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Author	杨, 丁(Yang, Ding) 稲蔭, 正彦(Inakage, Masahiko)
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Master's Thesis
Academic Year 2021

Design of Immersive Interactive Experience to
Alleviate the Social Anxiety of Urban People
Related to Peeping and Self-expressing Desires on
SNS



Keio University
Graduate School of Media Design

Ding Yang

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

Ding Yang

Master's Thesis Advisory Committee:

Professor Masa Inakage	(Main Research Supervisor)
Senior Assistant Professor Junichi Yamaoka	(Sub Research Supervisor)

Master's Thesis Review Committee:

Professor Masa Inakage	(Chair)
Senior Assistant Professor Junichi Yamaoka	(Co-Reviewer)
Professor Kazunori Sugiura	(Co-Reviewer)

Abstract of Master's Thesis of Academic Year 2021

Design of Immersive Interactive Experience to Alleviate the Social Anxiety of Urban People Related to Peeping and Self-expressing Desires on SNS

Category: Design

Summary

With the development of information and modern technology, social networking sites (SNS) have become an indispensable part of the lives of urban people. Individuals have become accustomed to communicating with relatives and friends, sharing their lives and paying attention to news and trends through the internet. In contrast to the convenience brought by SNS, in recent years, the anxiety and depression caused by SNS have attracted increasing attention from scholars and society. As people can easily receive and output substantial amounts of information, whilst it is more convenient to display themselves, they are actively or passively peeping into the lives of others every day. The ensuing expansion of social anxiety such as peer pressure, appearance and age anxiety has repeatedly become a prominent topic in contemporary society.

In contrast, the development of technology has also brought numerous new experiences. Immersive experiences have been widely used in recent years, especially in new media art, namely, creating through virtual reality (VR), projection, sound, light and other technologies to create an interactive mode or space to affect the five senses of the participants and achieve the effect of immersion.

In this study, the researcher has designed an online immersive platform and an offline immersive exhibition based on the social anxiety caused by the over-loaded peeping and self-presentation desires from the use of social networks. By participating in any of the aforementioned experiences, users can enjoy the immersion and reduce social anxiety.

Keywords:

social anxiety, SNS, immersive experience, self-cognition, peeping and self-expression desires

Keio University Graduate School of Media Design

Ding Yang

Contents

Acknowledgements	viii
1 Introduction	1
1.1. Background	1
1.1.1 Social anxiety caused by peeping and expressing on SNS	2
1.1.2 Connection between immersive experiences and emotions	3
1.2. Contribution	5
1.3. Thesis Organization	6
2 Related Research	7
2.1. Anxiety on SNS	7
2.1.1 “Facebook depression”	7
2.2. Immersive Experience in Psychotherapy	9
2.2.1 Game therapy	9
2.2.2 VR in the treatment of depression	11
2.3. Offline Immersive Experience Fieldwork	12
2.3.1 and People CAFE and DINING	12
2.3.2 Olafur Eliasson	13
2.4. Conclusion	15
3 Concept	17
3.1. Concept Proposal	17
3.2. Design Process	20
3.3. Ideation	21
3.3.1 Background investigation	21
3.3.2 Target users	22
3.4. “Check in Secret Apartment”	23

3.4.1	Idea sketch	24
3.4.2	The first prototype	26
3.4.3	User test of the first prototype	28
3.4.4	Revised design	31
3.5.	“I am...” Immersive Exhibition	34
3.5.1	Idea sketch	34
3.5.2	Scenario design	37
3.5.3	Collaboration	41
3.5.4	Exhibition preparation	41
4	Proof of Concept	44
4.1.	Evaluation for Revised Design	44
4.1.1	UI design	44
4.1.2	Follow-up interview	46
4.1.3	SUS Evaluation	47
4.1.4	Discussion	50
4.2.	Evaluation for Exhibition	50
4.2.1	Exhibition display	51
4.2.2	Interview	52
4.2.3	Discussion	62
5	Conclusion	64
5.1.	Conclusion	64
5.2.	Limitations	65
5.3.	Future Work	65
	References	67

List of Figures

1.1	teamLab in Tokyo	4
2.1	A model of the relationship between social network addiction, social anxiety and depression, established by National University of Singapore Professor Catherine So-Kum Tang	8
2.2	“Little Hans” Cartoon	9
2.3	Operation interface of 2048	10
2.4	Mockup of using VR for hands-on cognitive restructuring	11
2.5	Dining environment, photograph taken by author	13
2.6	Firework projection	13
2.7	“Din Blinde Passager”, photograph taken by author	14
2.8	“Your happening, has happened, will happen”, photograph taken by author	15
3.1	A window into lockdown life	19
3.2	Frequency statistics table of expected function feedback	23
3.3	”Window box” in an exhibition, photograph taken by author	24
3.4	”Check in Secret Apartment” the first version of sketch	25
3.5	Appearance of the first prototype	27
3.6	The effect of flashing lights accompanied with the sound of heartbeat	27
3.7	Hardware equipment	28
3.8	Interface sketch part 1	32
3.9	Interface sketch part 2	32
3.10	Exhibition design sketch	35
3.11	Part of collected answers	36
3.12	Part of storyboards	40
3.13	Chinese & English versions of exhibition poster	41

3.14	Screenshot of text video and projection effect	42
3.15	Projector test	42
3.16	Exhibition in setting	43
4.1	UI design	45
4.2	The second time user test	47
4.3	System usability scale	48
4.4	Standard for SUS evaluation	49
4.5	Mirror after adjusting the position	51
4.6	Overlapping image effect of "Display Mirror"	53
4.7	Back view with projected text in "Display Mirror"	54
4.8	Multi-layer window frame and "Cognition River"	54
4.9	Interviewee is interacting with "Cognition River"	56
4.10	Interviewee is interacting with "virtual" and "real" mirrors	58
4.11	"Display Mirror" plays in different pattern	61

List of Tables

3.1	Basic Information of Participants	29
3.2	Models' identity setting in the online world and the real world .	37
4.1	SUS Score	49
4.2	Basic Information of Interviewees	52

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Chapter 1

Introduction

1.1. Background

People always tend to be curious about the privacy of others, and if they are not discovered or need to reveal their identities, most people will have no guilt and tend to indulge in it. In contrast to peeping, as individuals, people often prefer to present themselves to others directly or implicitly in various ways, whether it is life display or opinion output, seeking the satisfaction of self-expression desire is also a natural trend in human behaviour. When people converse about peeping and expressing desires separately, peeping is always labelled negatively, and the desire for expression appears to be taken for granted. However, in specific situations, such as when individuals seek the satisfaction of their expressive desires, it is worth considering it as a process of forced peeping action for their expressing objects. Excluding the positive and negative definitions ascribed by society, there appears to be an inextricably link between these two human instincts.

In the global, contemporary information era, the popularity of social networking sites (SNSs) makes it simple to satisfy people's desire for peeping and expression. People are accustomed to paying excessive attention to the lives and opinions of others, such as celebrities and Key Opinion Leaders (KOLs), and also accustomed to faking themselves on social networks. Although peeping and self-expression behaviour is largely satisfied, it is also easier to spread various types of urban anxieties such as "peer pressure" amongst young people.

This project aims to design an immersive experience to satisfy people's peeping and expressing desires in an entertaining way by implementing an interactive installation in an urban space and online application. Meanwhile, the experience design attempts to make the audience consciously distinguish self-character between the virtual and the real world, confront desires and themselves, and take a

correct self-cognition to reduce unnecessary anxiety caused by SNS. Thus, ensuring that the audience can have a unique and interesting experience through this design.

1.1.1 Social anxiety caused by peeping and expressing on SNS

Social anxiety refers to when an individual is in an interpersonal environment or receives attention from others and he or she is worried about the possibility of his or her poor performance and this causes tension and anxiety [1]. The emergence of modern internet technology and SNS has provided people with a convenient platform in an unprecedentedly fast and low-cost way. In recent years, numerous studies and experiments have indicated that the use of social networks has both positive and negative effects on the mental health of the younger generation. The negative results are primarily manifested in social anxiety caused by the need to belong, self-presentation and assertiveness [2]. According to Sherry Turkle [3], a clinical psychologist at the Massachusetts Institute of Technology who primarily studies the relationship between technology, society and psychology; discovered in her practical research that people tend to set up personal profiles or images that please themselves and others in social networks. People always give a character its internal characteristics and external image according to their own understanding of a character, and act according to this script - repeatedly modifying the information of online conversations until their virtual image on the internet reflects their ideal self-image.

In contrast to excess and disguised self-expression, the reason for this phenomenon is the comparative psychology caused by excessive peeping desire regarding the lives and opinions of others. As a special, self-presentation platform, social networks allow users to easily browse the information presented by others [4]. This observation of other people's information may even be passive at the beginning, but the desire for voyeurism will soon make this behaviour active or even addictive. SNS provides users with various opportunities for social comparison. On social networks, people prefer to show their positive and ideal side and present them actively, which makes viewers more inclined to make upward social

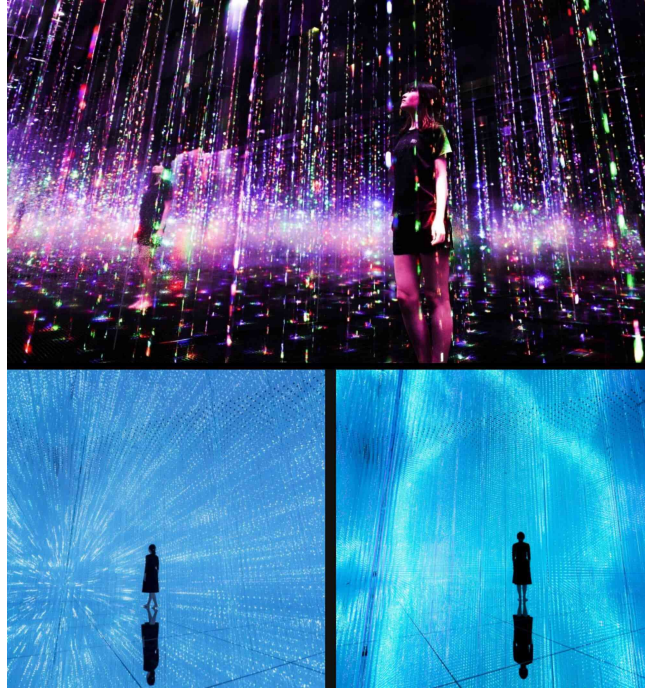
comparisons when they are peeping activities of friends [5]. Social comparison theory [6] also believes that individuals will spontaneously generate self-evaluation motives, and they can obtain self-evaluation through social comparison with their peers. People can obtain a large amount of information for comparison through social platforms, and make upward social comparisons out of the desire for self-improvement. However, an excessively upward society is more likely to produce a contrast effect, causing individuals to reduce their assessment of their own abilities and thus, produce negative and anxious emotions [7]. Generally speaking, the social anxiety brought by SNS is directly related to the excessive desire for peeping brought by the information age and the self-cognition bias caused by the desire for better self-presentation, thus, there is a vicious circle encompassing these two desires.

1.1.2 Connection between immersive experiences and emotions

An immersive experience was first proposed by the psychologist Mihaly Csikszentmihalyi [8] of the University of Chicago. He believes that people will have an extremely exciting emotional experience when they focus on a certain activity. Mihaly referred to it as a ‘flow experience’ or immersive experience. Then with the deepening of research and practice, immersion theory gradually expanded from the field of psychology to the field of art. In art, the immersive experience has appeared in the Pompeii frescoes and Baroque styles of ancient Rome [9], but it was used consciously as a methodological consciousness and prevalent in artistic creation which began with new media art. The essence of new media art is an immersive experience or interactive media art. The audience can realise instant interaction with digital artwork through the senses of seeing, hearing, touching and smelling, thus achieving full integration, experience and immersion. It is an art form of emotional communication [10].

In recent years, a representative new media immersive work is teamLab (Figure 1.1). This immersive exhibition has presented the infinite charm of new media art by connecting people and nature, people and environment as well as people and people. The theme of the relationship between man and the world is integrated

into the art space conveyed by the digital installation, allowing the audience to understand the theme and artistic expression of the artwork in the interactive experience with the digital installation, which is fascinating and thought-provoking.



(Source: <https://borderless.team-lab.cn/jp/>)

Figure 1.1 teamLab in Tokyo

In addition, immersion theory has gradually extended to various fields, in particular, the gaming industry has been profoundly influenced by it. From the perspective of game design, the combination of the rich cognitive and sensory experience of game players can create an engaging flow experience. In recent years, play therapy [11] derived from immersive play has also attracted significant attention. This method was developed from the theory of psychoanalytic school and was first used in the treatment of children. It primarily externalises children's psychological anxiety through games and combined with the interaction with play therapists to enhance children's subjective emotions and their own behaviour, it helps them to face difficulties with self-confidence and gives them the ability to deal with challenges. It is clear that the immersive experience has a significant

effect on human emotions and assists in fighting anxiety.

1.2. Contribution

It is not difficult to observe from the background that with the widespread use of SNS, the resulting social anxiety is directly related to people's growing desire for peeping and self-expression. Amongst the methods of modern psychology to relieve anxiety, the immersive experience is an emerging and effective method. However, in the existing immersive experience design, online platforms such as immersive game design are mostly used to improve the user's game experience and achieve better service quality and other commercial purposes, whilst the aforementioned game therapy is primarily used for children's mental health treatment. Thus, there are few immersive experience platforms targeting the emotional changes itself. Offline immersive experiences are primarily concentrated in new media artwork. Most of these works are creative and interesting, and they also contain certain messages that artists want to convey. However, on the premise that various studies generally believed that from sensory stimuli to emotional change is one of the principles of immersive art, artists always hope that the audience can engage in in-depth contemplation from their works, usually about nature, humanities and even changes in time and the universe. These are hot topics in new media art, however, they are rarely attentive to whether the experience positively impacts the audience's emotions.

