獨白
Monologue

an investigation of how visualization
could be used to help us
record and reflect emotion

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"They are normal not in what may be called the absolute sense of the word; they are normal only in relation to a profoundly abnormal society. Their perfect adjustment to that abnormal society is a measure of their mental sickness."

—— Huxley, 1931

Contents

Acknowledgements

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Finally, I am extremely grateful to my parents for their love, encouragement, caring and sacrifices, and for always standing behind me throughout my life, and providing the best they have.

Abstract

China's unique social development of rapid urbanization, high population density, and the emergence of new culture have put heightened demands on my generation (Millennials) and increased the need to care for our mental health. As my generation became satisfied with their material life, our demand for spiritual healing surfaced and increased. But traditional cultural ideology, stigma surrounding mental health issues, and the lack of psychological education and consult resources make Chinese people less likely to seek psychiatric healthcare. Social Anxiety Disorder is one of the neglected but ubiquitous emotional disturbances among the young generation in China. This study addresses the cultural and social context of Social Anxiety as well as the needs of individuals who suffer from Social Anxiety for a healthy way of emotion expression. This thesis studies an interdisciplinary approach of design through borrowing concepts from professional psychotherapies such as Cognitive Behavioral Therapy, Mindfulness Meditation, and Art Therapy to explore the possibility of self-emotion management for socially anxious individuals, and design a language which records and translates emotion data visually and can be used systematically. Using research methods such as Heuristic Inquiry, Cultural Probes, and Information Design, I have developed an interactive emotion tracking tool, which provides users the opportunity to record and reflect their emotional experiences in order to gain self-awareness, and achieve emotional healing and regulation.

Keywords: Design for Well-being; Mental Health; Social Anxiety Disorder; Emotional Self-Awareness; Cognitive Behavioral Theory; Information Design; Emotion Visualization

Glossary

[Social Anxiety Disorder]
Social Anxiety Disorder (SAD), also known as social phobia, is an anxiety disorder characterized by sentiments of fear and anxiety in social situations, causing considerable distress and impaired ability to function in at least some aspects of daily life ("Social Anxiety Disorder", 2020).

[Social Situation]
A social situation includes any situation in which you and at least 1 other person are present. Social situations tend to fall into 2 main categories: performance situations and interpersonal interactions ("Social Anxiety Disorder", 2020).

[Cognitive Behavioral Therapy]
Cognitive Behavioral Therapy (CBT) is a psycho-social intervention that aims to improve mental health. CBT focuses on challenging and changing unhelpful cognitive distortions (e.g. thoughts, beliefs, and attitudes) and behaviors, improving emotional regulation, and the development of personal coping strategies that target solving current problems.

[Art Therapy]
Art Therapy is a mental health profession that combines the process of creative art expression with models of counselling and psychotherapy to enhance emotional, physical, and mental health.

[Mindfulness Meditation]
Mindfulness meditation is a mental training practice that teaches you to slow down racing thoughts, let go of negativity, and calm both your mind and body.

[Emotional Self-Awareness]
Self-awareness refers to the individual's self-experience, self-cognition and self-regulation of the content, process and result of his/her own psychological, thinking and behavioral activities. Emotional Self-Awareness is the ability to know and understand your own emotions and their effects on your performance. You know what you are feeling and why—and how it helps or hurts what you are trying to do. It is the ability to recognize and make sense of the emotions.

[Emotion Management]
Emotion management is the ability to realize, readily accept, as well as successfully control feelings in oneself (and sometimes others).

[Emotion Visualization]
Along with the principle of information and data visualization, in my study, emotion visualization refers to the attempt to use visual representations to express our emotionality. Structured for the collection of emotion data and experience, and gives shape and context to emotional experience in a visual communication context.

