
Song 3	Sound	Preludes, Op. 28 - No. 6 'Tolling bells'(Chopin)	76*1.2 sec	Third Song

Figure 3.13: Assets Spreadsheet

3.4 Art Style

Zentangle: What, How, and Why?

MI is a game that adopts Zentangle as its main art style. This section aims to provide a cohesive account on the definition of Zentangle, its advantages in terms of portraying depression, and a short introduction on the creation of Zentangle art.

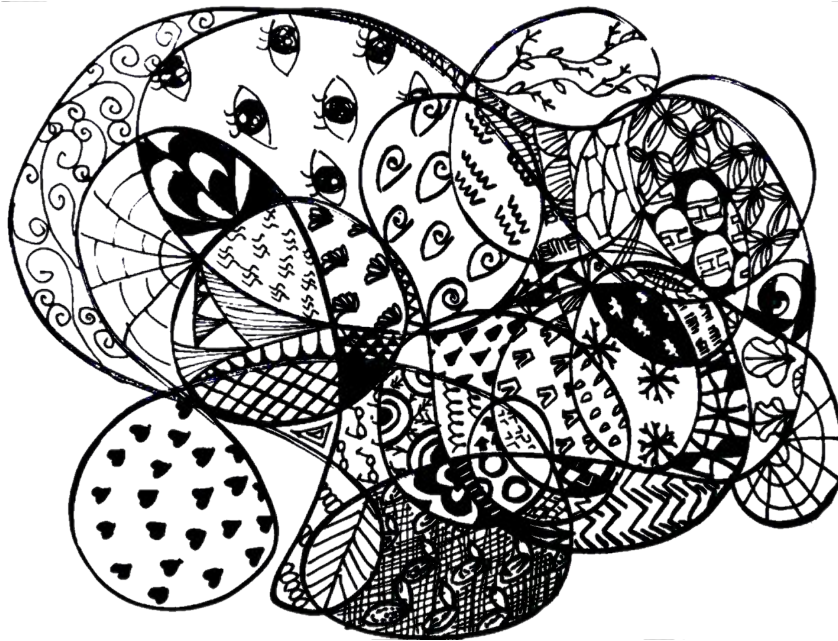


Figure 3.14: A Zentangle Art

Originated from doodling, Zentangle is a formalized art creation method that uses curved lines and repeated shapes to form an intricate art work. The name Zentangle is a combination of “Zen” and “Tangle,” which capture two main characteristics of this style: Firstly, this method focuses on using inter-twisted lines. Secondly, it can generate effects similar to that of mediation. Both characteristics are important factors that settled Zentangle as the main art style of the game MI.

The creation of Zentangle starts with a free hand doodling, which forms a structure with unorganized spaces and shapes. Then the creator can start from anywhere on the structure, and fill it with any pattern of choice. Once the shape is fully filled, he or she can proceed to work on the next one with a different

pattern, until the whole structure is filled.

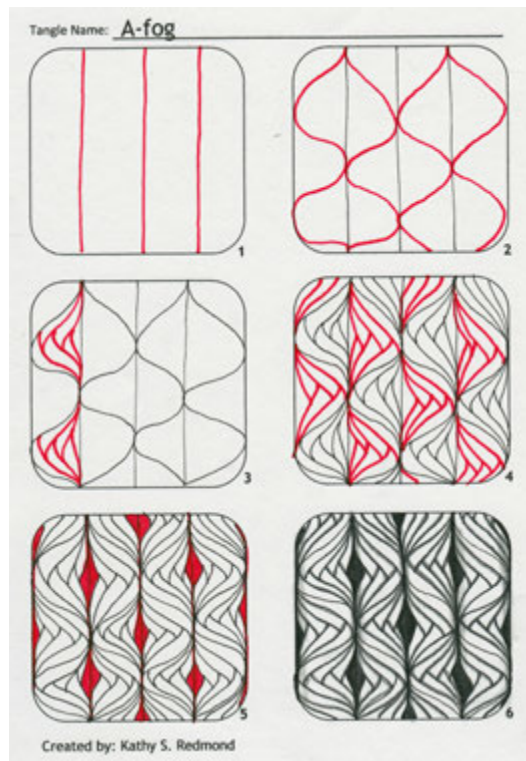


Figure 3.15: An Example of Zentangle Creation Process

The artwork create in this way tend to appear organized and unorganized at the same time, due to the mixture of unplanned structure and planned patterns. With this special quality, Zentangle tend to present an abstract atmosphere, as each pattern can be interpreted in different ways.

For the game MI, this quality of abstraction is important. Since the game aims to capture the hidden aspect of depression, the lack of clear message in art work can be beneficial. Meanwhile, since depression itself tends to be an unclear and undefined concept for many, it also has this abstract and mysterious quality that Zentangle has.

While the Zentangle method is not limited to monochrome, the mainstream style is to draw in black and white, because it can convey a strong visual impact without creating confusion to viewers. In this case, it matches with the design direction for MI. (More details of monochrome will be discussed in section 3.4.2)

Besides being abstract and monochrome, the Zentangle method is also capa-

ble of creating metaphorical and symbolic meanings. Unlike many types of art styles that strive to simulate real-life forms, Zentangle does not aim to resemble anything, but to generate something completely new. Since each draw-able space within the structure can contain any types of pattern, it can potentially carry patterns that are more meaning-based. If replacing the free-hand structure with symbolic shapes, the Zentangle art can provide viewers with contrasting images that, on one hand, abstractly resembles an object in real life, and on the other hand filled with symbolic and metaphorical meanings.

While the “tangle” qualities of Zentangle matches the goal of MI, the “zen” characteristics it has also goes hand in hand with the overall style of the game. Due to the unplanned and repeating nature of Zentangle, the creation of Zentangle artwork is often used as a form of art meditation.

The act of creating the Zentangle differs from regular drawing and painting because of several reasons, which make the creating process as important as the final outcome.

Firstly, the Zentangle method emphasizes the unplanned aspect in which the artist “does not have an end goal in mind,” and this encourages a natural flow of the creator’s emotion and psychological flow(wikiHow 2017).

Secondly, in the Zentangle creation process, the act of erasing is not often encouraged, because every stroke (even the ones unwanted) can be used as a part of a pattern. This characteristic makes the drawing process smooth and also generates unexpected result.

Due to those two characteristics, the Zentangle method is often adopted as a form of art meditation. Various articles and related books have claimed that Zentangle as a form of repetitive creative work can induce calming and self-soothing effects. Meanwhile, studies have shown that the practice of Zentangle as a form of mindfulness activity can benefit individuals mentally. Some of benefits include “decreased mental health symptoms, such as depression, anxiety, and stress.(Vmhayhurst 2012, Malchiodi 2014)”

Because of this meditative quality, Zentangle matches with the game MI on an extra layer, since it is a game about depression. This connection with depression not only marks it a suitable style, but also serve as a subtle hint for the theme of the game.

Overall, the Zentangle method is versatile and has qualities that can create the desired atmosphere that the game MI is aiming for; therefore the majority of artworks in this game were created using this method.

Design Principles for Art of MI

During the creation process, four design principles were continuously guiding the graphic production for the game MI. Those principles are guidelines that make sure all artworks in this game follow a cohesive style and convey a unified message. Those design principles are: 1) use only hand drawn, non-straight lines. 2) use only black and white in sprites. 3) use symbolic and abstract patterns. 4) use word as a form of art.