This research will focus on social anxiety caused by SNS from two connected aspects, one is the behaviour of peeping and expressing itself and the other is the result of over-satisfaction of these two desires in SNS, namely, social anxiety caused by self-cognition bias, such as peer pressure, self-depreciation and social phobia. Commencing from these two perspectives, this project aims to respectively design online and offline immersive experience platforms as two consecutive steps to reduce people's social anxiety. Thus, the whole design is comprised of two aspects. The first step is a functional prototype carrying with an app, which provides people with an anonymous platform for peeping and expressing actions. The platform will use immersive game design, allowing users to naturally demonstrate their desire for self-presentation and spying on others in an entertaining way. The second step

is an offline immersive art exhibition. The theme of the exhibition is self-seeking in the virtual and real world. Through new media installations, audiences are guided to consider their own self-cognition bias on the internet and in reality and by designing an appropriate interactive encouragement mechanism to ensure that the audience can harvest surprises during the participating process, it will achieve the effect of reducing anxiety whilst consciously contemplating self-cognition.

1.3. Thesis Organization

This thesis is comprised of five main chapters.

- **Chapter 1** introduces the causes of social anxiety by using SNS, namely, the excessive desire for peeping others and self-expression, as well as the immersive experience which is closely related to emotions. It also briefly summarises the primary purpose and design method of this research.
- **Chapter 2** will provide more details from the literature review and existing studies relate to the research field referred to in Chapter 1.
- **Chapter 3** will introduce the primary concept and details of the design process.
- **Chapter 4** will describe the final experiment process, user test and data analysis for this research.
- **Chapter 5** will summarise the full text and provide the conclusions.

Chapter 2

Related Research

2.1. Anxiety on SNS

2.1.1 “Facebook depression”

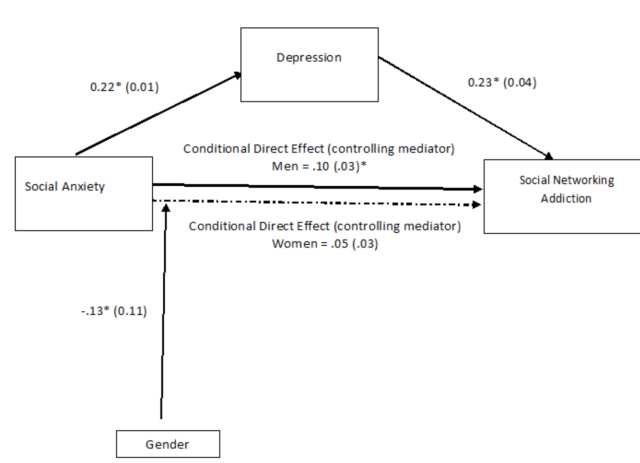
The phrase “Facebook depression” was first proposed by the American Academy of Pediatrics (AAP) in a report to discuss potential problems caused by social networks or other virtual worlds such as games and VR experiences. AAP described it as “depression that develops when preteens and teens spend a significant amount of time on social networking sites, such as Facebook, and then exhibit classic depression symptoms” ¹. Thereafter, mainstream media have warned that people should be attentive to the impact of Facebook depression, especially amongst children and the younger generation.

One of the main reasons for triggering this emotion is “social comparison.” People who regularly use social networks such as Facebook will frequently be exposed to “highlights” of the lives of friends, family, and celebrities. These idealised highlights of the daily life of peers may cause jealousy and distorted beliefs about the possibility that other people are living a happier, more exciting and successful life than themselves. There is a significant positive correlation between the use of social networks and an individual’s experience of jealousy, namely, the higher the frequency of social network use, the more the individual’s experience of jealousy [12]. Further research by Fox and Moreland [13] discovered that excessive use of social networks can positively predict an individual’s jealousy level, and this jealousy has a serious negative impact on the individual’s mental health, such as affecting interpersonal trust, reducing individual happiness and

¹ Sourced <https://www.medicalnewstoday.com/articles/314765>

self-esteem and even leading to psychological disorders.

However, some scholars still indicate in their sample survey results that the use of social networks directly correlating with depression is premature. As the advantages of social networks in mental health like social support and emotional therapy should not be ignored, more direct relationships still need more experimental verification. However, it is undeniable that a large number of studies prove that the use of social networks, especially the long-term addiction to SNS, does have a negative psychological impact on users (Figure 2.1). In particular, for those who already have a certain degree of depression, the cognitive overload brought by the information age can amplify their negative emotions more easily.



(Source: <https://www.mentalhealthjournal.org/articles/depression-as-a-mediator-between-social-anxiety-and-social-networking-addiction.html>)

Figure 2.1 A model of the relationship between social network addiction, social anxiety and depression, established by National University of Singapore Professor Catherine So-Kum Tang

2.2. Immersive Experience in Psychotherapy

2.2.1 Game therapy

Play therapy, also referred to as play-assisted therapy, which was briefly referred to in Chapter 1, is a special mental healing method primarily focused on children's anxiety treatment. As the name suggests, it refers to an interventional treatment method that uses game playing as a therapeutic medium. It is a set of game activities based on the theory of brain plasticity and function reorganisation, and entertainment therapy is the primarily thread. Sigmund Freud, an Austrian psychiatrist, psychologist and founder of the psychoanalytic school, pioneered the combination of child psychotherapy and game play. In 1909, his first case study of child psychoanalysis-“Little Hans” (Figure 2.2) [14], laid the foundation for future research.



Figure 2.2 “Little Hans” Cartoon

Table game is the traditional game therapy method. The game therapist formulates a game treatment plan according to the specific situation of each patient in advance, and relies on various table game props such as cards, puzzles, chess

and cards to stimulate the (visual, auditory and tactile) senses of patients and put them in an immersive experience for treatment. At present, the rapid development of communication technology has significantly promoted the rise of electronic game therapy. Electronic game therapy is primarily based on mobile phones, laptops or desktop computers [15]. The designed game program is built into the game, and the relevant game data will be recorded and saved whilst the patient is playing the game, therefore, effective data can be collected and analysed. In fact, play therapy exists more widely in life than people realise. For example, some well-known puzzle game applications, such as Brain Wars ² and 2048 ³(Figure 2.3) also involve the means of play therapy for training the human brain, improving individual cognitive ability and slowing down cognitive aging.

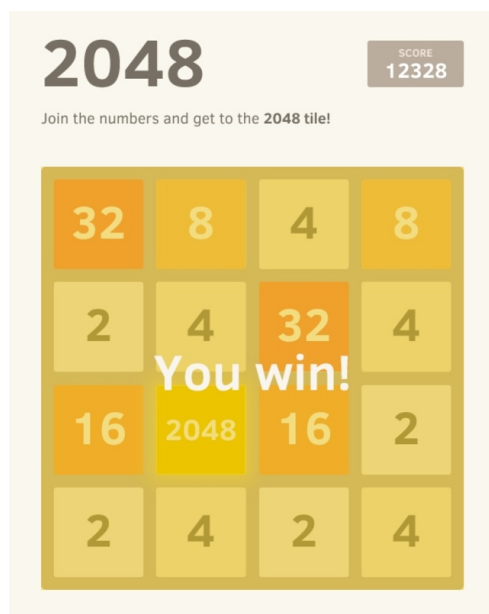


Figure 2.3 Operation interface of 2048

2 Sourced <https://www.youtube.com/watch?v=cZ3ZvHwXddY>

3 2048, <https://play2048.co/>

2.2.2 VR in the treatment of depression

The primary symptoms of depression include low mood, slow thinking, decreased volition and cognitive deficits. Amongst them, the most notable characteristic is a persistent depressive mood which is the primary clinical feature of mood disorders. In recent years, the rapid spread of social anxiety caused by network information overload is an important inducement for an increasing number of young people to suffer from depression. VR is a new therapy of depression where patients can enter the space built by VR technology by wearing special helmets, data gloves and other sensing devices, and using simple input devices such as keyboards and mice to interact with the virtual environment in real time. As they can perceive and operate various objects in the virtual world, the immersive experience is usually the main characteristic of VR technology (Figure 2.4). The simple principle of the therapeutic effect of VR on depression is to construct a virtual space that makes patients feel private and safe, whilst simultaneously having an immersive experience that is the same as the real world. In this virtual environment, the patient can complete the vent of inner emotions by relieving and eliminating the negative mood caused by various reasons.



(Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6836923/>)

Figure 2.4 Mockup of using VR for hands-on cognitive restructuring

In addition, VR technology has also applied different psychological interventions, such as post-traumatic stress disorder (PTSD), fears of flying, public speaking and heights.⁴ The immersive experience brought by the designed VR has a

⁴ Sourced <https://elarasystems.com/vr-helps-depression/>

positive impact on human emotion control.

2.3. Offline Immersive Experience Fieldwork

2.3.1 and People CAFE and DINING

and People is a coffee and dinner shop located in Tokyo, Japan. It has three branches located in Ginza, Jinnan and Udagawa. The primary subject of this fieldwork is the Jinnan branch. In the centre of Shibuya with a dazzling variety of shops, the unique aspect of this shop is that it creates a comfortable and immersive space based on the theme of “non-daily space that exists in daily life”. The owner creates a unique worldview with candles, lights and projection mapping (Figure 2.5), He hopes that customers will feel as if they are in a foreign country and enjoy a comfortable time. Moreover, he aims for visitors to feel as if they were dining, travelling the world and forgetting about real time and space. The four primary elements that each branch includes are “delicious food”, “beautiful space”, “smart staff” and “customers (and people)”. These four elements collaborate and attempt to make customers experience a wonderful atmosphere flowing in the space. “If this place add a little special time to your daily lives, I hope everyone can spend more time with people (and People)”⁵ is the message that the owner wants to deliver to customers.

After the actual experience, it is obvious that the exotic style of the store design and the immersive space primarily created by projection are the most attractive aspects of this restaurant. The dim lighting increases the privacy of the space, people can almost only see their companions at the same table. In such an environment, people can unconsciously reduce their tension in the public space and relax their mind. The beautiful projections that appear on the walls occasionally are fascinating and accompanied by appropriate music. Even in winter, when scenes of fireworks are projected on the wall, it appears to instantly bring people into the romantic situation of the summer Hanabi Taikai (Figure 2.6). Walking out of the busy Shibuya Station and entering such a private and comfortable space indeed resembles arriving at an unknown secret space with the real feeling of being

⁵ Sourced <https://www.andpeople.co.jp/>

separated from daily life.



Figure 2.5 Dining environment, photograph taken by author

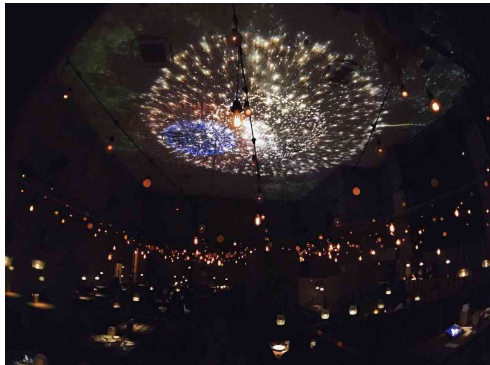


Figure 2.6 Firework projection

2.3.2 Olafur Eliasson

Olafur Eliasson is an Icelandic–Danish artist who is famous for sculptures and large-scale installations that use elements such as light, water and temperature to enhance the audience’s immersive experience. This paper will only discuss two of his solo exhibitions that the author has viewed, which are “IN REAL LIFE” at the Tate Museum in London in 2019 and “Sometimes the river is the bridge” at the Museum of Contemporary Art in Tokyo in 2020. Most of his works are

related to his interest in nature, which he developed during his time in Iceland; his research into geometry; and his continuous inquiries into how we perceive, consider and influence the world around us ⁶.

The two exhibitions included dozens of works he created during these years, amongst which the most impressive is “Din blinde passager” (Figure 2.7). This is an immersive space work. Visitors will be guided into a long and narrow enclosed corridor which is filled with thick fog. When visitors enter this space, their vision will be temporarily blinded, which requires them to rely on other senses to determine the direction. When they walk through the tunnel, they will pass through areas of different colours. It symbolises that people are groping to find the way forward according to the surrounding conditions.



Figure 2.7 “Din Blinde Passager”, photograph taken by author

Another impressive work is “Your happening, has happened, will happen” (Figure 2.8). When the audience stands in the centre of the exhibition hall, the lights with different colours behind them will project the dynamic shadow of the audience on the wall. The interesting aspect is that this projection is divided into several layers, including the action of the audience a few seconds previously, the actions that the audience is doing, and the action that is expected to happen in the following step. Eliasson hopes that audiences can perceive the past, present

⁶ Sourced <https://www.tate.org.uk/whats-on/tate-modern/exhibition/olafur-eliasson/exhibition-guide>

and future through this interesting interactive experience.



Figure 2.8 “Your happening, has happened, will happen”, photograph taken by author

2.4. Conclusion

The first section takes the research of “Facebook depression” as the primary example and specifically introduces the social anxiety caused by the use of SNS referred to in the first chapter. In the background introduction of the first chapter, it was highlighted that the principle of social anxiety originates from the over-satisfaction of self-expression and the desire to peer into others in this information overload era. In this section, this type of over-satisfaction is discussed in more detail. Essentially, the consequence of peeping and expressing desires over-satisfaction is also an important cause of “Facebook depression”, namely, “social comparison”. In particular, amongst children and adolescents, they are more likely to be jealous of the seemingly “rich and colourful” lives of their peers on social networks and compare them with the frustrations in their own lives, leading to self-cognition bias and depression. Although social networks still have an undeniable positive role in mental health, excessive addiction is still likely to lead to negative emotions. In particular, for individuals who already have emotional problems in their actual lives, the use of social networks potentially expands this negative sentiment.