Context & Framing

Prologue: Personal Experience

When I left China, I flew far away to start my study in the United States at the age of 17. I was in a very anxious mood for a period of time, because of the completely unfamiliar environment, the lack of fluency in the English language, the nostalgia for family and hometown, the western culture that was hard to fit in, and the pressure of academic and interpersonal communication. After the novelty of going abroad wore off, I began to feel anxious about everything, and I chose to escape at this time. I was reluctant to talk with others, and prayed that my negative feelings would disappear automatically by sleeping it off. But overthinking, sleeplessness, fear of judgement, and repeated negative emotions kept surrounding me. I wanted to ignore those negative feelings, and wanted them to perish into non-existence. Yet, they did not; instead, they remained predominant until I realized every feeling deserves to be heard, not extinguished. Events can't crush you, but emotions can. And when we try to avoid negative emotions, our ability to experience positive emotions is correspondingly reduced (Schiraldi, 2009). We care deeply about ourselves and how we feel. It is why there are more and more attempts to have a wider conversation about emotion. Perhaps the best part of being human is the opportunity to experience a wide range of emotions, and feeling all feelings.

Background of Social Anxiety Disorder

Social Anxiety Disorder (SAD) known as one of the most common anxiety disorders. People with Social Anxiety Disorder tend to feel quite nervous or emotionally uncomfortable, fear, apprehensive, or worry about social situations, interactions with others, and being evaluated or scrutinized by other people ("Social Anxiety Disorder", 2020). Statistics

from the *Anxiety and Depression Association of America* show that 6.8% of the population between 18 and 54 years of age is affected, less than 5% of people with Social Anxiety Disorder seek help within a year of their initial onset, and more than a third experience symptoms lasting 10 years or more before seeking help ("Social Anxiety Disorder", n.d.).

Various treatment options can help people manage their symptoms, gain confidence, and overcome their anxiety. The two most common types of treatment for Social Anxiety disorder are psychotherapy (also called psychological counseling) or medications or both. Cognitive Behavior Therapy (CBT), which is known as the main treatment of Social Anxiety, is a structured, short-range, cognitive-oriented psychotherapy developed by American psychiatrist Aaron T. Beck. CT in 1960. It focuses on changing the way of thinking and cognition. It tests our perception of what's wrong with our minds to redirect them in a way that will reduce anxiety and other emotions that negatively impact our lives. CBT is based on the belief that the purpose of treatment is not only to address the external behavioral and emotional manifestations, but also to examine the patient's thinking activities and strategies to cope with reality, and to recognize and correct the wrong cognition (Henderson & Zimbardo, 2014).

Social Anxiety Disorder in Chinese Social Cultural Context

In order to fully understand the social and cultural aspect of this mental illness, it is essential to have adequate knowledge about the society, culture, and people I am concerned with. To do this, I conducted expert interviews and secondary research about what roles social environment, cultural beliefs, and communal attitudes play in mental health, and refer to the current situation of Social Anxiety Disorder in China.

Social Environment

Social environment is one aspect which plays an important role on mental health in Chinese context. Due to rapid urbanization and

development of science and technology and economy, the social pressure on young people is increasing. "Real-time coverage of depressing news about explosions, wars, murders, accidents, natural disasters can raise our level of personal anxiety" (Sweet & Mihotich, 2017). In this digital age, a busy and stressful lifestyle is taking a toll on our bodies and minds, especially as media such as television, computer and phone continue to fill our lives. Social stress comes from the daily rush of news, gossip, social media, party invitations, and even weather reports that start as soon as you open your phone. Moreover, in a country that is urbanising at a rate of about 15 million people a year, people often feel isolated in bustling cities ("别怕陌生人", 2011). Privacy and personal space are often unfamiliar luxuries to people who live in crowded Chinese cities. According to the survey from *Chinese National Governance*, those born in the 90s are more likely than those born in the 80s to be affected by interpersonal distress and are more likely to show disappointment and pessimism about life (2018). More and more young people are trying to find spiritual healing and inner peace in this noisy and crowded world.

Cultural Beliefs

Social Anxiety is largely observed and investigated in western populations; in other cultures, Social Anxiety is much less understood. Different from western culture, Chinese traditional culture emphasizes the interdependence and harmony with others (Fan, & Chang, 2015). "The Chinese are emotionally more reserved, introverted, fond of tranquility, overly considerate, socially overly cautious, and habituated to self restraint" (Tseng, & Wu, 1985, p.2). We are a culture of emotionally reserved manners and self-discipline. We are even taught that holding back our own emotions is a sign of good manners. Those cultural factors also make Chinese groups less likely to seek psychiatric healthcare (McLeod, 2020). Moreover, under globalization, and influenced by western culture, there is the emergence of a new culture in mainland China that emphasizes individuality and self-expression, which has an impact on our traditional beliefs. Our society and environment have started to need and praise the character of enthusiasm and openness, which is opposite to the traditional reserve

and introversion. Moreover, our society has begun to increasingly emphasize the importance of socializing with people and maintaining interpersonal relationships. Chinese young people are facing an unprecedented cultural conflict, resulting in anxiety in need of today's social age, which heightens the incidence of Social Anxiety.