The following section will expand on each design principle and explain why each of them is important, and how they are reflected on the actual artworks.

- Hand drawn, non-straight lines

As previously mentioned, the art aspect of MI was inspired by British artist David Shrigley, who uses rough sketches to generate humorous effects. A major characteristics that set Shrigley's work apart from many artist is his child-like use of lines.

In general, the training process for most kinds of drawing start with drawing refined, straight lines. To a certain extent, being able to draw delicate and precise lines is a prerequisite for an artist to create standardized artworks. As a contrast, doodles from children often consist of rough lines because either they do not have enough muscle strength, or they still lack training in drawing. Shrigley has adopted this characteristics to create an contrasting effect, to express a sense of unchained creativity. In this aspect, MI is striving to generate the same effect.

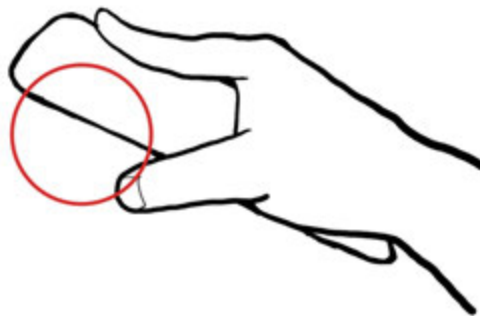


Figure 3.16: Intentionally Avoiding Straight Lines Using Brush Pressure

All sprites created for the game MI was drawn with a digital drawing pad, the pressure sensitivity on brush was always set on high, in order to generate

curly lines. In general, most outlines on Zentangle character are created with non-straight lines. Meanwhile, if straight lines were needed, they are drawn with different brush pressure so that their thickness differ from part to part, which give them a slight variation. Overall, in the sprite creation process, no straight line was utilized.

- Monochrome

Monochrome means only use black and white, and it is a style often used to portray negative emotions in artworks. In the case of the game MI, the decision of using monochrome comes from two considerations.

Firstly, while Zentangle can be drawn in colors, the general practice is to draw in black and white, because it reduces the chance of confusion for viewers. Since Zentangle is an art style based on patterns, the use of multiple colors adds another layer on top of the already intricate structure. Viewer's attention are more likely to be attracted by the color palette than specific patterns, which not only makes the artworks appear to be similar, but also induces eye strain.



Figure 3.17: Colored Zentangle Might Induces Eye Straining

Since MI is a game designed for mobile platform, sizes of sprites are unavoidably adjusted to fit the smart phone screen, which are usually around 5 to 6 inches diagonally. The limited sprite size means that details in art-

works will already be reduced. If another layer of color was produced on top of this limitation, the patterns in Zentangle artwork are likely to be indistinguishable. Therefore monochrome is important in this case.

Meanwhile, the emotional effect of monochrome is the second reason for this design principle. Since black and white form a high contrast, the color scheme can present a solemn atmosphere. Because of this characteristic, monochrome is often used to portray situations that contain serious emotions, such as funeral, war, and loss. As MI is a game about depression, it is important to acknowledge and convey the weight this topic has. While having a colorful color palette can possibly create a ironic contrast, the monochrome style is more direct in terms of creating emotions.

Additionally, in the artworks of MI, monochrome is adopted as an important cue for the revealing of depression. When the background is white, it shows the positive side that the character is trying to convey. When the character shows her depressed side, the color scheme flips and black becomes the new background. In this case, it also goes along with the flipping mechanic of the game.

- Symbolic and abstract patterns As discussed in previous section, the Zentangle method is capable of unifying abstract art with symbolic and metaphorical patterns. Since each shape can contain a type of pattern, overall an artwork can potentially have multiple messages.

In the creation process of the game MI, this capability of Zentangle becomes an opportunity to encompass a variety of meanings. For example, in each level the character MI transform herself into a different form. While each form is different from the others, they contain some similar patterns, such as blinking eyes and falling rain drops. Those patterns are specifically chosen to convey emotions of the character.(Figure 3.17)

- Word as a form of art
Following the previous guideline, this design principle is a specification of patterns utilized in the Zentangle creation within the game. Many words were intentionally adopted to form patterns inside the Zentangle.

Those words are hiding inside patterns to serve as hints for the general theme of depression. Most of the times, those words are written in Chinese characters, which already has a layer of graphic quality attached. When



Figure 3.18: Eyes as a Symbolic Pattern

applied with tilting and skewing on their lines, those character can form artistic patterns yet still be distinguishable for viewers with sharp eyes.

This usage of word as a form of art is inspired by children’s hidden picture book. In this type of books, readers are encouraged to search for specific characters hidden in a intricate drawing. In the case of this project, the style of Zentangle is a suitable place to embed details, just as the drawings in those hidden picture books. Instead of hiding a specific pattern, the “Easter eggs” for viewers to find are words with actual meanings.



Figure 3.19: Using the word “No” as a Pattern



Figure 3.20: Using the word “Me” and “OK” as Patterns

Creation Process

There are two types of sprite in the game MI: one is for the head of the character MI, which is created through the Zentangle method, and another is mainly for the story animation. The creation process for those two types are different and the following session is going to present a step to step drawing process for both of them.

Character Sprites

In this game, the Zentangle method is mainly used for the character MI's head part, and in each stage, her head changes depending on the level she is in. This section uses a set of household silverware as an example to demonstrate the creation process of character sprites.

In general, the drawing process consists of five steps. It starts with drawing an outline of a desired shape, segmenting it into enclosed areas, and then proceed to picking pattern and fill each segment with it. While it seems to be a straightforward process, the actual practice also requires attention on several details, which will also be explained in this session. Step one of creating a Zentangle artwork is

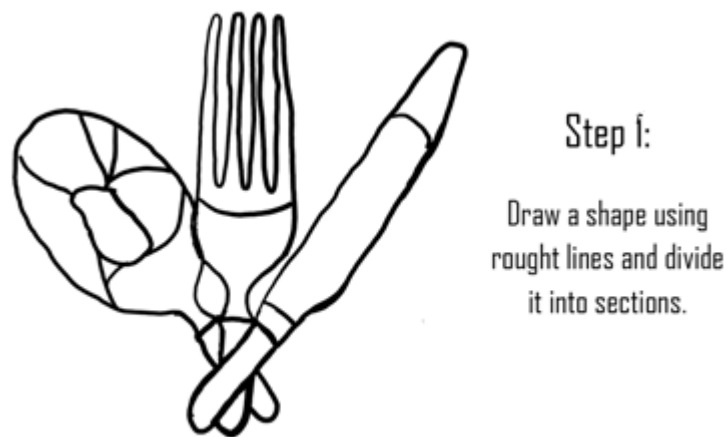


Figure 3.21: Character Sprite: Step 1

to draw a random shape. In usual Zentangle practice, this shape is done freely, without any intention to resemble real life object. However as previously mentioned, a purpose of MI is to encompass and express symbolic meanings through

artist expression. Therefore it aims to find a balance between abstraction and resemblance by combining meaningful outlines with abstract patterns.

The key of this step is not only to draw the outline, but also to segment the space with non-straight lines. The segmentation does not have to follow any rules and can be done in any desired way.