The second section specifically introduces two emerging methods to treat mental health problems with immersive experience in the information age. The first is

game therapy, which is primarily used to intervene in the form of games and guide the behaviour and psychology of patients, especially in the treatment of children's anxiety disorders. The primary principle of this method is to guide children to immerse themselves in games to expose their emotional problems. Moreover, with the popularity of electronic products, this theory is more widely used in the development of puzzle games to help people exercise their brains and resist cognitive aging. The second method is the use of VR technology in the treatment of depression. Through a virtual world which is similar to the real world but with more privacy and security, it guides patients to express their inner depressed emotions to achieve the effect of resisting depression. This technology is also used to treat other mental disorders such as PTSD.

The third section primarily describes the researcher's two field studies of offline immersive experiences. The first "and People Cafe" is an immersive experience for commercial purpose in urban cities. The owner uses lights, candles, projections and other forms to build the restaurant into a more private and exotic space to encourage customers to escape from daily pressures, communicate with people, and have a positive dining experience in such a non-daily space. The second case experienced by the author details the expression of immersive design in art by participating in two solo exhibitions of Olafur Eliasson. Through the design of light and shadow, fog and space, the artist encourages the audience to perceive the message that the artist wants to convey through interactive immersive experiences.

In conclusion, the first section describes the problem that the present study expects to solve, namely, the social anxiety caused by SNS. The second section describes the feasibility of the method designed in this research, namely, the immersive experience in reducing anxiety. The third section describes the author's fieldwork, namely, participating in two specific exhibits to experience and refer to the feelings and technical means brought by the immersive experience in real life. The aforementioned related research demonstrates the feasibility and value of the present study.

Chapter 3

Concept

This research falls under the Moments Project, a sub-project of PLAY: Entertainment Media Design Project at Keio University Graduate School of Media Design. The objective of this research is to reduce the social anxiety caused by excessive use of social networks through immersive experience design. The design will be divided into two steps. The first step is the design of an online immersive emotional communication platform based on the superficial principle of causing social anxiety, namely, the over-satisfaction of the desire for peeping and expression; the second step commences from the deeper cause of social anxiety online, namely, self-cognition bias, to design an offline immersive new media art exhibition with the theme of self-awakening.

3.1. Concept Proposal

The inspiration to focus on this topic originates from one of the researcher's small or even slightly weird hobby. When walking on the road and passing by the windows of other people's homes, the researcher enjoys observing the furnishings in their homes from the windows or how they design their balconies if they have one. The researcher did not want to pry into others' privacy but merely liked to imagine what type of life this family is living through the world observed through their windows. One day, when the researcher experienced this again, she suddenly realised that being curious about other people's lives is itself a desire for peeping. This is a human instinct, and it is not positive or negative. At this time, the window as a symbol of life and people observation became the primary entry point for the researcher's contemplation.

With the deepening of pre-study, in fact, a relatively long time ago such as

during the Renaissance, the window opening as an architectural element in the paintings of artists serves not only as the background or accent of the composition, but also as a metaphor for life, hope, change and advancing into the unknown. In contemporary life, windows still contain the significance of life observation. During the global lockdown caused by Covid-19, people were unable to leave home for a long time. As such, windows became a sustenance for numerous people to express their lives. CNN photographer Ruth Medjber photographed a group of people under lockdown (Figure 3.1), all of which were shot through the window from outside to show people's living conditions in the pandemic. Moreover, a famous mystery thriller film directed by Alfred Hitchcock entitled "Rear Window" is also a good example for demonstrating people's peeping desire through windows. There are even numerous academic studies connecting this movie with the psychoanalysis theory developed by Sigmund Freud. The primary concepts can be depicted as: whilst the personality is not mature, people will still be keen to pry into the privacy of others; as long as there are people whose desires are deeply suppressed, there will be people who are deliberately exposing the privacy of others and venting their own desires through others' privacy and as long as there are still flaws in human nature, the preference for prying into privacy will never end. What is demonstrated in "Rear Window" may be an extreme desire for voyeurism, but the willingness to observe the lives of others does exist instinctively in our daily behaviour.

On the contrary, an inadvertent conversation with a friend provided inspiration in another direction. A friend once complained that she is in a long-distance relationship and most of the communication with her boyfriend relies on social networks. Therefore, she knows that her boyfriend will be attentive to her status updates on SNS and although she is a more casual person in life, in order to show a positive side to the people she likes on social networks, she often fakes herself on the internet and feels tired and anxious as a result. From this conversation, the researcher once again immediately realised that the mobile and computer screens encountered every day are just like small windows. Even when Microsoft released the operating system that has been widely used since 1985, it was entitled "Windows", which implies it was meant to be a window connecting the whole world. However, with the global popularisation of the internet, the world



(Source: <https://edition.cnn.com/2020/05/05/europe/gallery/dublin-home-portraits-coronavirus/index.html>)

Figure 3.1 A window into lockdown life

has already been connected. When picking up one's mobile phone and clicking on social media, it is worth considering whether we are peeping at the lives of others from outside a window. Similarly, self-expression on the internet can be likened to self-presentation in order to accept the peeping of people outside the window. The displays of expressive and peeping desires often complement each other simultaneously and have become the primary theme of contemporary social networks.

Therefore, in the early stage, a topic based on human observation, using windows as the design carrier, with the desires for expression and peeping as the primary research direction was preliminarily set as the subject of the present study. In the past two years, the detailed direction has been discussed and revised several times. Initially, the researcher wanted to directly design an offline interactive exhibition to encourage people to self-express and peep directly for observation and research. However, the user test of the first prototype proved the difficulty of offline experiments, therefore, this aspect was converted to the design of an online platform and the details will be provided in the following section. Subsequently, with the determination of the research purpose of reducing the social anxiety caused by social networks and the introduction of the concept of immersive experience, the design was clearly divided into two parts. The first

part is the online platform “Check in Secret Apartment” and the second part is the immersive new media art exhibition “I am...”.

3.2. Design Process

This research uses a variety of tools in the process of design to establish problem-solving methodology for the prototype and offline exhibition design. The design process is comprised of five primary steps and iterated several times to reach the final design.

- 1) Empathise: According to the observation of the researcher’s own habit and the behaviour of those around, it was discovered that the social anxiety caused by SNS is waiting to be solved. The fieldwork through offline immersive experience inspired the researcher to use modern technology to solve the anxious issues brought by the information age through designed interactive experiences.
- 2) Define: Through literature reviews and pre-study, the essence, causes, and results of social anxiety were clearly clarified. The assistance and influence of an immersive experience on emotions finally led to determined two types of immersive designs to achieve the research goals.
- 3) Ideation: Ideation includes how to convert inspiration into design concepts, idea sketches, interactive process design and the actual implementation of the design.
- 4) Prototyping: Each concept has been evaluated by user tests for prototypes, including a physical prototype (prototype 1), and a conceptual UI/UX design prototype (prototype 2) revised after user tests of prototype 1 for an online platform and an art exhibition to test the offline design.
- 5) Testing: To verify the feasibility and effectiveness of each prototype design, field observations, questionnaires, interviews and other methods are used to collect data from users for analysis and improvement.

3.3. Ideation

Multiple studies have demonstrated that the treatment and relief of anxiety disorders are often difficult to achieve through general nursing and drug therapy. The mainstream methods to alleviate anxiety include psychological counselling and support through language communication and cognitive psychological intervention for patients [16]. Game therapy also indicates that patients with anxiety and depression often have a tendency to suppress and pretend themselves, directly expressing and exposing anxiety as a way to relieve mental tension. Therefore, the design of this research will commence from the two directions, namely, behavioural exposure and cognitive intervention for the purpose of expressing anxiety. Thus, the experience design is also divided into two aspects, online and offline, to provide psychological guidance to users to alleviate their anxiety.

3.3.1 Background investigation

Although a significant number of academic studies have proved the relationship between the use of social networks and anxiety, the researcher still conducted a questionnaire on the current condition of social anxiety caused by the use of social networks on April 11, 2021. The questionnaire was distributed online, timed for two days, and a total of 202 valid answers were collected. The ages are primarily distributed amongst young and middle-aged people. There were 126 people aged 19 to 30, accounting for 62.38 percent and 65 people aged 31 to 50, accounting for 32.18 percent. The distribution of men and women was relatively balanced, with 105 male participants, accounting for 51.98 percent and 97 female participants, accounting for 48.02 percent.

The scope of the questions first involves the type, frequency and duration of social network use. According to the results, up to 98.02 percent of people use social media at least once in two or three days, and the proportion of people who use SNS each time between 30 minutes and four hours is also high, up to 87.12 percent. It is obvious that people are heavily dependent on social networks. In the second section, a set of yes/no questions repeatedly verified the participant's desire for peeping and expression on SNS, such as "Compared to real life, I am more interested in the lives or privacy of others on SNS?" or "Compared to real life, will

you express opinions or have conversations with others more openly and frankly on SNS?”. In this section, the results reflect that the vast majority of people reacted to the information on social networks as it is more attractive to them for peeping and self-expression than in real life. In the third section, a set of degree questions are used to allow participants to choose whether the several different situations that they may encounter in the process of using social networks will cause them a certain degree of anxiety, such as “On social networks, when you see others’ post have a lot of likes and comments, do you feel inferiority or jealousy?”. In this section, most of the participants for almost every question selected “often” and “occasionally”, which also demonstrates that the distribution of anxiety in social networks is indeed the normalcy to a certain extent.

It is worth acknowledging that in the final section of the questionnaire, the participants were asked, “If there is a platform specifically designed to reduce people’s anxiety caused by SNS use, would you be willing to try it?”. 158 people selected “yes”. This accounts for 78.22 percent, which confirms the value of this research. Moreover, when asked whether they hope it is an online or offline platform, 95 people chose “online”, accounting for 47.03 percent; people who chose “offline” were 89, accounting for 44.06 percent and 18 people chose “doesn’t matter”, accounting for 8.91 percent which explains the feasibility of the present study for both online and offline experience design. The final section (Figure 3.2) also asked about the functions that the platform is expected to have, and the results also provided a certain reference for the subsequent design.

3.3.2 Target users

In general, the preliminary research objects of the present study are aimed at urban people who are familiar with modern technology and social networks. According to the results of background investigation, children and young people are more likely to indulge in social networks and simultaneously, they are less discerning and more prone to suffer from stress, which also makes them more susceptible to information on SNS. It can also be concluded from literature reviews that people who have a certain degree of anxiety or depression are also susceptible to social comparisons or negative information conveyed by social networks. Therefore, this research will primarily focus on these two groups, namely, the younger generation

Table 26 “what functions do you expect the platform has to help you reduce your anxiety?” Frequency Statistics Table

what functions do you expect the platform has to help you reduce your anxiety?	Number of People	Percentage/%
Express emotions anonymously	92	45.54%
View content posted by others anonymously	125	61.88%
Match content that has similar emotions, and you can communicate with the publisher	93	46.04%
Push some positive content to encourage users (such as famous sayings, funny videos, etc.)	129	63.86%
Some interactive games for self-awakening	88	43.56%
Other	0	0.00%

Figure 3.2 Frequency statistics table of expected function feedback

(18 to 30 years old) and depression groups who are troubled by the social anxiety brought by SNS and want to actively seek help.

3.4. “Check in Secret Apartment”

“Check in Secret Apartment” is the first aspect of the design in this research, namely, building an online emotion communication platform to help users directly expose and face their desire for expression and peeping. Moreover, it will not cause the psychological burden and anxiety of engaging in such behaviour on public SNS under normal circumstances. However, it is worth noting that this concept has undergone major changes in the course of the experiment. Initially, this idea aimed to create an offline immersive interactive experience by introducing the concept of equivalent secret exchange under anonymous conditions, encouraging participants to use their own secrets or privacy to exchange with other people’s secrets in order to have rational reasons for peeping and self-expressing actions. Moreover, people are more inclined to express their genuine selves under anonymity, and it is easier

to express their negative emotions in situations where they believe nobody will know who they are and achieve the effect of emotional release. In contrast, as a peeper, people will find that once personal identities are removed on the internet, the life shown by others may not be as positive as they believed, thereby reducing the anxiety and jealousy caused by social comparison and some may even resonate and sympathise with others who are suffering from more severe conditions. The design process of this aspect has undergone an idea sketch, the first version of the prototype and a user test. However, after the user test, this design proved to be invaluable, however, it was not suitable for offline activities, therefore, it has gone through the process of changing from an offline to an online platform whilst retaining the original interactive mechanism design. This aspect will be explained in detail in section 3.4.3.

3.4.1 Idea sketch

In the initial appearance design, the original intention of the researcher to make window installations was retained due to the inspiration from the windows. In an urban area bristled with skyscrapers, dense windows orderly arranged appear as small grids from a distance, and people's joys and sorrows are all stored in these grids (Figure 3.3).