Communal Attitudes

The concern and realization of emotion disturbances in China is undoubtedly later than the west. Because China lacks psychological counseling resources and acknowledgement of mental health issues, there is still a large number of people who don't realize, or even reject, the importance of mental wellness. In the last decade, China's psychiatric treatment has started to pay attention to emotional disorders (" 别怕陌生人 ", 2011). In China, Social Anxiety Disorder is one of the neglected emotional disturbances. As early as 2007, a Chinese magazine conducted a survey of "Social Anxiety" and found that 60.76% of them thought they had some degree of Social Anxiety, especially the young people born in the 90s (" 别怕陌生人 ", 2011). And there are still a majority of Chinese people who are not willing to admit that they have psychological problems and accept psychological treatment. In China, there is still significant stigma surrounding mental health issues, with many barriers and avoidance to receiving treatment or support ("Depression and Anxiety", 2019). The state of most Chinese individuals is that they have some degrees of psychological disturbances and needs, but which are not serious enough to the extent of mental illness. According to expert interviews I conducted during summer 2020, individuals with Social Anxiety rarely go to the hospital. The people who choose to seek hospitalization are more likely to have severe levels of Anxiety Disorder, needing drug intervention. The number who are willing and able to receive psychological counseling is still in the minority.

Rationale of the Study

While many efforts, including providing greater access to professional mental health treatment and better acknowledgement of mental health issues, should be part of our response to the problem of mental illness, we should also carefully and seriously consider under Chinese particular social and cultural context, how can design plays the role of supporting health and well-being, and evoking pleasurable experiences or for the prevention or lessening of negative ones. My research is rooted in trying to investigate the possible way of healthy expression and better management of emotions for individuals with Social Anxiety. Compared to traditional methods of expressing and recording emotion, visualization, with its fluency in graphics, is a tool for conveying information's complexity and narrativity. So my research activities started by asking:

How can emotion visualization create new experience recording and reflecting methods that will improve individual emotional self-awareness in managing Social Anxiety Disorder for Chinese youth?

To address this question, I proposed an interdisciplinary approach to design visual solutions for recording and reflecting emotional experience. I used self-inquiry as a primary research approach to interrogate the feasibility of professional psychological techniques (Cognitive Behavioral Therapy, Mindfulness Meditation, & Art Therapy), conducted participatory activities to gain insights from users about recording process, and played with emotion visualization to create better representations of emotional experiences. The goal of this study is to begin an interdisciplinary conversation among psychology, emotion research, and visualization. Borrowing main concepts from psychological theories, and translating them into visual language, to discover what systems need to be in place for recording and visualization of emotional experience and to what extent a representation of experience can help express complex emotions, and correct negative thinking loops. The aim of this research is to provide a self-help tool for users to increase emotional self-awareness through the process of recording and visualizing emotional experiences.

Methodology

My study was conducted as the combination of psychological theories and exploratory design research. The fundamental approach is Action Research which takes various design actions into account. It can be understood as a series of exploratory designs as means of investigation, which contribute logically to the emergence of final design outcome. Research and design methods that I have adopted during my research include, as follow:

Secondary research:
Literature Review and Precedent Research - Researching and analysing related and relevant readings and artworks.

Primary research:
Expert Interview - Interviewing with two Chinese Psychological Consultants during summer 2020, and Spring 2021.
Field Trips - Visiting a Buddhist temple in Chengdu China in July 2020.
Heuristic Inquiry - Heuristic Inquiry is a research method that discovers the nature and meaning of phenomenon through internal self reflection, exploration, and discovery (Djuraskovic & Arthur, 2010, p1569). I used self inquiry and self dialogue to have a better understanding of professional psychological theories and emotion recording. This methodology encourages a researcher to explore openly and pursue the creative path that originates inside of one's being and that discovers its direction and meaning within oneself (Djuraskovic & Arthur, 2010, p1572).
Cultural Probes - In my study, Cultural Probes act as an approach of design as research, to obtain perceptions from participants. Collecting data, feedback, and interviewing participants through using Culture Probes, which is a research method that helps to understand the everyday challenges, goals and needs of users at the beginning of a