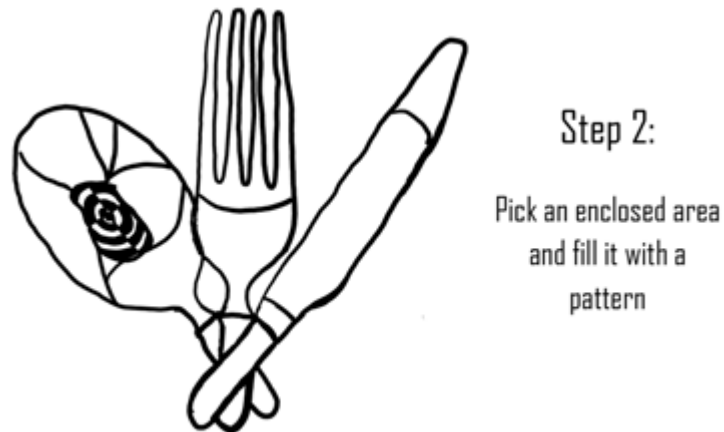


Figure 3.22: Character Sprite: Step 2

After creating an outline, the creator can pick an enclosed area and fill it with a pattern. The choice of pattern is completely in the artist's hand, and this free decision ensures the uniqueness of each Zentngle art work. If the artist has no specific pattern in mind, it is also possible to simply start with random dots. By combining those dots with different types of lines and repeat the same cycle, one can create as many different patterns as possible.

The inspiration of pattern can also come from many aspects of daily life. For example, one of the design principle for this game's artwork is to incorporate words. Therefore when choosing pattern, variations of words were always taken into consideration. Meanwhile, patterns that resemble plants, flower and water are also frequently used.

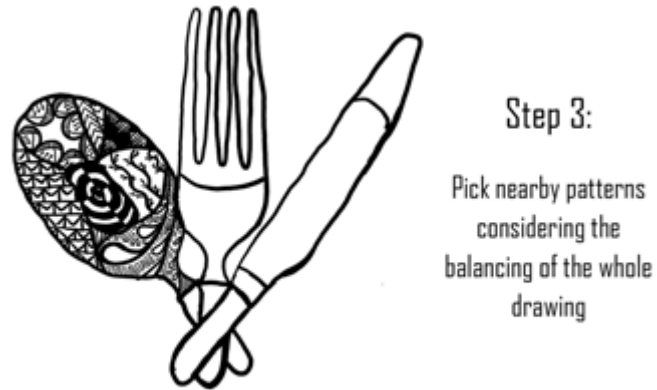


Figure 3.23: Character Sprite: Step 3

In step three, the artist continues the process by filling the surrounding areas with desired patterns. The balancing of patterns is important here. The goal to strive for is to create something harmonious in terms of pattern density and darkness.



Figure 3.24: Character Sprite: Step 4

In step four, all empty segment should be filled with patterns. It is worth noticing that as long as two spaces are not adjacent to each other, it is acceptable to repeat the same pattern. In many cases that can even create special effect, as the “checkerboard” pattern seen on all three silverware in this drawing.

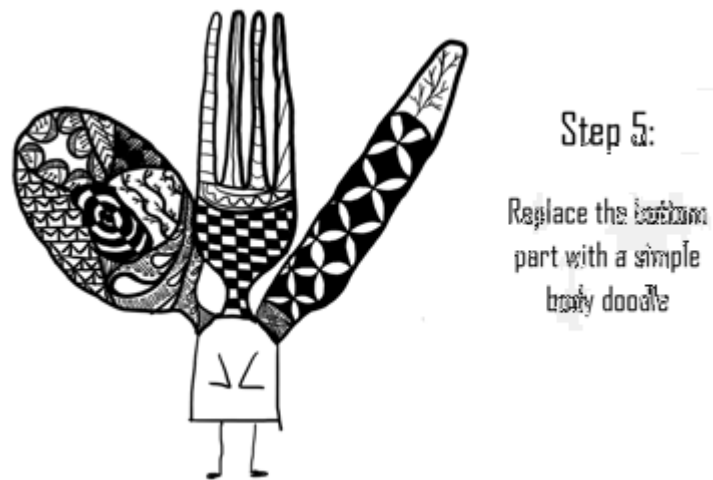


Figure 3.25: Character Sprite: Step 5

After finishing all Zentangle part, the finishing step is to replace the lower part with a simple body drawing. Throughout the game, all versions of MI have the same style of body drawing with the same measurement. In this way, all character animation can be re-used without fitting problem.



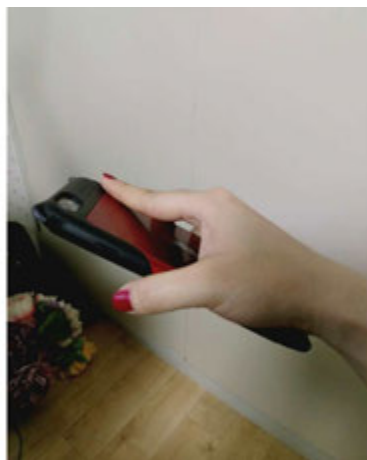
Figure 3.26: Additional Step: Detailed Animation

Once the character drawing is finished, there is an extra step to animate some details. Depending the usage of the art, this step is not always necessary. In the case of this drawing, the bottom part of the spoon has a pattern with eyes, and simple eye blinking movement can be animated with four frames.

Animation Sprites

Unlike the character sprite creation process, the animation sprites are usually created with real reference, in order to simulate movement. In the field of hand drawn animation, it is common to adopt a technique called rotoscoping, which means tracing over frames of motion picture in order to capture an accurate movement.

In the creation process of MI's animation, this rotoscoping technique is frequently used, and the following session will present a step to step introduction of the creation process.



Step 1:
Create or gather
reference images

Figure 3.27: Animation Sprite: Step 1

The first step of rotoscoping is to find suitable motion reference. In this example, the goal is to create a short animation of phone flipping, and the easiest way to generate reference is to shoot a short video or consecutive pictures on phone flipping.

Self-creating reference footage gives the animator more freedom in terms of shooting angles and styles, but in many situations due to limited resources it is not possible to create all reference by oneself. In this case, it is necessary to search for references from other sources such as online video databases.

In the second approach, it is worth noticing that it is highly possible that no desired reference can be found. When this take place, the animator should not rely on the rotoscoping technique but instead improvise on the basis of closest reference.

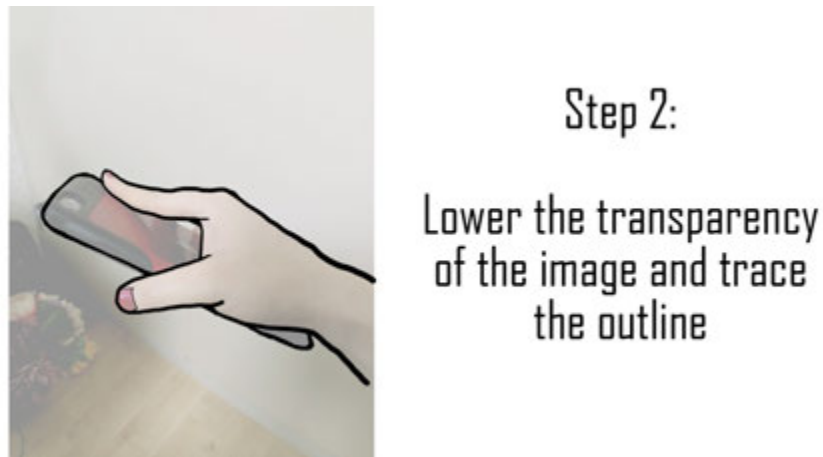


Figure 3.28: Animation Sprite:Step 2

After setting up the reference image, the second step is to trace over the reference. To do so, lower the transparency of the image and create a new Photoshop layer to draw.