Figure 3.3 "Window box" in an exhibition, photograph taken by author

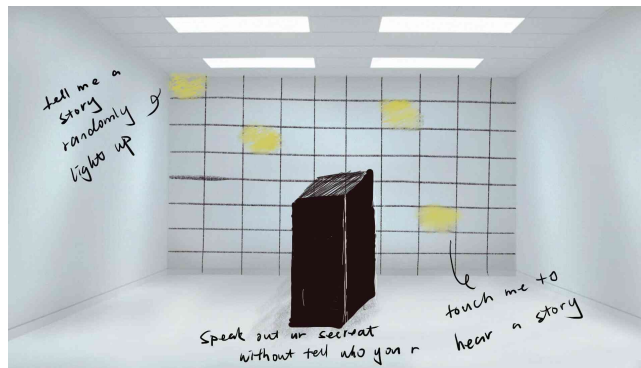


Figure 3.4 "Check in Secret Apartment" the first version of sketch

It was designed as an indoor interactive installation, including the following two primary aspects, 1) the window grids on the wall. It simulates the view of arranged windows from a distance of high-rise buildings, and each grid represents a room. 2) Sound recording and playback equipment placed in the middle of the exhibition hall. This installation simulates the process of moving house or checking into a hotel in people's daily life, and aims to guide the audience to interact with the installation with an immersive interactive design. The interaction rules are:

1. When the individual walks into the exhibition hall, they will be asked to tell a secret or anything about themselves to the central recording equipment. This is the "apartment" occupancy rule or "rent fee". When the individual completes this behaviour, any window grid on the wall will randomly light up for them which indicates that the audience has successfully checked into the apartment. This step is designed to encourage individuals to express themselves to the installation in the absence of people.
2. The sound recorder will store what the individual informed their corresponding "room". This function not only reflects the image of people and their life memories being kept in each small window, but also demonstrates that in the information era, every word and action of people may be converted into data and saved somewhere.
3. After the audience has completed the check-in, they can have the right to "drop in" to other rooms. By touching any lit-up "room", the voice content

stored in that window grid will automatically play, and the audience can listen to secrets or stories from others. This step demonstrates the peeping behaviour, and since the audience has already “paid for” this behaviour, they will no longer feel the guilt of peeping.

The entire interactive process is completely anonymous, and the voice stored in the window grid will be processed uniformly to conceal the identities of owners. In the design of the entire mechanism, peeping and expressive desire are the motivating factors. When told that they can listen to other people’s secrets at will, curiosity about the unknown privacy of others will prompt people to pay for this behaviour, namely, to exchange with their own private matters. Realising that spoken statements may be heard by other people, this awareness will in turn stimulate people’s desire to express in an attempt to find empathy. The interesting immersive check-in setting, and the uncertainty of the information that may be obtained also adds a touch of mystery to the interaction. It aims to encourage individuals to naturally demonstrate their peeping and self-presentation desires in a relaxed way.

3.4.2 The first prototype

The first prototype is a mini exhibition hall. According to the sketch design, it attempts to reveal a miniature version of the image of the interactive installation when it is placed in the venue. Meanwhile, this prototype also includes the hardware aspect built by Arduino, to achieve the hypothetical functions stated in in 3.4.1 as much as possible.

The semi-closed box represents the exhibition room, black rectangles behind represent window grids on the wall and touch screen is used here. In the middle of the “room” is a hand-made heart covered by a cocoon which represents people who are suppressed by their inner desires. When a person approaches it, the built-in distance sensor will activate and a small bulb will start to flicker light at the rate of a heartbeat (Figure 3.6). There is also a voice recorder inside the “heart” and when the heart starts beating, users can tell their secrets, then their voices will be recorded and kept in the “window” behind. When the user touches the screen, the sound content just recorded will be automatically played.

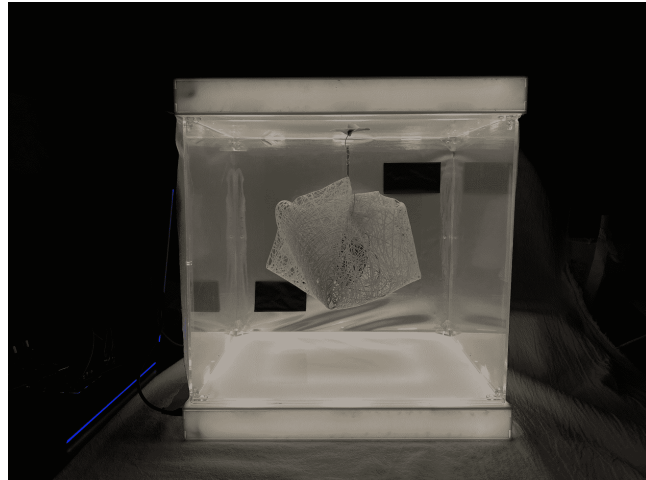


Figure 3.5 Appearance of the first prototype

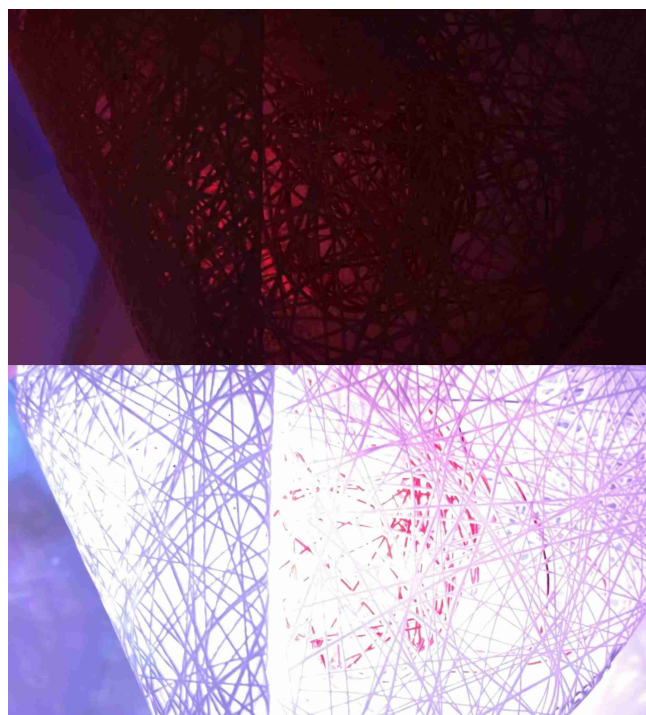


Figure 3.6 The effect of flashing lights accompanied with the sound of heartbeat

In addition to the appearance design which realises the function, the hardware equipment (Figure 3.7) is primarily divided into two parts. The first part is the human body sensing device, including an LED light and a distance sensor. When the sensor detects that a person is close to the entire device, the LED light will start to flash at the frequency of a heartbeat, which is also a signal to remind participants that the device starts operating. The second part is the primary function console of the prototype, which includes a touch screen, a sound recorder and an audio player. When the participant speaks to the voice recorder, their voice note will be stored; then after touching the screen, the screen will light up and the speaker connected to the screen will play the stored voice immediately. In the actual experiment, the human body sensing device, the sound recorder and playback device were placed in the centre of the “heart”, the participants could not see these devices, whilst the touch screen was installed in the external “window grid” place.

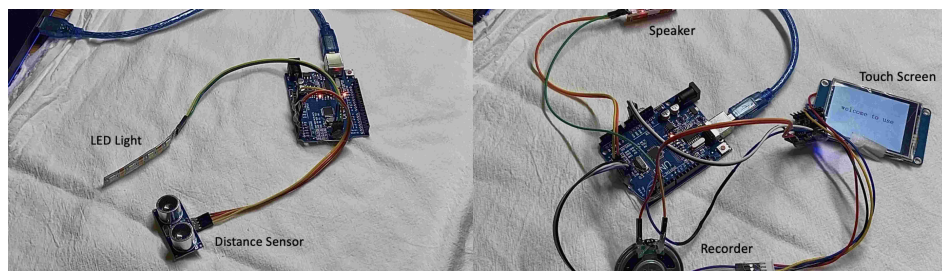


Figure 3.7 Hardware equipment

3.4.3 User test of the first prototype

The user test was held on April 26, 2021 to test the functionality and conceptual feasibility of the prototype. A total of three participants were invited for this experiment, all of whom were within the age range of the target user group and were heavily dependent on mobile phones and SNS. One of them was even a well-known KOL on Weibo, a major social media in China. The basic functions of the prototype in the whole experiment ran successfully. The experiment was predominantly conducted according to the following steps:

- 1) The researcher recorded own voice in advance as the starting point.
- 2) Participants were informed of secret exchange rules.
- 3) Participants got close to the “Covered Heart”; the “heart” starts beating; the voice recorder starts running.
- 4) Participants speak aloud one of their secrets.
- 5) Participants touch the illuminated screen to listen to the secrets stored by others.

This experiment is primarily a behaviour observation experiment accompanied by a small interview. As an observer, there are two primary investigative aspects. One is observing people’s reactions when they were told that they need to breach their privacy. The other is observing people’s reactions when they were told that they can peep into others’ private matters by exchanging theirs. The basic information of the participants is presented in Table 3.1.

Table 3.1 Basic Information of Participants

Name	Gender	Age	Occupation
Guo	Female	26	FMCG Industry Leading Company Employee
Wang	Male	24	Master Student
Yoko	Female	23	Commercial Photographer/KOL with 730k Followers

From the experimental results, when Guo was told the rules, she was hesitant to tell her own secret (she spent three minutes considering whether to speak out or not). Then she decided she can speak but she asked to record her own secret in a space alone. After finishing the recording, she chose to touch the screen to listen to the secrets of others and reacted expecting.

Thereafter, Wang behaved rather interested when he heard about the function of this prototype initially, but after spending the longest time considering whether to reveal his privacy, he finally refused. The interesting aspect was that he was still extremely curious about other people’s content recorded in the prototype and even attempted to “intercede”, (beg) to let him hear without pay.

The final participant, Yoko, who also had interesting reactions, almost did not hesitate to tell her own content at the beginning but she also wanted to record hers in another space alone. The reason given was that as a KOL, it is common for her to be peeped by others in her daily life. She is used to it and therefore, she did not hesitate to express herself or even her privacy. In fact, she does not like this type of peeping and because she experiences peeping nearly every day, she is not particularly interested in other people’s personal issues and does not treat them with empathy. However, she still chose to touch the screen to listen to other people’s content in this experiment because she believed that she should be rewarded for what she has paid due to the interactive mechanism, even if the content of the reward was not appealing to her.

The observed results and the contents of interviews with each participant after the experiment can be summarised as containing several positive aspects and limitations. The positive aspects include the fact that all participants admit the concept is valuable, interesting and worth considering deeply. People do over-express themselves on SNS and have growing curiosity and social comparisons, however, these behaviours are often hidden and tacit. Most people know it, but few people will admit that they are overexpressing themselves or curious about others. This design directly encourages people to face peeping and self-expression, which is undoubtedly interesting and exciting. The premise of being able to spy on the privacy of others is indeed attractive. The idea of introducing the immersive simulation game setting of check in apartment is also welcomed.

However, in terms of limitations, both Guo and Wang stated that the reason why they were hesitant to tell their own secret was that the motivation to do self-analysis in an offline public space was not relatively strong. Public spaces give people a sense of insecurity. Even if they are told in advance that the entire event is anonymous and their voice will be processed, participants will still be worried that their voices and scenes they were speaking will be heard or observed by others. More specifically, people might be more terrified by the possibility of being peeped in real life. Although in this experiment, all the participants admitted that this insecurity of being peeped is primarily because they know the existence of the observer (the researcher), but if the design will eventually be set in an offline exhibition event later, then the aforementioned problem is worth

worrying about. As this sense of insecurity is likely to exceed their curiosity about the privacy of others, the possibility that participants choose to refuse to interact with the installation from the beginning (such as Wang) is high. Moreover, it is shameful to speak about private matters in person, especially in public places. Even if they are willing to participate in the interaction, there is a high possibility that people will eventually choose to pretend themselves. Guo also stated that if she can type rather than speak aloud, she may feel more confident.

As a result, after discussing with the participants and self-thinking, the concept and interactive form of the design deserve affirmation may not be suitable for offline exhibition. Although the interactive mechanism may produce an unexpected harvest, it still has high requirements for venue, technology, site control, information processing and security, and even the cooperation of participants. However, if this design is converted into an online platform retaining the original concept and interaction mechanism, more users may be willing to accept it. As people are accustomed to peeping and expressing on the internet, they will not feel overly insecure. Moreover, they are not consciously calculating their own balance of income and expenditure in the amount of information in reality. Therefore, in a subsequent stage of the research, this aspect of the concept was modified and redesigned with the network platform as the carrier.

3.4.4 Revised design

The revised design still retains the objective that users will naturally expose their desire for expression and peeping through information exchange on a low-pressure or stress-free platform, and the design of the interactive mechanism still retains the immersive “check-in an apartment” -style game therapy. Through the establishment of an online platform, it is also more conducive to implement one important step of game therapy which is collecting patient data in sufficient quantities to continuously correct the guidance plan. The application version is depicted in Figure 3.8 and Figure 3.9.

The functions of each page:

1. Start interface, choose to register, or log in to an existing account.
2. Choose the “check-in room type”, namely, choose which emotion to express.