design process, to capture participants' real behavior themselves, and gain largely unbiased insights from their perspectives (Murphy, 2006). **Information Design and Emotion Visualization** - Information design is the key aspect that runs through my works and serves as a tool to process and formalize emotion data, that then is organized and given structure to create meaning for an individual in a visual communication context. With the use of information design, individuals can more readily access information they can remember, interpret and retain (Screven, 1999). Large amounts of information are simplified and can then be accessed and quickly adapted by individuals. Borrowing the mechanism of information and data visualization, emotion visualization refers to the attempt to use visual representations to express our emotionality, and translate personal emotional experience into visual language.

In the course of the study, design not only plays the role of resolution, but also an exploratory research method. In the section that follows, I will illustrate how those key methods take different approaches to each phase of the research process.

Initial Explorations: Heuristic Inquiry

Based on the preliminary research on the background of Social Anxiety Disorder and modern psychotherapies, my self-study during summer 2020 focused on self inquiry of Cognitive Behavioral Therapy(CBT), Mindfulness Meditation, and Art Therapy. The utilize of Heuristic Inquiry method provided internal understanding and in-body knowledge of how those psychological techniques work, and the feasibility to be used for self help. More importantly, it helped me create empathy of emotion expressing and recording physically and psychologically, and define the potential pain point for future discovery. Only through fully engaging in the research topic and spontaneous expression of my own experience and personal reflection in the process, I could gain a deeper understanding and paint a picture of the experiences of the target group in my research (Douglass & Moustakas, 1984, p. 42).

Cognitive Behavior Therapy (CBT): Workbook Exercise

Through following the CBT workbook and exercise, I noticed that the key principle of CBT was to reshape thinking patterns and cognition by changing negative attributional style and remodeling of self-concept. Through doing Social Interact Log, Subjective Units of Distress Scale, and all those self-document forms, which is a way used in the process of CBT of qualifying emotions with words and data, I built in-body knowledge and empathy about how it works to take control of our negative emotions, thoughts and cognition, and to be aware of our withdrawal behavior, and anxiety experiences (Henderson & Zimbardo, 2014).
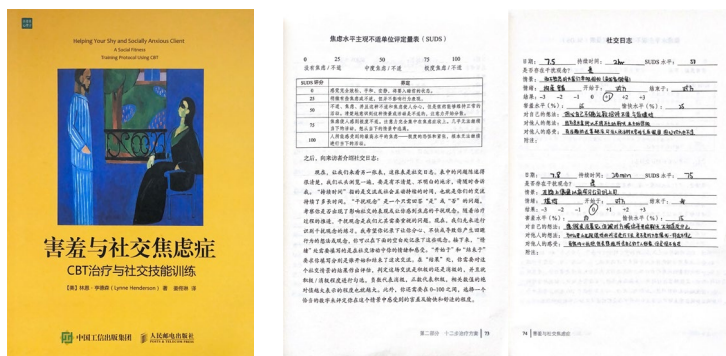

FIG. 01-03
Book cover of CBT workbook &
Samples of my workbook exercises.
Scanned by me. 2021.

During the course of CBT workbook exercise, I discovered recording emotions itself is a way of emotion management. Which reminds me that when I was encountering difficulties or suffering major setbacks, I would record my inner feelings in the diary, or vented my inner resentment in the way of words. Before writing, I was so trapped in the negative emotions, and felt really struggling. But as the words flowed on the paper, the depressed moods gradually tend to calm through writing. Interestingly, as the time passed, when I looked back to and reread the situation and negative thoughts I used to face and have, I found my ability of self-cognition management was growing with my age. The things and thoughts that used to be hard to deal with became more acceptable and clear. Perhaps this kind of review is also a kind of re-examination of self-worth, and only the descriptive retrospect of the different stages of the mind's journey is the best witness of the upgrade of self-cognition. Moreover, psychologists have established Cognitive Behavioral Therapy as the gold standard, problem-solving approach to discussing emotional experiences. Using it, we can focus on the way we perceive things and how they make us feel, and record and reflect our emotion in a more logical and academic-based way.