When drawing the outline, it is important to notice that not all details are needed, and capturing important structural lines is more important than replicating the reference image.



Step 3:
Draw a complete animation sequence and test

Figure 3.29: Animation Sprite:Step 3

After finishing all frames, the last step is to test the movement. If the animation is not smooth enough, repeat step one and two to generate more inter-frames.

3.5 Story

MI: The Complete Story

At the beginning of the game, players would find MI in an enclosed egg, in which she is hibernating.(Figure 3.30)

After breaking the egg, MI will start providing players with information about the game, and then proceed to a flipping game, in which players are asked flip the phone at specific points in accordance with the music tempo.

During the first song, MI is sleeping in bed, dreaming of a prosperous life filled with wealth, love and achievement. Her dreams reveal her desires for materials and emotions in real life, which are also the driving force that makes her wake up to face a new day. (Figure 3.31,3.32)

In between the first and the second song, if the player decides to peek, they will see MI running around to prepare the next game stage.

Starting from the second song, MI is working towards a successful life. She perceive life as a stair for climbing,and each level is marked by an unknown transformation. She admires those who stands higher than she is, and wants to climb higher on this status stair. (Figure 3.33)

Day in and day out, she performs several actions repetitively in order to reach her goals. Those actions are in accordance with her dreams, which are wealth, love and knowledge. (Figure 3.34)

Because of her hard work, MI's skill points keep increasing until she receives a new level. The reward of the new level is she unlocked a new head, which looks like a strawberry. (Figure 3.35)

With the new strawberry head, MI continues to work hard. She keeps doing physical exercise, working as a game host,and also increasing her knowledge by coding.(Figure 3.36)

Her effort was not wasted, at the end of the second song, she recieves another level up reward, which is a lotus flower head.(Figure 3.37)

When the phone is flipped down in between the second and the third song, through peeking players can discover the secret that MI is hiding. The dreams, desires and hard works towards goals only exist in her imaginations. Sitting on the floor, MI is suffering from depression, which deprived her of motivation and emotional turbulence.(Figure 3.38)

In the last section, symptoms of depression becomes serious, yet MI is still trying to conceal them.(Figure 3.39) In every interval of flipping, on one side

players can see the MI trying to be bright and and optimistic, but once the phone is facing down, those brightness turns to another direction.(Figure 3.40)

In the very end, based on the player's decision on game play. MI will have two different endings. In the happy ending in which the player allows MI to take her time to accept depression, MI received encouragement from the player and decided to seek asylum by re-hibernating.(Figure 3.41)

In the alternative ending, MI keeps hiding depression symptoms until it reaches a breaking point. (Figure 3.42)She gives up the reward that she earned through hard work, confessed that she sees no meaning in life, and took her own life in the sea.(Figure 3.43)