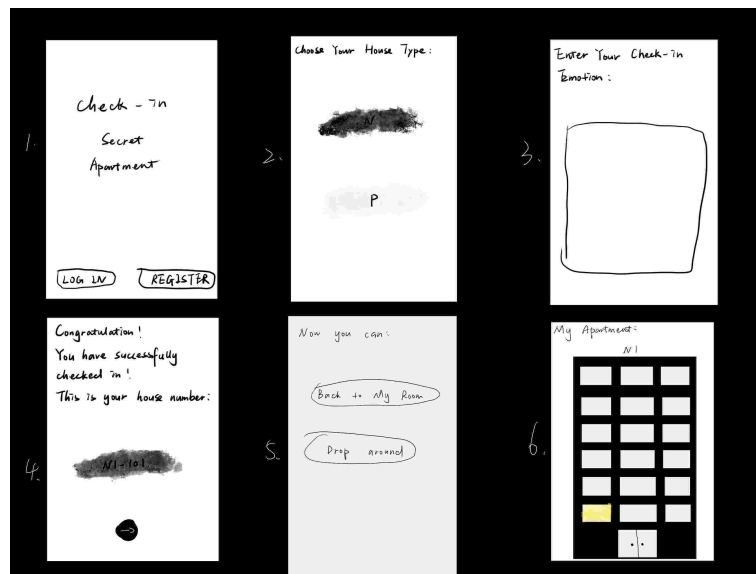


Figure 3.8 Interface sketch part 1

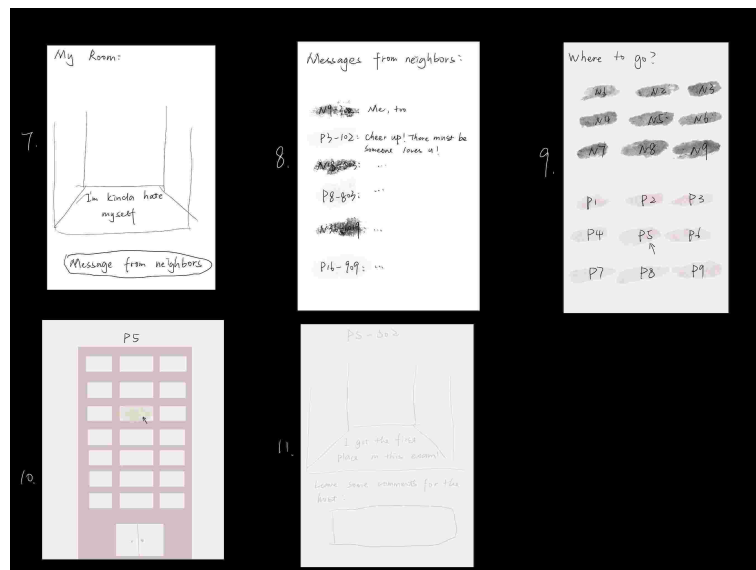


Figure 3.9 Interface sketch part 2

Positive (P) and Negative (N) are divided into various buildings (differentiated by the exterior colour of the building or interior lighting).

3. Enter check-in speech, namely, the topic or emotions you want to reveal.
4. Check-in success page, according to the "room" type selected, the individual will be randomly assigned to a certain "apartment" of that room type and a personal house number is assigned.
5. After completing the check-in, the participant can choose to go "back to my room" or "drop around".
6. If the participant chooses to go home, they can observe their apartment building with a window already lighted up. Moreover, they can click on the window to go home, or if other windows in the same building are lighted, the "drop around" function still can be used.
7. After clicking on the individual's window to go home, it can be observed that their "speech" has moved in. It is also possible to check the comments left by other users after they came to "drop around" below.
8. Display page with comments from neighbours.
9. If one selects "Drop around" on the previous selection page (page 5), the building number will appear for participants to choose either to go to the "positive apartment" or the "negative apartment".
10. When choosing to go to Building P5 on page 9 with the appearance of the P type apartment (assuming the participant chooses the N room type), if there are bright windows, the participant can check the secret or mood left by the owner.
11. On the "Room" page of other users, there is an input box at the bottom to leave a message for the host.

There are no add friends/search/follow others functions, it is completely anonymous.

3.5. “I am...” Immersive Exhibition

The second part of the design and the first step is sequential steps. In the research process, academic data proved that most of the social anxiety caused by SNS is due to social comparisons brought by excessive peeping and self-expression. This is the superficial reason and the focus point of the first aspect of the design. However, self-cognition bias conveyed by this type of social comparison is the profound reason for anxiety. In particular for the younger generations, they are at an important stage in the establishment of world view and self-awareness, and in the immature stage before this establishment is completed, the excessive information conveyed by the internet can easily mislead them. A typical scenario is that even if everyone knows that most people tend to show a more positive or even exaggerated outlook of their lives on the internet, when browsing this information, people still easily assume that “maybe others have a better life than me”. In this comparison, anxiety and self-depreciation arise. In contrast, when some people discover that they will be praised and loved by exaggerating or even fabricating a raw image on the internet, they will easily fall into vanity and will increasingly pursue the coincide between themselves and the virtual image. Thus, leading to anxiety or even loss because of the image and popularity gap between the virtual world and real life. Both scenarios are typical self-cognition biases caused by excessive peeping and self-presentation on SNS. The design of this aspect commences from helping users understand the concept of self-cognition and aims to help participants distinguish their image in the virtual and real world, and conduct correct self-cognition to reduce unnecessary anxiety.

3.5.1 Idea sketch

The design of this section drew on the feedback and considerations from offline activities from the first part experiment. This included the reduced requirements for audience participation, technical support, information security risks and re-designing the offline immersive exhibition whilst retaining a certain amount of interactivity. The form of expression of this exhibition is through new media art installation, with the purpose of helping participants develop a correct self-awareness and abandon unnecessary anxiety. Compared with direct peeping and

expressive behaviour, this theme in offline activities is more veiled and acceptable and it also aims to make the audience deeply consider their actions during participation. In order to facilitate the composition, the design of this sketch (Figure 3.10) refers to the house structure of a friend’s cafe with his permission.

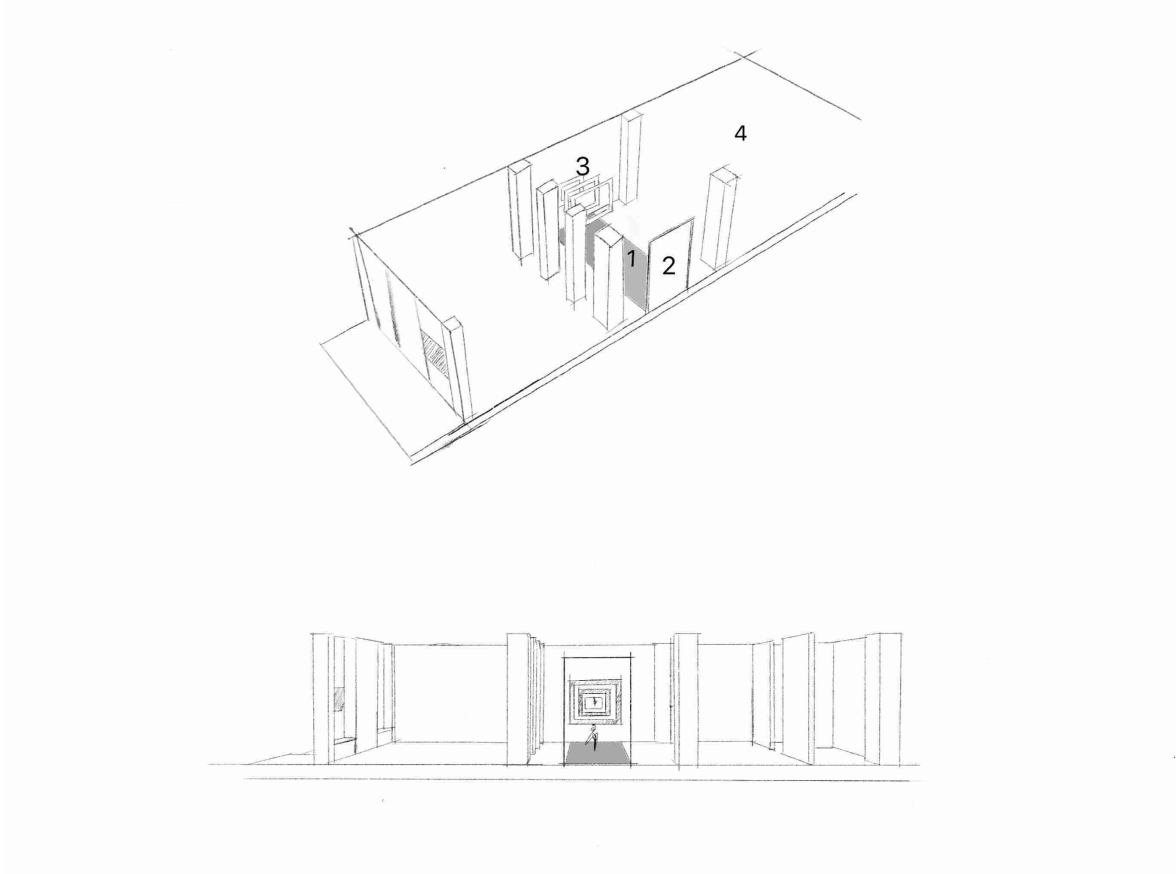


Figure 3.10 Exhibition design sketch

The exhibition is primarily comprised of four parts. The first part “Cognition River” is a projection area with an online survey (before the exhibition) containing three simple closed questions on self-cognition which was distributed using Instagram: I __ myself / I want to be __ / __ makes me happy. In this part, the subjects will be informed and agree that their answers (Figure 3.11) may be used in one section of the exhibition. The contents of these answers will be projected on the floor of the exhibition hall like a flowing river.

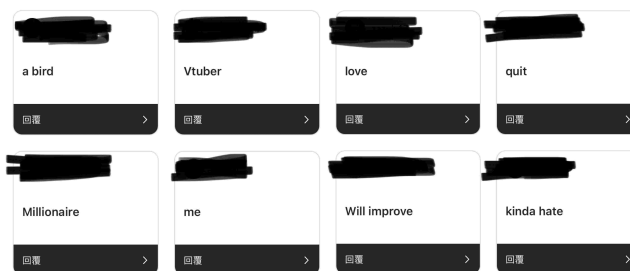


Figure 3.11 Part of collected answers

In the second part entitled “Display Mirror”, a camera connected with an image capture card will be placed on the opposite side. When the audience looks in the “mirror”, what they observe in the mirror will be the view of their back filled with projected text. This scene represents the image of people in the virtual world.

Part 3 is comprised of multiple window frames and the concept of window installation is corresponded here. The size of the window frame gradually decreases from the outside to the inside and there will be a small mirror installed in the innermost window frame to present the scene of “when you peep inside from the window, you see the real yourself”. This part and part 2 “Display Mirror” are at opposite ends. This design indicates that when the audience stands in the middle, the two scenes on the left and right represent the two characters in the virtual and reality, respectively.

Finally, Part 4 is a hidden section. The ambient light of the venue will be set to be almost dark and a flashlight will be placed in the centre of the projection area. After the audience finishes observation of the “virtual and real-world selves”, they will be asked to choose either side, with only one opportunity. There are two sentences on the floor in both directions according to their choice. The audience needs to pick up the flashlight and find this sentence by themselves according to the direction they choose. This process of seeking has the metaphor of self-seeking, as well as increasing immersion. If the audience chooses the virtual self, which indicates that they are not ready to face their true self or still prefer to fake themselves, the information they will receive is “you are one of a kind”. If the audience chooses the real self, which indicates that they hope they can be who they really are, the information they will receive is “you can be who you want to

be”. This is an appropriate interactive encouragement mechanism to ensure that the audience can harvest surprises during the participation process because they will not know what they would observe before they discover the sentence in order to achieve the effect of reducing their anxiety whilst consciously considering their self-cognition. The message intends to convey that despite which side is selected, it is right and you can always be yourself.

3.5.2 Scenario design

After the exhibition setting was completed, a short concept film about the topic of this research was shot in conjunction with the installation. Four models (Table 3.2) of different styles were invited for this filming to demonstrate the extremely diverse faces of different people in social networks and real life, as well as the story of self-seeking by the characters played by the models. A brief script and storyboard (Figure 3.12) were produced before filming.