Mindfulness Meditation: Field Trip

Mindfulness meditation which is highly used in modern psychological treatment, and comes from Buddhism and other meditation practices. It is a type of meditation in which you focus on being intensely aware of what you're sensing and feeling in the moment, without interpretation or judgment (Sweet & Mihotich, 2017). During the process of meditation, I noticed that to face the anxiety you must change your mind, get rid of the "naturally" values in your head, and face things as they are. This is why the Buddhist concepts of "mindfulness" and "meditation" from thousands of years ago have been assimilated into modern psychology. They do make people calm down to observe the world, or observe the fluctuations of their ideas in the third person. As an old Chinese saying goes, " 當局者迷，旁觀者清 " (Generally, for matters under heaven, those closely involved cannot see as clearly as those outside). Only when you get out of the way to see yourself, you are able to manage your emotions more easily.

I went to a Buddhist temple near my home, and wished to have a deeper understanding of the meaning behind Mindfulness. A monk here told me that there was a word called " 禪 " (Zen, The state of mind at peace). And the main principle of being at the state of peace was the ability to identify the existence of diverse emotions, and look at them obviously, instead of obsessing about self feeling. Unlike CBT, which is very medical and logical in its approach, teaching you to think and act less negatively; Mindfulness Meditation, on the other hand, aims to direct you to the present moment. Despite these psychological treatments taking different approaches to address mental problems, both of them point out emphatically the importance of emotion awareness and management. Only if we have the ability of being aware of and realizing our negative emotion, we can take further actions to regulate.

FIG. 04-05
Photos of the Buddhism Temple "Da Cheng Yuan" in Chengdu. Photography by me. 2020.

Art Therapy: Collage

Collage exercise combines the principle of art therapy and mind map, which can help us get curious about our anxiety and better understand its motives. In psychological practice, visualization is often used to mentally rehearse an action or bring a patient to a state of relaxation (Baumgartner, 2011). It can help us access calm, reminding us that ease is actually within us. Moreover, as a designer, I regard it as an attempt to portray anxiety and investigate the bridge between emotions and visual language, it is a wider exploration space for expressing freely and subjectively.

I divided the collage exercise into two parts, the first part was about **"Anxiety Expressing Itself"**. For this exercise, I used any materials or art-making techniques I liked, combined paying mindful attention to my body while making intuitively. I did this exercise when I was feeling anxious. Closed eyes. Checked in with myself, and noticed how anxiety felt in the body. Noticed where in the body I felt anxiety and how it looked like.

FIG. 07
"Anxiety Express Itself" Collage 02. 2020.
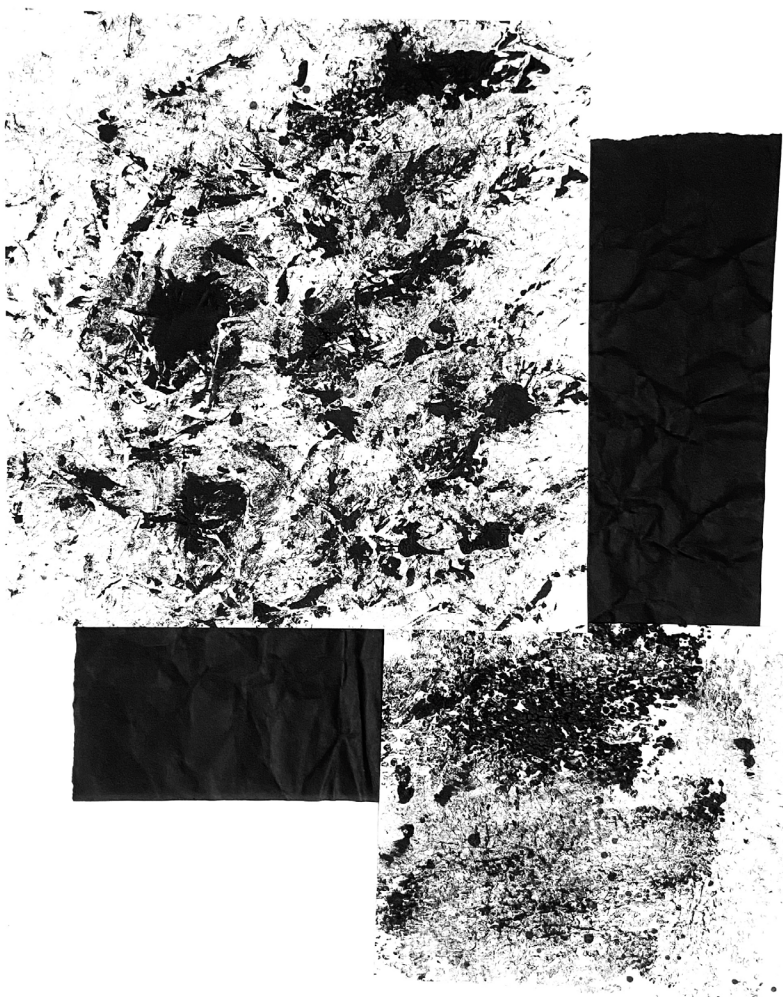
FIG. 08
"Anxiety Express Itself" Collage 03. 2020.