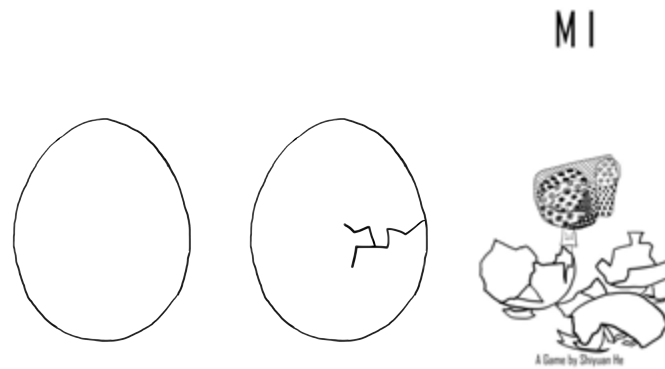


Figure 3.30: MI Breaking Out From an Egg

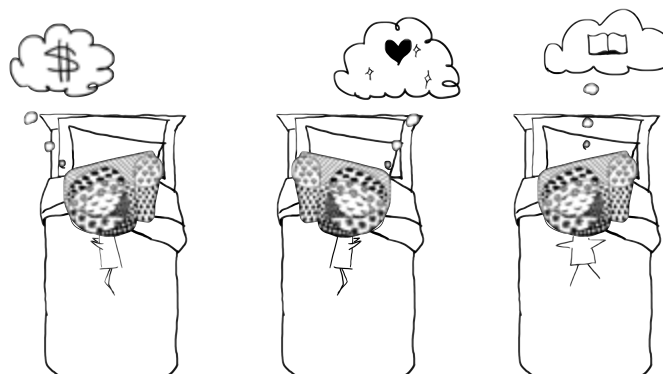


Figure 3.31: MI's Three Dreams



Figure 3.32: Manifestation of MI's Dreams

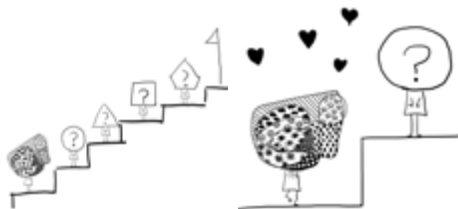


Figure 3.33: Manifestation of MI's Dreams



Figure 3.34: MI Working to Achieve Her Dreams

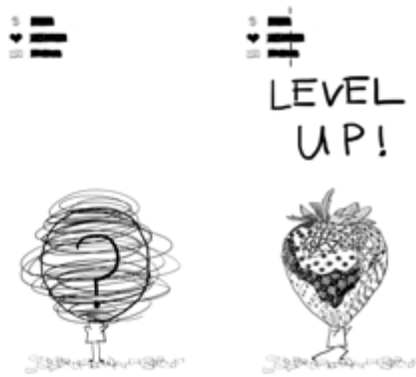


Figure 3.35: MI Receives a New Level For Her Hard Works

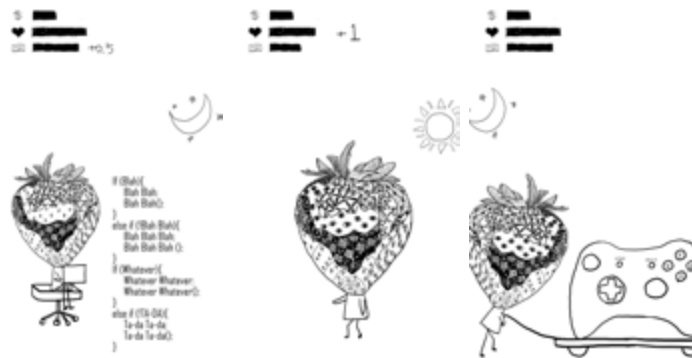


Figure 3.36: MI Continues to Work for Her Dreams

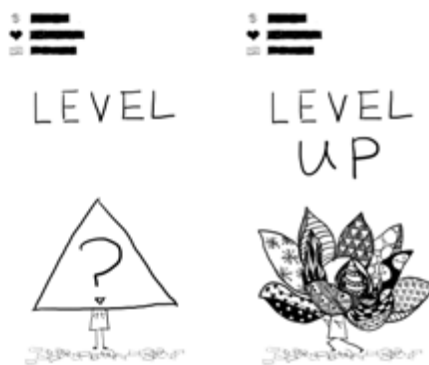


Figure 3.37: MI Receives a Lotus Flower Head



Figure 3.38: MI Hides Her Depression While Phone Facing Down



Figure 3.39: MI Tries to Hide Depression and Continue Working



Figure 3.40: On the Flip Side, MI Is Feeling Empty and Depressed

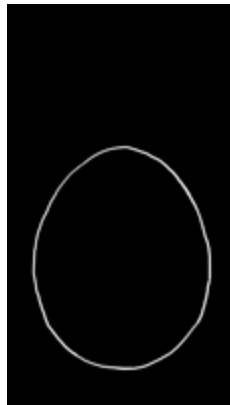


Figure 3.41: Positive Ending

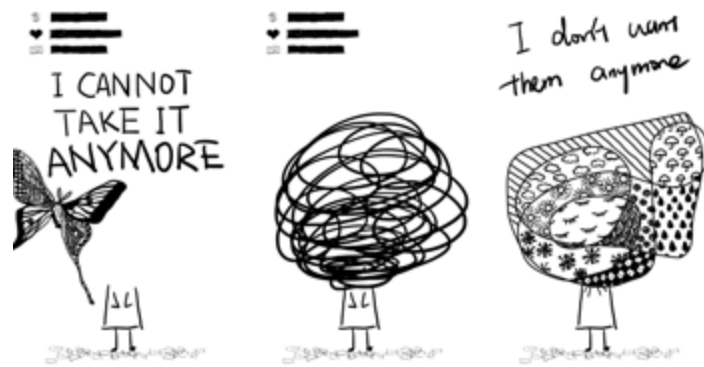


Figure 3.42: MI's Break Down

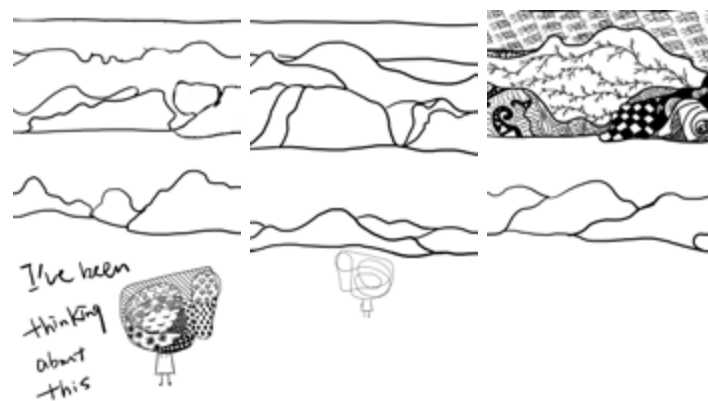


Figure 3.43: MI's Suicide

Character Building: MI and the Player

MI

As the main character of the game, MI is the key figure that guide the player through the journey. This section focuses on discussing the depression elements in MI and how those elements are tied to her story.

The story and setting aims to portray MI as a “normal” human being from three aspects: her emotions, her desires, and her acceptance of progression.

Starting from the beginning of the story, MI shows her desires through dreaming. Her hope of gaining wealth, love and knowledge is what signifies that, at least on the surface, she still has emotional fluctuation, which is an important indicator of a healthy mental state. Contrary to the common belief that depression means sadness, what patients of depression actually experience very often is the lack of emotions and desires.

Her desire of success also manifest on the fact that she looks upon the level stairs and admires the one in front of her. This behavior of wanting to be someone is very common, and also indicate that she is “normal.”

Meanwhile, MI also appears to be normal because she acknowledge the progression of success. She accept the fact that her daily life is consisting of repetitions that are more or less similar. She is willing to go through them not necessarily because she enjoys those hard work, but because she has a goal(level up) and is willing to go through them for it. For many patient with depression, daily routine can be a source of suffering because they do not see enjoyment in reaching the goal, and therefore the route towards it is likely to become meaningless and unbearable. In other word, they see no point in this daily step by step progression. MI’s attitude towards working demonstrates that she has a “normal” mental state.

On one hand, the story is trying to depict MI as a normal individual. On the flip side, it is trying to show that those “normal elements” are just her acting. When the phone is flipped down and her inner thought starts to flow, the player can see that she constantly has thoughts such as “I don’t see any meaning in this,” “I am useless”, “I can’t feel anything” and “I don’t know what I want.” Those thoughts shows that she actually cannot identify any desire, and is emotionally “stuck.”

In the positive ending, she reveals the fact that she is not doing well, and acknowledged that she has tried very hard to hide it. In her case, to be normal

means wanting things, work for them, and feel happy about the reward. Yet when suffering from depression, she cannot feel the drive nor emotion for those actions, and forcing herself to perform those activity is causing her pain.

The negative ending is aiming to capture tragic stories that frequently happen to patients of depression. Many patients of depression has hid their symptoms so where that no one can detect them, until their mental break down, which often result in suicide.

Overall, the character building process of MI is based on characteristics of depression, and all story elements aims to portray her as a hidden depression patient.

The Player

In this game, the relationship between MI and the player is not clearly defined; yet the player takes an important role as the discoverer of MI's mental state.

The player only has textual interaction with MI during the positive ending. When MI is confessing her depression, a text box that represent the player will comfort her with only one sentence: "It's OK."

This design decision is based on the nature of depression. Firstly, based on the type of depression, conversation with patient can sometimes create effect contrary to comforting. Depending on the specific mental state of the patient, even simple comforting words such as "be strong" or "you are fine" can be perceived as sources of pressure. Therefore, instead of giving the player a prolonged conversation, the current succinct version can encompass diverse meanings yet avoid being a wrong example.

Secondly, since MI is deliberately hiding her depression, she is likely to be not accepting it because of stigmas. Yet for her the first step towards healing is actually to accept the fact that depression is only a normal condition, and having depression "is OK." By having the player repeating this phrase, the goal of this short interaction is to show an empathetic side that can help patient greatly.

3.6 Engineering and Mechanics

Technical Overview

The game MI uses motion control as its main play mechanics. It uses the accelerometer built in smart devices to detect the gravitational direction of the

phone. This chapter aims to provide a thorough account of the development aspect of this game, in order to shed light on the technical difficulties and discoveries found along the way.

In the following sections, the first goal is to explain the core concept of motion control with accelerometer, and the essential programming to actualize it in the game engine Unity.

After building a solid base for motion control and unity, this chapter proceed to discuss sound design in this game.

Motion Control in Unity With C#

The flipping mechanic relies heavily on the accelerometer built in smart phones. An accelerometer measures the value of acceleration on three axes. In the case of flipping where the device moves from front to back, the movement occurs on the Z axis. Therefore getting the measurement of on the z axis is the main technical goal for implementing this mechanic.

Unity has included accelerometer in its input library, making the data from accelerometer easy to access with the function “input.accelerometer.”

The core code of the flipping mechanic can therefore be done in three steps. Firstly, store the accelerometer z axis value with a float variable. Secondly, set up two criteria for that signifies phone being flipped and being flipped back. In most scripts written for the game MI, the flipped criteria is 0.7, and the flipped back criteria is 0.5. Thirdly, check the z axis value against both values. If z is greater than flipped criteria, return the flipped Boolean variable as true. If z is smaller than the flipped back criteria, return the value as false.

Basing on this core code, many variations of flipping mechanics can be implemented. The first version of MI incorporated three different mini games: free style flipping, audio-cued flipping, and left/right flipping.