Table 3.2 Models’ identity setting in the online world and the real world

Model	Gender	Online Identity	Real Identity
A	Female	Fashion model	Tired and poverty-stricken
B	Female	Cute-style YouTuber	Mean, sensitive and vain
C	Male	Punk rocker	Compliant salaryman
D	Male	Victim of cyberbullying	Perpetrator of school violence

Scene 1: Self-image

- **Scenery shot:**

White screen, typing text: Is this the real me? (2s)

Empty mirror, sliding mobile phone screen, browsing SNS interface, clicking “Like” and typing comments. (3s)

- **Model A:**

Virtual character: Dressed up sexy and luxurious, posing confidently. (6s)

Reality: Wearing a cheap T-shirt, removing makeup, and acting extremely tired. (6s)

- **Model B:**

Virtual character: Stating "Thank you for your love" with a cute and professional smile, recommending products to fans on live broadcast (6s)

Reality: Extremely autistic, nestled in the corner, watching the number of fans on homepage decrease, worrying about whether people do not like her (6s)

- **Model C:**

Virtual character: A glamorous singer on the stage holds the microphone in a cool posture, shaking hair and singing (6s)

Reality: Ordinary salaryman with glasses, holding a file and being scolded by his boss (6s)

- **Model D:**

Virtual character: An innocent and aggrieved student, sobbing and crying, he appears to have just been attacked by a cyberbullying, wailing and complaining to everyone (6s)

Reality: Arguing fiercely with others, the perpetrator of school violence (6s)

Scene 2: Self-seeking

- **Scenery shot:**

White screen, typing text: What are we expecting? (2s)

Empty mirror: double window frames, camera pulls away (3s)

Mirror for "true self" from inside to outside (3s)

- **Model A:**

First layer of window frame

Facial close-up: messy makeup, roaring (2s)

Lip close-up: lip language says "Who am I?" (3s)

Facial close-up: squatting down with hands holding head. (4s)

Second layer of window frame

The upper body is twisting and attempting to avoid the window frame (6s)

Cut the lens to the "Display Mirror" of the virtual world, the whole body is wrapped and invisible, still posing as a fashion model continuously (4s)

- **Model B:**

First layer of window frame

Eye close-up: Dodgy eyes (3s)

Facial close-up: Staring quietly at the camera (6s)

Facial close-up: Blindfolding with hands and opening fingers in a little horror to look out to the outside world alarmed(4s)

Second layer of window frame

The upper body looks around, tentatively attempting to get out of the window frame (4s)

Cut the lens to the "Display Mirror" of the virtual world, face invisibly wrapped, still holding the product to introduce it on the live broadcast. (4s)

- **Model C:**

First layer of window frame

Body close-up: Wearing a suit and glasses (3s)

Facial close-up: Taking off the glasses, rubbing the glabella, combing the hair up with hands, and looks a little irritable (8s)

Second layer of window frame

Angrily throwing the glasses out of the window frame, and then attempting to step out of the shackles of the mirror surface (5s)

Cut the lens to the "Display Mirror" of the virtual world, face invisibly wrapped, sitting and typing on the computer keyboard and doing rock music (4s)

- **Model D:**

First layer of window frame

Gazing intently and quietly, full of with anger (6s)

Second layer of window frame

Hands tightly squeezed the window frame, crying, groping, wanting to go through the frame (5s)

Cut the lens to the "Display Mirror" of the virtual world, the person with invisible face is twisting and howling (4s)

Scene 3: We are spying on others, as well as spying on ourselves

- **Scenery shot:**

Empty mirror, third party perspective (2s)

- **Any model here:**

A person walks into the picture, pulls out a binocular and peeps the world (9s)

Looking into the mirror of "true self" (2s)

Cut the lens to the "Display Mirror" of the virtual world, the image of people standing in the projection keeps shrinking, and the body of the person tightens with the squeeze. (3s)

The person walks to the mirror of the real world, observing himself in the mirror (10s), the camera cuts back to the virtual world and ends the projection display

The person stands between virtual and reality (2s)

Looking one side, then looking at the other side (4s)

- **Scenery shot:**

Empty Mirror, virtual and real world (5s)

The lights flicker and the final picture goes completely black (2s)



Figure 3.12 Part of storyboards

3.5.3 Collaboration

As this exhibition is an offline activity, there are certain requirements for the venue. After the author communicated with different parties, it was finally decided to cooperate with Kinmirai Gallery in Chengdu, Sichuan province, China. The Kinmirai Gallery is located in the downtown area of Chengdu, close to Chunxi Road, the largest fashionable commercial district in Chengdu and therefore, meets the basic flow requirements of this research for the young urban population as the research target. The gallery has held numerous solo exhibitions of well-known domestic artists in China. Due to the suitability of the research idea and interest in research topics, Kinmirai Gallery provided three days of venue support for this research from June 18 to June 20, 2021 for the smooth running of the exhibition.



Figure 3.13 Chinese & English versions of exhibition poster

3.5.4 Exhibition preparation

The preparation for this exhibition is primarily divided into the production, equipment and the venue construction aspects. The production part primarily concerns the content of the projection area and the production of the window installation.

The projected content is a circulating text video (Figure 3.14) composed of answers to questions collected by Instagram, and this part is produced by VEGAS Pro 15.0. The window frames are comprised of wooden frames of different sizes and the LED soft tubes are attached to the surface to ensure that when they are hung in the exhibition hall, they can achieve the effect of highlighting the window frames in a dark exhibition hall. With regards to the equipment for the projection areas of the “Cognition River” and “Display Mirror”, Panasonic PT-SMZ series 3LCD digital laser engineering projectors (Figure 3.15) were rented to achieve better visual effects, and the real-time images were collected by Sony Z150 camera. The overall arrangement of the exhibition (Figure 3.16) was completed in two days by the researcher with the help of friends.

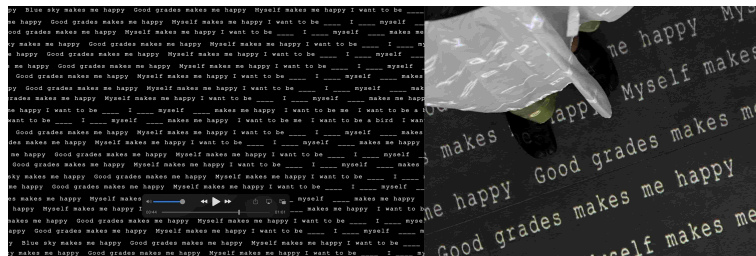


Figure 3.14 Screenshot of text video and projection effect

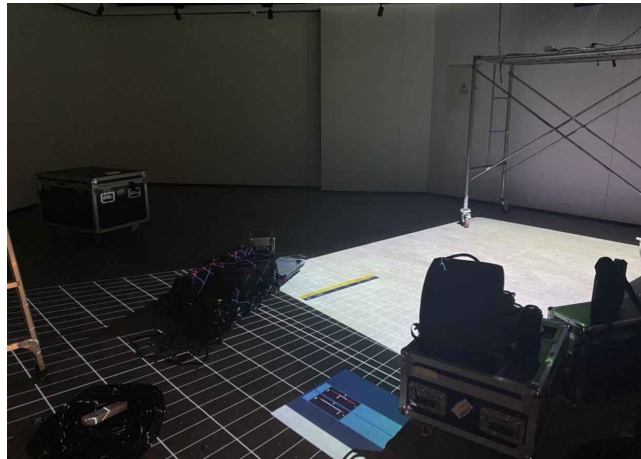


Figure 3.15 Projector test



Figure 3.16 Exhibition in setting

Chapter 4

Proof of Concept

With regards to the evaluation of concept, this chapter describes the data collected and analyses the design of the “Check in Secret Apartment” application and “I am...” offline exhibition. The first section will primarily concern the UI design of the application pages and a follow-up user test with previous experimental participants who can compare the difference before and after design changes more clearly. A system usability scale (SUS) evaluation was also conducted to examine the usability of the application. The following section will provide a description of the actual situation of the offline art exhibition and an analysis of the interview content with the audience.

4.1. Evaluation for Revised Design

This section describes the conceptual interface design of the “Check in Secret Apartment” online application, the collection of return visit data, and the SUS evaluation.

4.1.1 UI design

The UI design (Figure 4.1) of this platform was primarily made with Adobe XD and Photoshop, which basically restores the page design sketch and function settings referred to in Section 3.4.4. The primary colours of the design are white, black and vermilion. With regards to the mood building, black represents N(Negative) and red represents P (Positive), which aims to provides users with a clear experience with a simple and fresh interface.

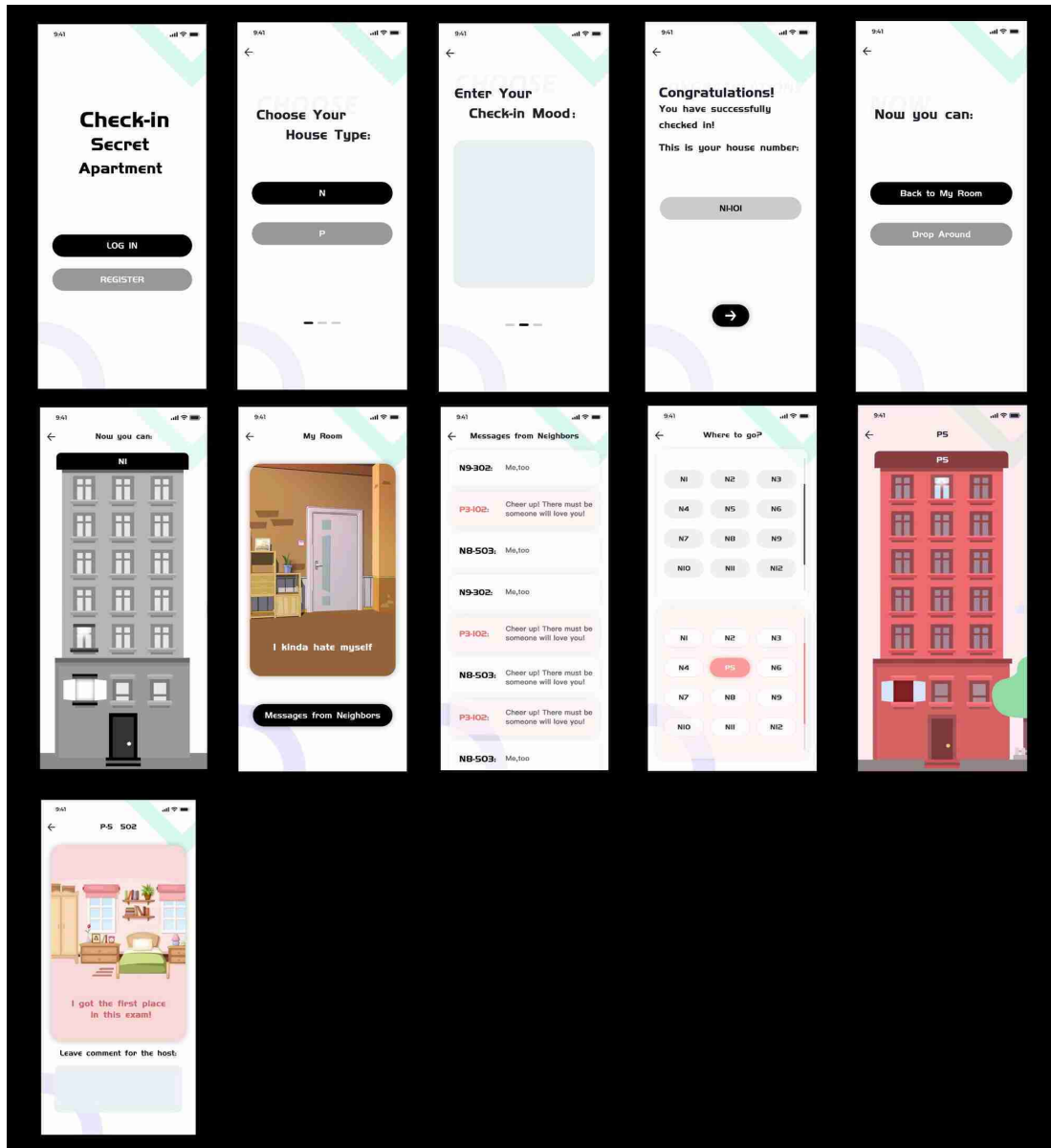


Figure 4.1 UI design

4.1.2 Follow-up interview

The three experimental participants (Figure 4.2) in the first user test (refer to Section 3.4.3) were still invited to experience and evaluate the online version platform. In this interview held on May 15, 2021, the following four questions were mainly asked: 1) Do you think that the change from offline to online has alleviated your dissatisfaction in the previous experiment? 2) Do you think this UI interface design clearly expresses all the functions and interactive design of the concept? 3) Compared with the last offline experiment, which design (online or offline) do you think is more satisfactory to you? why? 4) If the app is released, would you be willing to download and use it? The collected results are as follows.

Question 1: All three participants responded that the online design greatly reduced the shame of speaking about private issues in public and the uncomfortable feeling of being peeped by others and the researcher in the previous experiment. Both Guo and Yoko stated that it is reassuring that they can present content by texting and Wang, who eventually decided to resign from participation in the last experiment, also stated that he would not hesitate to participate in interaction on such a network platform.

Question 2: All three participants believed that the step-by-step design of the interface clearly reflected the interactive design of this concept. Although Yoko proposed that it cannot be excluded (as participants in the previous experiment, they have a clearer understanding of the interactive process), therefore, it is necessary to have more participants to verify this.

Question 3: Guo and Wang both believed that an online design is more convenient to use and the interface design is simple and clear. Although there are already some emotional recording platforms on the market, the design of “check in” method is more interesting than similar platforms. The setting of exchanging peeping rights by self-expression is also extremely novel, allowing users to be more conscious about network expressions and peeping behaviours. Yoko indicated that in fact, offline settings are not completely infeasible. When budget, human resources and technology allow, it will still be interesting to apply this design concept to facilities such as luggage deposit boxes on the street. However, online applications do have more features, such as being easy to use, wide-spread and a more prevalent social influence.

Question 4: All three participants expressed that they would be willing to download it if such an app is launched and they believe that if there is more function development around the theme of “apartment life”, this app will become a new fashion trend.

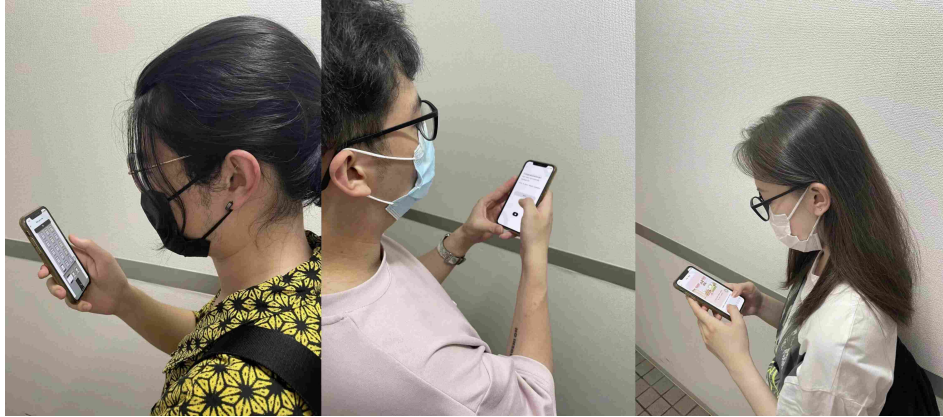


Figure 4.2 The second time user test

4.1.3 SUS Evaluation

Following the return visit of the three participants to the first user test, five more participants who did not know the design in advance were invited to do a simple SUS test after they were introduced the concept and function of the designed application on May 16, 2021. The SUS (System Usability Scale)(Figure 4.3) is a reliable technique for assessing usability. It is a 10-item survey with five response options for responders to evaluate a wide range of products and services, including hardware, software, mobile devices, websites and more, with options ranging from “strongly agree” to “strongly disagree”.