FIG. 09
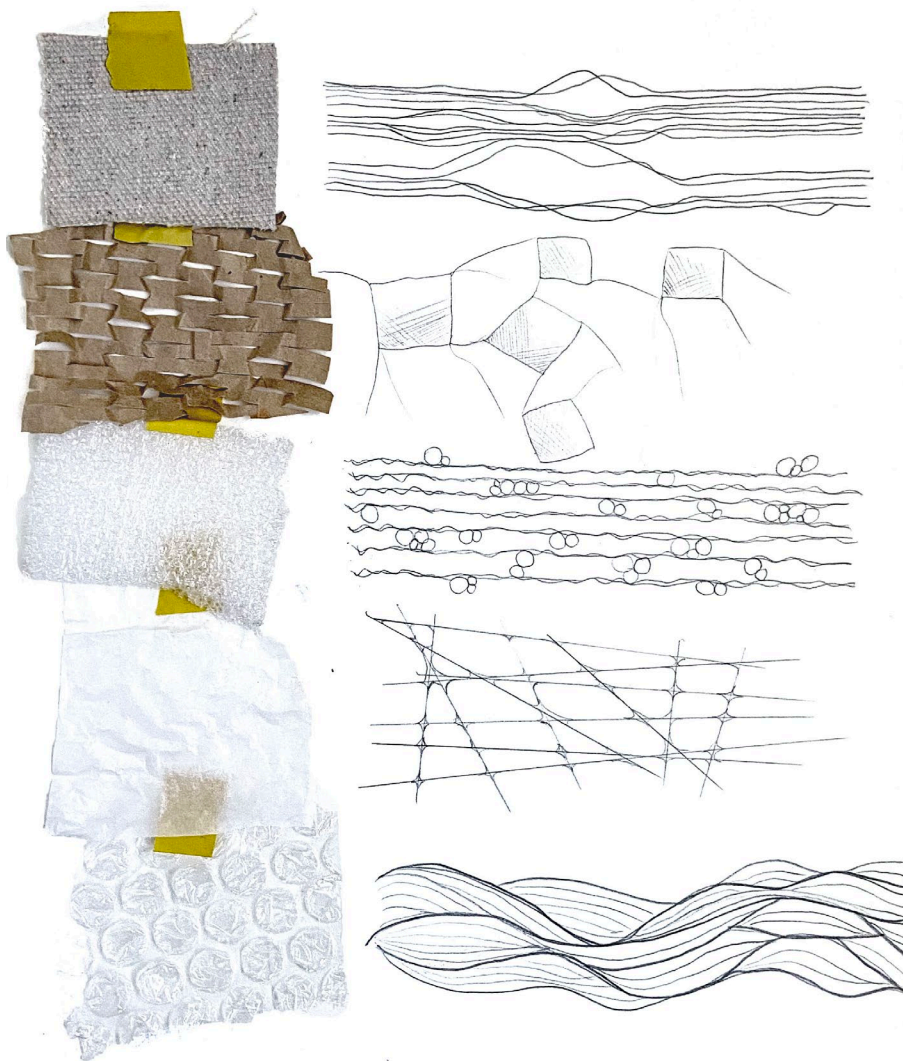"Anxiety Express Itself" Collage 04. 2020.
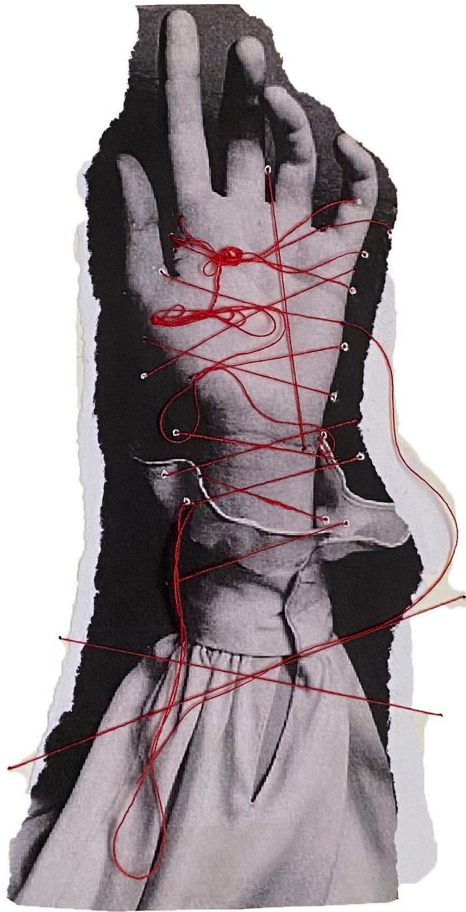
FIG. 10
"Anxiety Express Itself" Collage 05. 2020.