For the free style flipping, the core code stays the same. It used an additional integer variable as a flip counter, and this integer increments each time when flipping happens, and thus triggering sprite and audio change.

The audio-cued flipping builds on the basis of the free style flipping and adds a timer to keep track of flipping speed. The timer is set active when the audio finishes, and will be immediately turned off when flipping take place.

The left/right flipping also builds on the basis of the core code, but at the same time also check on x axis of the accelerometer. If flipping happens with x fluctuations greater than zero, it means the phone is flipped from the right side;


```
void Update()
{
    //motion control
    temp = Input.acceleration;
    if (temp.z > 0.7)
    {
        flipped = true;
        flippedOnce = true;
    }
    else if (temp.z < 0.2)
    {
        flipped = false;
    }
}
```

Figure 3.44: Core Code in C#

if the x value went through the negative span, it means the phone is flipped from the left side.

Sound Design

To fit the mood of the artwork and story, this game uses piano sound and songs as its main audio.

In the beginning of the game, the hatching of MI and tutorials are indicated with single piano notes, which are acquired from FL Studio Instrument Library.

In the main story, it features three piano pieces composed by Frédéric Chopin. The name of the first piece is Bourrée in G major, B. 160b2. It is a cheerful dance piece suitable for portraying MI dreaming about gaining wealth, love and knowledge. The total length of the music is 30 second, and for the purpose of this game, it was edited into 18 segments.

The second piece is called Ecosaisais, Op. 72 no. 3 - I. In D major. It is 49 seconds long and was edited into 44 parts. The major emotion presented in this theme is cheerful and happy, which makes it suitable for the second act in which MI is working hard to achieve her dreams.

The third piece is titled Preludes, Op. 28 - No. 6 'Tolling bells'. It is a sad and slow song that gradually builds up audiences' emotions. It is 1 minute 40 seconds long and was separated into 76 parts.

Chapter 4

Evaluation

4.1 Method

The main method of evaluation for this game is play testing observation and interview.

During and after the design and developing process, the demo version of the game was constantly giving out for players to test, and by conducting before and after interviews, many meaningful feedback were collected.

While play testings and interviews conducted for this game vary in length and depth, they all contain similar directions and questions that strive to: firstly, understand players' experience; secondly, improve the design of the game; and thirdly, access players' attitudes, reactions, understandings and stories about depression.

Following this guideline, typical questions asked at the beginnings of interviews include general ones such as "how do you think about the game?" and "what is this game about?" Based on the player's response, core issues will be addressed by follow up questions such as: "how does the game make you feel?" "how do you like the flipping mechanic?" "do you understand the story?" and "is there anything that is confusing for you?"

Depending on responses of each player, some interviews turned into deeper conversations about depression, while others ended up being discussions on the flipping mechanics. Overall all the play testings and interviews contributed positively for the development of the game.

4.2 Result: Mechanics

As previously mentioned in the project time line, when the first version of the game was finished and tested, the testing result revealed many problems of game design.

Therefore a second version of the game is developed to solve those problems.

For this reason, the result of game mechanics evaluation is structured in two sections: for version 1 and for version 2. Both sections include a discussion of problems and solutions, together with players' feedback on the depression aspect.

Version 1

The first version of the game was designed under the same structure with the same story, as described in chapter 3. The major differences between two versions are the following:

- Version 1 is a compilation of flipping mini games, while version 2 is a rhythm game
- Version 1 tells the story by conversation sessions in between each mini game. As a result, MI shows more background stories and relationships. In comparison, version 2 tells the story through animated frames and does not provide any background story.
- Version 1 aims to build up close relationship between the player and MI by adding more conversations between them, while version 2 has only very limited player-MI interaction.

For the testing of version 1, two major problems appeared that resulted in the decision of remaking the game.

Firstly, the variety of flipping control is innovative and eye-catching, but at the same time it blurs the purpose of the game, which is portraying depression. All four testers who tried out this version expressed that they are attracted in the flipping mechanic that the story more or less escaped from their attention. One of them mentioned that because each stage introduces a new type of play with flipping, she gradually got confused for the objective.

Meanwhile, because of the complexity of several mini games, players ended up spending more time trying to go through those levels than getting to know the story. For example, in one stage there was a mini game about finding differences. When the player flip the phone from the right, an image of MI will be shown; when flipping from the left, another very similar image will be shown. The rule of the game is to spot differences within limited time. Because the idea of flipping left and right was introduced for the first time, players tend to spend some time

just to try out the flipping. After they finally get used to the mechanic, they have to finish three levels of difference spotting. The level, especially the last one, was designed to be difficult, which made players spending around 2-5 minutes to solve. Because it is a demanding task, when the stage is finally finished, players tend to feel excited or exhausted, which are not in correlation with the empathetic mood that the game is aiming for.

Problems of the version 1 game are not only from the flipping mechanic, but are also from the way that MI is portrayed. In this version, MI has more text lines to introduce herself, to explain her background, and to express her mood. This design decision was made in the hope that players would develop relationships with the character and start caring about her. However, in the actual testing, the length of conversation text was actually counter-effective in terms of building the caring relationship, because players soon get tired of reading long text. 50% of players stated that they think the test was too long, and one of them stated that he was impatient to get the text over and go to the next stage.

Overall the result of this testing was unexpected, and it created a chance to rethink about the initial reason of creating the game. In the original game design document, this game is described as an emotional experience that is capable of bringing players with deep thought. Yet after playing this game, players rarely emphasized with the depression side of the story, but rather felt the tragic end as sudden. The story did not leave as much impact as the flipping mechanic did. In other word, what players remembered the most was that it was a game about flipping, not a game about depression.

Because of this process of rethinking, the decision of making version 2 was settled. Changes based on result of this version are:

1. Reducing the number of flipping mechanics and focusing on rhythm.

This decision was made because too many variation of flipping tend to be confusing and distracting for players and prevent them from enjoying the story, which is actually the main focus of the game.

2. Use animation to tell the story instead of conversation

The game no longer focuses on establishing MI as a real-like character. In this adjustment all background information about MI was taken out, together with conversations about her work, family, and interest.

The result of the first version made it clear that the goal of the game was to show MI's depression, and what players really need to know is the fact that

she is suffering from depression, not her job, her family or her hobbies. The overuse of text blurred the focus of the story and made it not as enjoyable for players.

As a result of this testing, a second version of the game was developed. Even though the first version was abandoned since then, it provided important data to push the project further and is therefore a necessary step with great importance.

Version 2

Version 2 testing involved seven players, and two of them have played the previous version. Overall the testing result was optimistic in three areas:

1. Players are much less confused for the flipping mechanic. They generally took less time to figure out the rule and start to pay attention to the story.
2. With less text, the flow of the game increased and players can capture the major events in the story.
3. The theme of depression was better conveyed. Nearly all players used the word “depression” or “depressed” to describe the story. The meaning of the story was more clear and easy to understand.

While most players liked the game, there are also many feedback regarding the problems in design.

Firstly, the single mechanic is indeed easy to master, but a player mentioned that towards the end she was “losing patience with flipping.” While the game itself is not long(around 7-10 minutes), it still requires nearly 150 times of flipping of the phone, which can induce tiredness for players. One way to solve this problem is to reduce the flipping frequency by increasing music intervals.