SUS scales generally convert the results into a centesimal system during evaluation. The first step in calculating the score is to determine the conversion score of each question, ranging from 0 to 4. For positive questions (odd-numbered questions), the conversion score is the scale’s original score minus 1 ($X-1$), and for negative questions (even-numbered questions), the conversion score is 5 minus the original score ($5-X$). The conversion scores of all items are added and multiplied

	Strongly disagree				Strongly agree
1. I think that I would like to use this system frequently					
	1	2	3	4	5
2. I found the system unnecessarily complex					
	1	2	3	4	5
3. I thought the system was easy to use					
	1	2	3	4	5
4. I think that I would need the support of a technical person to be able to use this system					
	1	2	3	4	5
5. I found the various functions in this system were well integrated					
	1	2	3	4	5
6. I thought there was too much inconsistency in this system					
	1	2	3	4	5
7. I would imagine that most people would learn to use this system very quickly					
	1	2	3	4	5
8. I found the system very cumbersome to use					
	1	2	3	4	5
9. I felt very confident using the system					
	1	2	3	4	5
10. I needed to learn a lot of things before I could get going with this system					
	1	2	3	4	5

(Source:

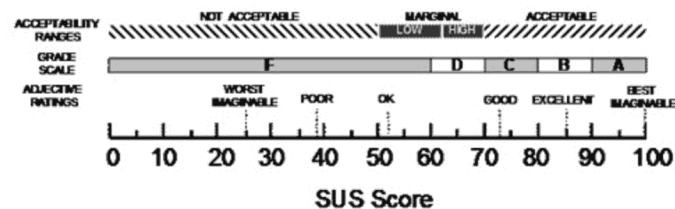
<https://uxpajournal.org/determining-what-individual-sus-scores-mean-adding-an-adjective-rating-scale/>)

Figure 4.3 System usability scale

by 2.5 to obtain the total score of the SUS scale. Therefore, the SUS score ranges from 0 to 100, in increments of 2.5.

Table 4.1 SUS Score

	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
Q1	4	5	2	3	4
Q2	1	1	2	1	1
Q3	5	5	4	5	5
Q4	1	1	1	1	1
Q5	5	5	4	5	4
Q6	1	1	1	1	1
Q7	5	4	5	3	5
Q8	1	1	2	2	1
Q9	5	5	3	4	5
Q10	1	1	1	1	1
Score	97.5	97.5	77.5	85	95
Average	90.5				



(Source:

<https://uxpajournal.org/determining-what-individual-sus-scores-mean-adding-an-adjective-rating-scale/>)

Figure 4.4 Standard for SUS evaluation

Generally, the SUS result is divided into five grades (Figure 4.4). The average score of 90.5 obtained in this survey can be rated as A grade, which proves that the platform design is theoretically feasible to a certain extent. However, since this is only a user test for conceptual design and only on a small scale, the data sample is relatively scarce, and a large amount of user survey data is still needed in the actual application development.

4.1.4 Discussion

In the final data collection, both qualitative and quantitative methods are adopted in the present study. From the follow-up interview, the decision to change the design from offline to online is effective for this research. In addition to more convenient interaction, the results also reflect that an online platform is easier for participants to directly expose peeping and expressive behaviours. Moreover, the “Check in” design with the game therapy method gives people a strong sense of immersion and enthusiasm for participation. The concept of exchanging one’s self-expression for the right to peep at others is relatively fresh, and it can consciously guide users to realise what the essential behaviour is when people are addicted to social networks. Judging from the SUS results; usability, ease of operation and expected value all have positive responses. Although more user data needs to be collected and studied if actual development is to be conducted, the data in this experiment at least proves the value and feasibility of the research concept.

In the three user surveys conducted for the whole first part design, most participants recognised that they tended to over-reliant on social networks and have increased anxiety due to social comparison. Simultaneously, they admitted that they definitely know that people may not be as good as they appear in the on-line world but in the process of browsing social media, they will still be unconsciously affected by the content posted by others and have a certain degree of self-deprecating tendencies. In an environment where most people are self-disguised, an anonymous, “clearly priced” secret exchange platform can enable people to face themselves more openly and genuinely, to vent their emotions and even to communicate with some empathetic people only from the emotional perspective whilst abandoning their identity in the form of anonymity. Therefore, to achieve the effect of reducing social anxiety.

4.2. Evaluation for Exhibition

This section describes the actual implementation and display of “I am...” offline exhibition. The analysis method is primarily qualitative and based on directly observing audiences and in-depth interviews with the five subjects who completed the SUS evaluation for the Step 1 application because they have a complete ex-

perience of the two steps of the whole design.

4.2.1 Exhibition display

The entire exhibition has carried out a rough restoration of the design sketch (refer to Section 3.5.1). One of the obvious changes was that the mirror that was originally intended to be placed in the innermost window frame of the multi-layer window frames that represents the real character of people, due to venue limitation and a projector imaging problem, finally hung on the side (Figure 4.5), forming a three-sided pattern with the “Display Mirror” representing the virtual and the multi-layer window frames representing peeping. Moreover, this change also placed this mirror in front of the direction that the audience needs to go to find the “messages” left by the researcher, ensuring that the audience can observe themselves in the mirror again before making a choice to go to the path of self-seeking. As a result, this change did not impact the effect and even fitted the concept better.



Figure 4.5 Mirror after adjusting the position

The other parts of the exhibition were basically set up as planned. It is worth acknowledging that the final setting of “Display Mirror” effect was realised by

using a camera connected to the capture card and was placed on the opposite side, then projecting the captured back image of people on the wall in real time, in order to achieve the following effect: “when you look in the mirror, what you can see is your own back”. Moreover, through the adjustment of the imaging angle of the dual lens of the projector and the camera, the image on the wall was finally presented with multiple images like a time tunnel (Figure 4.6). This effect explained the “virtual world personality” represented by this aspect better, and it was also the most popular part of this exhibition.

4.2.2 Interview

This interview was held during the three days of the exhibition, from June 18 to 20, 2021 and the five participants who completed the SUS evaluation were invited. The interview questions were primarily divided into six aspects. The basic information of the interviewees is summarised in Table 4.2 and the other questions are all essay questions.

Question 1: Name, age and occupation.

Table 4.2 Basic Information of Interviewees

Interviewee	Age	Occupation
1	26	Marketing assistant
2	29	Senior Planner
3	26	Financial practitioner
4	25	Civil servant
5	24	Master student

Question 2: Do you think your social anxiety (such as peer pressure, appearance anxiety, age anxiety, etc.) is serious? Why? Do you think SNS has aggravated this anxiety?

Interviewee 1: My social anxiety is quite serious. Because as I get older, I, my relatives, friends, and society all have more expectations of me. When I grow slower than the outside expectations, I feel that I am not doing well enough. I think SNS aggravate this kind of anxiety, because people are accustomed to show-



Figure 4.6 Overlapping image effect of "Display Mirror"



Figure 4.7 Back view with projected text in "Display Mirror"

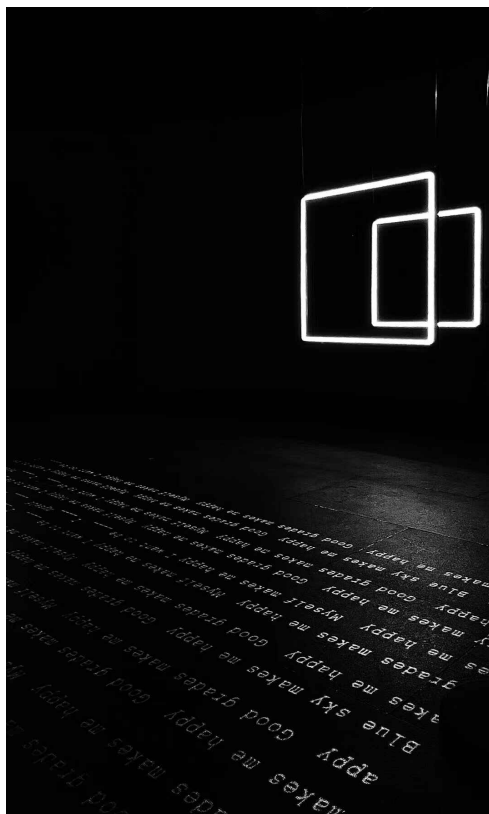


Figure 4.8 Multi-layer window frame and "Cognition River"

ing good aspects on social media, and SNS cannot display the different aspects of each person in a very three-dimensional way, which indirectly leads to heavier anxiety.

Interviewee 2: Not serious. The education of my family taught me to be an optimistic person without too much pressure on myself, so my life is relatively free and relaxed. SNS is an emotional vent for me, I express myself on it, but the frequency of use is not too high, and I never fake myself on it, so it is relatively a decompression tool for me.

Interviewee 3: Not very serious recently, because I'm busy at work and don't have time to socialise and browse SNS, and I often tell myself not to care about what others are doing. Because I did feel a little bit of social anxiety before, such as I felt that I was incapable compared to others, and I didn't look as good as others, and I would deliberately not look at things posted by others on the Internet to avoid discomfort, so I feel that SNS will increase anxiety for me.

Interviewee 4: I occasionally get anxious, but it is not serious and will not affect personal work and emotional life. My anxiety comes more from career planning and development, it may also be related to peer pressure. In contrast, my appearance anxiety and age anxiety are minimal, it may have a certain relationship with my personal personality; I think social networks have aggravated a certain degree of social anxiety, but with the gradual numbness and fading of social networks, I personally rarely affected by SNS while I can still feel that for friends around me, social anxiety is gradually fermenting with the use of SNS.

Interviewee 5: Will feel relatively strong peer pressure and a little age anxiety. Peer pressure mainly comes from that I'm currently in job seeking process, and many friends around me have already started working, this kind of time misalignment with friends who were originally on the same timeline, even knowing that personal choices are different, will make me unconsciously afraid of being left behind others. Age anxiety is also derived from this, and when working with younger generations in internships, I feel age anxiety more clearly, which is a kind of anxiety about "why I have not yet entered/started the next step". SNS have aggravated this anxiety, because the range of comparability has been expanded from the people around me all to all those who can be seen/searched on the internet.

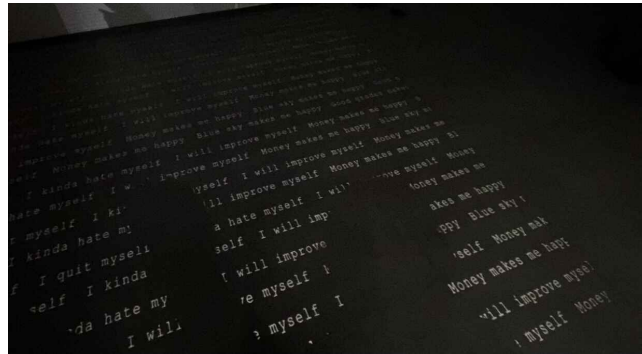


Figure 4.9 Interviewee is interacting with “Cognition River”

Question 3: Do you fully understand the theme of this exhibition (an immersive self-seeking experience aimed at reducing social anxiety caused by social media)? Do you think the installation design of this exhibition reflects the theme well?

Interviewee 1: Yes, I think after listening to the theme of the exhibition, the design of the installation clearly reflects and fits the theme very well.

Interviewee 2: After knowing that the theme of this exhibition is self-seeking, from my point of view, whether it is visually or in a sense, when observing the virtual world, it is thoughtful to observe your own “back view”. People generally are more evaluating and observing other people or things on SNS, and rarely pay attention to themselves, not to say that they do not pay attention to self-image and expression, even if everyone tries their best to performance on social media, but rarely will consciously think “What kind of person am I going to be? What kind of image should I be in social media? What kind of status am I in the social circle? Which social activities should I choose? I need to maintain real self or to pretend a social image that others may expect?”, this also causes many people to blindly imitate others. So, I think the design of this exhibition reflects the theme very well, but I think the theme of this time varies from person to person, and it may increase or decrease social anxiety.

Interviewee 3: I think the connection between the interactive design of installation and themes is quite strong.

Interviewee 4: Yes, because of the in-depth communication with the artist and

the experience of participating the exhibition, I can fully understand the theme of this exhibition. I think first of all, there is a strong connection between the various installation designs of this exhibition, through a sense of high-level fluidity and the personalised presentation of new media, the entire exhibition has made people feel a comprehensive audiovisual impact. In the “Cognition River” part, the artist use three seemingly simple but actually not simple questions to put questions to contemporary internet users, and these answers magically possess a certain degree of representativeness and symbolism, and are intriguing. At the same time, the design of the installation in the exhibition is highly interactive in a small space. Different groups of people have their own unique symbols at the end through fixed functions. Participants will unconsciously produce wonderful reflections when facing themselves in front of the installation, which also coincides with the theme of self-seeking.

Interviewee 5: Yes, I think the presentation of this exhibition is very clear and attractive.

Question 4: Do you think that by participating in this exhibition, you can achieve self-reflection and reduce anxiety in the process? What is your favourite part of the exhibition?