Secondly, the hint of flipping is given on the left bottom of the screen, in the form of hand counting down. Four players have expressed that their attention was attracted by the counting down picture, and therefore felt rushed in order to also look at the story. This problem can be solved by changing the method of instruction. Instead of using hand pictures to count down, the game instruction can simply be “flip when the music stops.”

Meanwhile, four out of seven players did not use peeking throughout the game, indicating the current instruction method is not clear enough. Currently, during the tutorial stage, MI would tell the player that “Don’t peek. There is nothing interesting. It will only be me preparing stuff.” This design was aiming to excite player interest by not allowing them to peek. By saying “no,” the message that it tries to convey was actually “yes.” However, not everyone perceives it in the same way, and several players actually obeyed the “no peeking” instruction. In order to solve this problem, clearer and accurate instructions should be used.

4.3 Result: Graphic Related Discussion

The utilizing of hand drawn, monochrome Zentangle is one of the most distinctive features of the game MI; therefore during the play test interviews, many discussions were carried out around this topic.

Generally, players showed a great interest in the art style. During interviews more than 80 percents of players asked questions about visual design decisions, and two of the most frequently asked question are “what is this style” and “why using this style.” While the reasons for both have been explained in the previous chapter (3.4.1), those questions served as a starting point to further explain, as well as question, the utilizing of art principles to convey emotions. After hearing about Zentangle style and its therapeutic effects on stress relieving, many player expressed that they can sense a link between the art style and the depression theme. In one of the interviews, the player described the art style as “cute but heavy, refined but also rough,” which partially coincides with one of the design principles discussed in the art style section (chapter 3.4.2.)

While most players showed interest in the art style, not everyone is in favor of it. Several testers expressed that the density of patterns created a “scary” or “gloomy” atmosphere that they found slightly uncomfortable, and one of them mentioned that the style is giving rise to her trypophobia, which is a phobia about clusters of irregular patterns or holes. While most of those reactions were already expected, the art style of MI received its strongest rejection from a non-player who saw the sample art in a presentation. After seeing the Zentangle art style, this viewer commented “how can you help with depression with such a depressing style?” She jokingly added “even normal people can get depressed after seeing this.”

On the surface, this question for art decision seems to be a harsh criticism, but

when delving deeper into its reasoning, it can instead testify the original design decision. Firstly, the criticism is based on the “depressing” quality of Zentangle, and the solemn heaviness of that the style conveys. Coincidentally, this quality is exactly the game is aiming to bring to players, and instead of undermining the effect of the style, those players’ comments are testifying that Zentangle is a suitable choice for this project. Secondly on the topic of “helping with depression,” it is important to clarify that this game does not help with depression in terms of healing or curing patients. Instead it targets the awareness of the depression problem and aims to provide a story about depression experience. In this sense, the previous comment “even normal people can get depressed after seeing this” is hinting that the experience is essentially captured through the art style.

As one can see, the “negative” comments received in the evaluations can turn out to be proofs of the design decision, which calls for a discussion on the stereotype of games being a form of pleasant enjoyment. While many games tend to convey impressions such as fun and bright, game as a media is capable of containing a variety of emotions, as already discussed in previous chapters (2.2.3.) In the case of MI, it is important to mention that its purpose is not to make players feel fun or pleasant, but to make them think and understand a heavy topic that is not necessarily bright or optimistic.

To conclude, the evaluation on the Zentangle art style has proved the effectiveness of the design decision, while also showing many aspects in need of improvement.

4.4 Result: Depression Related Discussion

While testing of the game itself is important, the main goal of this project is to portray the side of depression not commonly known to the public. When reaching the end of the story, most players showed signs of surprise when seeing MI’s sudden mental break down. In the follow up interview, three players said that they wish they could have discovered it earlier. Another three players said they did not know this aspect of depression and are likely to be more mindful about it in real life.

During follow-up interviews most players were asked “What do you think the main character MI is going through?” Over sixty percent of the players’ answers are directly related to depression, and most of them expressed that they have heard about the seriousness of depression. Upon further questioning, most players

mentioned that they would offer help if the story of MI were to happen in real life, and in terms of method, they talked about how they can “start conversation first” and “hang out with them more.” Most importantly, after playing the game and discussing about the theme, many player showed willingness of learning more about depression, which matches with the original goal of the game.

Moreover, during the evaluation process one tester reacted to the ending with a story. To a certain extent, the comment followed by this story embodies the core design concept of the game MI and showed the potential of this interactive experience.

The player said she had friend who was very successful: he just finished PhD from a renowned school, got a job with high salary, and was newly married. One day tragic happened, this friend was driving a helicopter when it crashed. Everyone was deeply affected by this sudden death. Upon further investigation, they realized something: the weather was mild; everything was functioning in the helicopter; this friend was an experienced pilot who was unlikely to make silly mistakes; the way the helicopter crashed was unusual. All evidences pointed to one possibility, that this tragedy could actually be a planned suicide, that this friend who seems to have everything chose to end his own life.

The player said: “Nobody saw this coming. He was absolutely normal.” In the end of the story, she mentioned “I wish I had played this earlier. Maybe I could have found out and helped him.”

Her words was similar to initial reason that drove me to make this game. While all the other data and feedback are important, this comment is the most precious to me as the designer. It means that the message that MI aims to convey was successfully carried out, and the goal of exposing the hiding behavior of depression is acknowledged.

Chapter 5

Conclusion

5.1 Concept Validation

The making of the game MI is a journey that is as important as the game itself. Through cycles of brainstorming, prototyping, developing, testing and remaking, the project is finally reaching a milestone.

Starting from a simple reason and a broad theme, this project is a journey of exploration for game design, storytelling, and art creation. It aims to create emotional experiences for users while notifying a behavior that is often hidden under the table.

Through iterations, this project showcased the capacity of game as a vehicle of story, interactivity, artistic expression, and most importantly, emotions. After playing, players noticed the serious consequences that hiding depression has; they showed signs of interested in learning more about depression; most importantly, some of them showed signs of empathy, that they can relate the story of the game to real life event and empathize those who suffer.

In terms of game mechanics, it explored motion control mechanics on mobile devices. While many features of motion control were experimented with, only those who match with the theme persisted to the final version. Through various implementations and revisions, the flipping and peeking mechanics were adopted to fit the overall goal.

In terms of art style, it used the Zentangle technique, together with specific design principles, to create an unique atmosphere. The monochrome, hand-drawn graphics attracted much attention in public appearances and had generated interest in the project itself. Moreover, it was proved to be fitting to the theme depression, and has been frequently commented as being visually impactful.

In terms of storytelling, it depicted a personal story that conveyed meaningful messages about depression, life and dream. Most importantly many players resonated with the story and expressed intentions of learning and helping with

those who are suffering. In this way it demonstrated a chance of developing understanding and empathy toward an underexposed social problem.

While the result is not perfect and many aspects of the game can still be improved, most expectations of the project were successfully met. As a common yet serious mental disorder, depression is still spreading in an alarming rate. The level of education on mental illness, however, is usually not sufficient in general. Though this project targets only one aspect of the overall problem, it is created in the hope that by exposing one corner, people will be interested to discover more of the big picture.

To conclude, MI is a project using game mechanics, storytelling and art to capture the hiding behavior of depression patient, and through iterations and testings, it shows that it is capable of providing players with a meaningful experience.

5.2 Possible Future Plan

While the end of this thesis document marks the conclusion of the project, it is also a milestone on which more work can be done as sequels or spin-off projects. The future plan of this project is twofold.

The immediate future step is to update the game based on feedback received on version 2 play testing and interview. Many suggestions received during this phase was very valuable, and because of project length those suggestions are yet be reflected on the game itself. If time allows, more adjustment will be implemented.

With this pending update, the next step is to publish this game on Google Play store. This step was initially planned for this project, but because of the extra developing of version 2, this step was delayed. After the game is polished, the next goal would be publishing and reaching out for a wider audience.

Besides publicizing the game itself, the concept of this game can be extended in many aspects. During the final thesis presentation, one of the questions from audience was whether this project is considered an art project or a design project. As of the ending of the thesis project, it is focusing on design and exploring game mechanics. However during the design process, the art aspect stood out as a distinctive feature and attracted much attention, and thus proved its potential to be further developed. In the future, there is possibility of continued art creation following this style and design principles. In other words, the sequel or spin-off product of the current project are likely to be explorations in the art realm.

References

- Barney, Lisa J, Kathleen M Griffiths, Anthony F Jorm, and Helen Christensen (2006) *Stigma about depression and its impact on help-seeking intentions*, Vol. 40: Sage Publications Sage UK: London, England, pp.51–54.
- Bland, Roger C, Stephen C Newman, and Helene Orn (1997) *Help-seeking for psychiatric disorders*, Vol. 42: SAGE Publications Sage CA: Los Angeles, CA, pp.935–942.
- Breel, Kevin (2013) *Kevin Breel: Confession of a depressed comic*: https://www.ted.com/talks/kevin_breel_confessions_of_a_depressed_comic.
- Chen, Jenova (2016) *Designing Journey*: <https://www.youtube.com/watch?v=UGCk-VHSvjzM>.
- Friedl, Markus (2002) *Online game interactivity theory with cdrom*: Charles River Media, Inc.
- Friedman, Michael (2014) *The Stigma of Mental Illness Is Making Us Sicker*: <https://www.psychologytoday.com/blog/brick-brick/201405/the-stigma-mental-illness-is-making-us-sicker>.
- Healthline, Media (2012) *Depression Statistics: Unhappiness by the Numbers [INFOGRAPHIC]*: <http://www.healthline.com/health/depression/statistics-infographic>.
- Kent, Steven L (2010) *The Ultimate History of Video Games: from Pong to Pokemon and beyond... the story behind the craze that touched our lives and changed the world*: Three Rivers Press.
- Lago, Ed (2016) *Another Day*: <http://gamejolt.com/games/another-day/124458>.
- Laura A. Pratt, Ph.D. and M.P.H. Debra J. Brody (2014) *Depression in the U.S. Household Population, 2009-2012*: Centers for Disease Control and Prevention.

REFERENCES

- Link, Bruce G, Jo C Phelan, Michaeline Bresnahan, Ann Stueve, and Bernice A Pescosolido (1999) *Public conceptions of mental illness: labels, causes, dangerousness, and social distance.*, Vol. 89: American Public Health Association, pp.1328–1333.
- Malchiodi, Cathy (2014) *Calm Down and Get Your Zentangle On:* <https://www.psychologytoday.com/blog/arts-and-health/201403/calm-down-and-get-your-zentangle>.
- Michael Frei, Mario von Rickenbach (2015) *Plug and Play:* <https://plugplay.ch/>.
- Newzoo, Games (2016) *2016 Global Games Market Report: An Overview Of Trends & Insight:* https://cdn2.hubspot.net/hubfs/700740/Reports/Newzoo_Free_2016_Global_Games_Market_Report.
- Nordt, Carlos, Wulf Rössler, and Christoph Lauber (2006) *Attitudes of mental health professionals toward people with schizophrenia and major depression*, Vol. 32: MPRC, pp.709–714.
- O'Brien, Lucy (2014) *The Future of Video Game Storytelling:* <http://www.ign.com/articles/2014/01/13/the-future-of-video-game-storytelling>.
- Quinn, Zoe (2013) *Depression quest:* <http://www.depressionquest.com/>.
- Rickwood, Debra J and Valerie A Braithwaite (1994) *Social-psychological factors affecting help-seeking for emotional problems*, Vol. 39: Elsevier, pp.563–572.
- Rusch, Doris C. (2011) *GAMBIT: Load Game: Elude:* <http://gambit.mit.edu/loadgame/elude.php>.
- Schell, Jesse (2014) *The Art of Game Design: A book of lenses:* CRC Press.
- Shrigley, David (2003) *David Shrigley:* <http://davidshrigley.com/>.
- SuperData (2016) *Market Brief - Year in Review 2016:* <https://www.superdataresearch.com/market-data/market-brief-year-in-review/>.
- Thornicroft, Graham, Diana Rose, and Aliya Kassam (2007) *Discrimination in health care against people with mental illness*, Vol. 19: Taylor & Francis, pp.113–122.

REFERENCES

- Times, Tech (2015) *How Video Games Have Become The Perfect Storytelling Medium*: <http://www.techtimes.com/articles/84016/20150914/how-video-games-have-become-the-perfect-storytelling-medium.htm>.
- U.S. Department, of Health and Human Services (2012) *Major Depression Among Adults*: <https://www.nimh.nih.gov/health/statistics/prevalence/major-depression-among-adults.shtml>.
- Vmhayhurst (2012) *An ongoing study on Zentangle and mindfulness from BLOG Zentangle*: <https://drawzentangle.wordpress.com/2012/08/25/an-ongoing-study-on-zentangle-and-mindfulness-from-blog-zentangle/>.
- Vogel, David L, Nathaniel G Wade, Stephen R Wester, Lisa Larson, and Ashley H Hackler (2007) *Seeking help from a mental health professional: The influence of one's social network*, Vol. 63: Wiley Online Library, pp.233–245.
- WHO (2017) *Depression*: <http://www.who.int/mediacentre/factsheets/fs369/en/>.
- wikiHow (2017) *How to Make a Zentangle*: <http://www.wikihow.com/Make-a-Zentangle>.
- WZOGames (2014) *Actual Sunlight*: <http://www.actualsunlight.com/>.

Appendix

A Text Asset Utilized in Game

1. Self Talk from MI
 - I don't get myself.
 - I don't get the meaning of this.
 - I want to give up.
 - I wish I was not born.
 - I see no purpose.
 - I don't want to keep going.
 - I am useless.
 - I am ugly.
 - I am worthless.
 - I am overweight.
 - I don't have any skill.
 - I can't do anything right.
 - I am failing everyone.
 - No one can help me.
 - Can I stop this?
 - Can anyone help me?
 - Is this really it?
 - I can't feel anything.
 - I don't understand.
 - I am an awful person.
 - I feel sorry for myself.
 - I don't understand myself.
 - I want to escape this.
 - I don't like myself.
 - I don't have real friend.
 - I've let my family down.

I can't take this anymore.

2. Confession from MI

Let me tell you my secret.

I've been hiding this for a long time...

I am depressed.

I suffer from it.
Everyday.

I can't find meaning in anything.

I don't want to do anything.
And I don't want to do nothing.

I don't have purpose in life.

I know there are things I should strive for
But I just can't push myself to do them.
I am so useless.

Thank you for accepting this side of me.
I am tired of pretending.
Maybe I should take a break.
Thank you for giving me time.