Interviewee 1: Yes. I like “Display Mirror” the most. The double contrast between the front and the back, the virtual and the reality, not only reflects the theme well, but also makes people reflect on the one-sidedness and false character images displayed in social media, the real life still needs to be self-reliant. Moreover, interacting with “Display Mirror” is very interesting and it relieved my anxiety to a certain extent.

Interviewee 2: What I like most is the part where I picked up the flashlight to find myself at the end. I think the design of this searching behaviour is great and it is very immersive. I am actually not a person with strong social anxiety. In the previous segments, I mainly did some rational thinking, but after looking for and seeing the words left by the artist, I couldn’t help but smile and feel warm, it is good.

Interviewee 3: Yes, especially the difference between the virtual and real images created by the exhibition reminds me of the days when I deliberately avoided

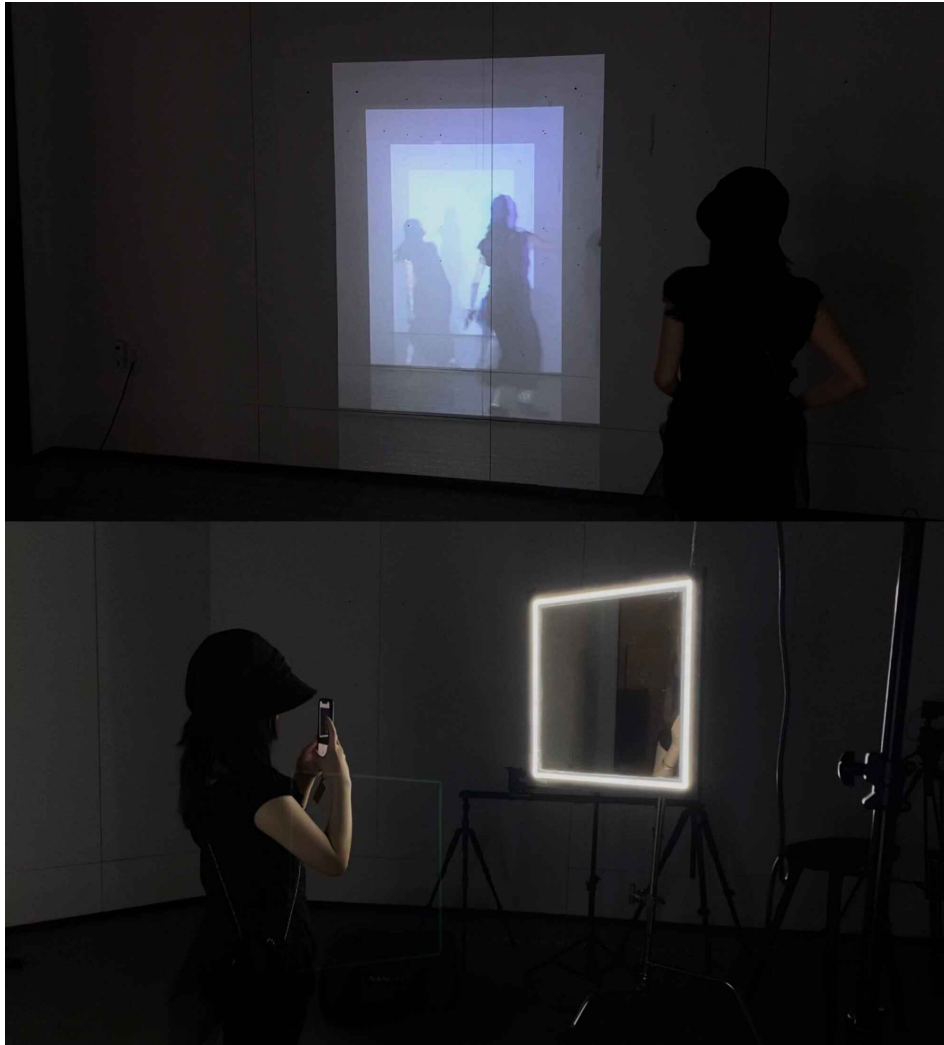


Figure 4.10 Interviewee is interacting with “virtual” and “real” mirrors

browsing SNS and even real social activities. Actually, I recalled the feeling of anxiety when I stand in front of the “Display Mirror”, but when I found the message “you are one of a kind” left by artist at the end, my eyes were moistened, and I felt relieved. I seem to have reviewed my own mental journey against social anxiety in this whole experience, which moved me very much, so I like the last part the most.

Interviewee 4: My feelings may be different from others, but I think this also reflects an interesting phenomenon - the diversity under social media. From my point of view, standing in front of the installation, I even produced a perverted feeling, which is sneer of those who are suffering from social anxiety. This may be a result that the artist had never thought of. The layout and furnishings of the entire exhibition made me very curious about the reactions and consequences of those socially anxious audiences. Perhaps the process they went through would be shocking or healing. This unknowable mood reminds me of the “peeping desire” mentioned in the last “check in” experiment. However, my own desire for peeping is different from the artist’s interpretation. It also reflects that when complex human nature is mixed on social media, social anxiety may be an inevitable process, and the artist is the one pioneer who attempts to influence the result. I like the “Display Mirror” and the video installation in the exhibition blends with the text flowing under the feet. When the participants look up to see who they are, and when they look down to see the answer from unknown participants to “what makes you happy”, it is unavoidable to have a sense of shock that you are facing yourself and cannot escape.

Interviewee 5: Yes. I like the back view and projected flowing text the most, so I can’t help but reflect on whether my own and everyone’s speeches on social networks are really worthy to be anxious. In addition, these two parts are also very nice place to take photos.

Question 5: Please make a general evaluation of this exhibition. Would you like to participate in similar immersive interactive exhibitions in the future?

Interviewee 1: I like this exhibition very much. The theme not only triggers my reflection and relieves my anxiety, but the exhibition design is interesting and interactive, and also a good place to take photos. I hope I could visit similar exhibitions in the future.

Interviewee 2: This exhibition has a very good theme, which makes me think about some points that are easy to overlook in daily life and achieve a better observation from the perspective of different things. I am willing to participate in this type of interactive exhibition next time.

Interviewee 3: I like it very much. I feel that the participation in the whole experience is very touching, and it will make people think.

Interviewee 4: This exhibition can feel the clear theme. In fact, even if the artist did not carry out an in-depth interpretation for me, she quirkily used a blank trap to attract participants to step into the clouds, and then magically perceived her creative intentions, and finally, made people smile and sigh involuntarily. From the moment the participants entered this space, they have already established contact with it in their own way. The artist's unique exploration of the process through the charm of new media art creates a strong sensory effect in a structured and hierarchical space. I am willing to participate in this kind of immersive exhibition again in the future.

Interviewee 5: The immersive arrangement allows audiences to temporarily isolate the outside world and focus on the exhibition itself. In the process, people will gradually calm down and focus more on what they think at this moment. I would like to experience this kind of exhibition again.

Question 6: Do you have any suggestions for this exhibition?

Interviewee 1: I think the ambient light can be dimmed a little bit, to highlight a stronger sense of privacy, and it can also make people more calm and thinking.

Interviewee 2: Overall it is great, but if there must be a need to improve, I think this exhibition mainly made a real-time record and interactive feedback visually. If the technology and venue allowe in the future, it can start adding more sensory experiences.

Interviewee 3: None.

Interviewee 4: There are certain limitations on the scope of the space, which may also limit the artist's more expression space to a certain extent. I look forward to seeing a wider range of exhibition in the future.

Interviewee 5: Some simple text signs could be added to guide the audiences.



Figure 4.11 “Display Mirror” plays in different pattern

4.2.3 Discussion

In this interview, almost all interviewees gave specific and thought-provoking answers. The communication process was extremely pleasant, and it also brought a significant number of contributions and reflections to this research.

In Question 2, the social anxiety conditions of interviewees varied from person to person. For example, Interviewee 2 demonstrated less social anxiety due to the influence of family and personality, or some interviewees consciously reduced the use of social media and participation in social activities to avoid stress. However, almost all the interviewees stated that the use of SNS is common in terms of increasing social anxiety brought by social comparison.

Furthermore, with regards to the questions pertaining to exhibition itself, in Question 3, all the interviewees believed that the installation and interactive design of this exhibition had a clearer reflection of the theme, and some interviewees gave more specific explanations. They believed that a positive aspect of this exhibition was that most people were extremely familiar with social anxiety, but few would consciously reflect on what role they played in it. When audiences observed that the design proceeds from the beginning to the end, there was an unexpected effect of being enlightened, which makes people involuntarily reflect on self. This is precisely the purpose of this exhibition, which can prove the most basic validity of this experiment.

Moreover, in Question 4, the interviewees were asked more specifically about the decompression effect achieved by participating in this exhibition and their favourite aspects. In this question, all interviewees gave a more specific answer. "Display Mirror" was extremely popular both amongst the interviewees and all the participants of the exhibition. The primary reason is that the design of multiple images and real-time projection appeared extremely fancy, with a number of participants taking photographs and videos interacting with the installation themselves or with friends during the exhibition. In addition, with the "Cognition River" composed of the self-awakening questions and answers flowing under the feet, when people observed their own images in the virtual mirror, it formed a strong contrast. Interviewee 4 even conducted an in-depth and distinctive analysis of this aspect and this type of in-depth contemplation from different angles is exactly what this exhibition expected. In addition, at the end, the interactive

design of picking up a flashlight to find information has also been referred to numerous times. According to the reactions of other participants, excluding the interviewees, this design has given most of the participants a surprise and touched them to a certain extent. This is also the most immersive part of self-seeking and anxiety reduction, and it has been proven to be effective.

The fifth question asked the interviewees' overall evaluation of the exhibition. Most interviewees recognised that the exhibition had a thought-provoking theme, and the interactive design was interesting or touching. In the final part of the suggestions, the primary focus was on the adjustment and improvement of the venue and lighting limitations, and the expectation for the same type of exhibition in the future. In general, this offline exhibition was successfully held, the final exhibition designed and built fits the theme of this research, and it has been proven to be effective in guiding the audience to accurately process self-cognition and reduce social anxiety caused by the use of SNS. Moreover, it triggered a series of thought-provoking discussions and perspectives with participants, which is the unexpected bonus of this experiment.

Chapter 5

Conclusion

5.1. Conclusion

This research was conducted with the purpose of designing an immersive experience platform for urban people to reduce the social anxiety caused by using SNS and with the deepening of the research, the primary concept was extended into two forms of ideas. The first is based on the superficial cause of social anxiety, namely, over-satisfied desire for self-expression and peeping as the theme. Through the design principle of game therapy in an immersive experience, a conceptual online emotion exchange and communication platform “Check in Secret Apartment” was designed. After three user tests and surveys, this platform theoretically demonstrated a positive influence on reducing social anxiety, and game therapy also conveyed the advantages of interaction and interest compared to the same type of platforms on the market. The second aspect of the concept was themed on a deeper cause of social anxiety, namely, self-cognition bias due to social comparison. Thus, the researcher designed an offline interactive art exhibition in the form of new media installations. This is an extended design formulated by the first idea. The exhibition totalled three days, attracting hundreds of people to participate in the exhibition interaction, and was affirmed in terms of enjoyment and ornamental value. In-depth interviews with five participants demonstrated their diverse thinking in the experience, and further proved the rationality of the exhibition setting and the striking relevance to the theme of this research. Most of the participants started to reflect on themselves from the interaction with the installation and indicated that they were moved by the interactive design at the end, which has a significant effect on reducing social anxiety.

5.2. Limitations

This research underwent a major change in the early stage. The original intention initially was to create an offline immersive exhibition within the design of “Check in Secret Apartment”. However, after this idea went through a certain user test, the small-scale offline practice did not achieve the ideal effect, and this concept was finally changed to the design of an online platform. Nevertheless, the user test response does not prove that the idea is completely unfeasible as an offline physical product or exhibition, it has high requirements on the degree of cooperation of participants, technology and human resources, which is difficult to achieve in a limited time. Ultimately, whether it was an online platform with a revised form of expression for the original design, or an offline immersive exhibition with a revised theme that was more acceptable to the public, effective results were obtained and proved the feasibility of the concept that an immersive exhibition design can help people to reduce social anxiety caused by SNS.

5.3. Future Work

For the current “Check in Secret Apartment” application, since it is currently only a conceptual and UI design, although the feasibility and value have been verified to a certain extent, it still requires certain technical support and a large number of user surveys to ensure the rationality of the design and user experience. Moreover, due to the success of the “I am...” art exhibition, the ideal plan is to combine online and offline designs better in the future. Firstly, exposing the superficial causes of social anxiety, which is peeping and self-presentation, and then doing self-cognitive reflection would be a more reasonable and effective process to reduce social anxiety. Moreover, after completing the entire survey, the researcher also had new inspiration to solve the problem of insufficient motivation for peeping and expressing behaviour by addressing what appeared in the first user test. In addition to the large-scale placement of the “window grid” like luggage lockers in an urban city referred to by one of the subjects, the claw machine could be used as an offline installation for secret exchange. For example, users can write down their own secrets as “insert coins”, operating the claw machine to capture the privacy

notes of others, and the “insert coins” will be recycled as the objects captured by others. The handwriting method solves the shame of speaking out private matters in public and the unsigned, randomly picked notes also ensure the prerequisite of anonymity. As a popular entertainment facility, the claw machine has a strong motivating effect and enjoyment. Setting up a secret exchange installation in this form and placing it in the offline exhibition as the start point of the interactive experience is a beneficial experimental direction. The exhibition can also provide a more sensory experience design to ensure that the audience can derive a more immersive experience.

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