FIG. 11
"Anxiety Express Itself" Collage 06. 2020.

[Synaesthesia] the way we experience the world in some causes directly affects our ability to understand and relate to our surroundings.

FIG. 12
"Anxiety Express Itself" Collage 07. 2020.

The second part was called **"Calm & Safe"**. This exercise was about creating a visual reminder of calm and safe. Through arranging different materials to create an overall image or metaphor, which spoke to what it's like to feel safe or at ease, what it felt like in the body, evoked all senses to really embody the feeling (Tartakovsky, 2015).
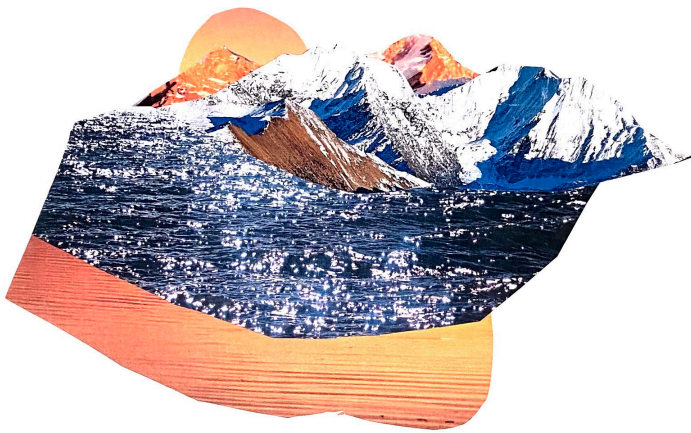
FIG. 13
"Calm & Safe" Collage 01. 2020.

FIG. 14
"Calm & Safe" Collage 01. 2020.
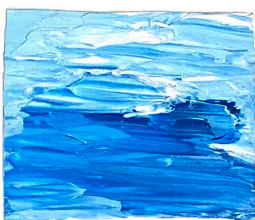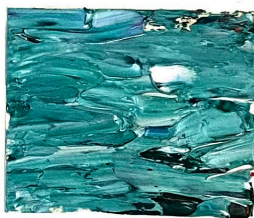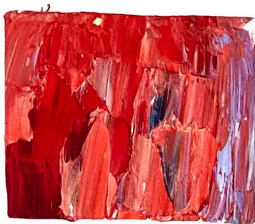
FIG. 15
"Calm & Safe" Collage 03. 2020.

FIG. 16
"Calm & Safe" Collage 04. 2020.

FIG. 17
"Calm & Safe" Collage 05. 2020.

FIG. 19
"Calm & Safe" Collage 07. 2020.

I believed that visualizing personal experience and feelings is a method of mediation between perception and reflection. And it has the magic power of communicating messages. Through visual imagery, it has been an effective way to communicate both abstract and concrete ideas since the dawn of humanity. In the field of psychology, visualization can not only be used as a vision concrete to our better selves, but also as a cognitive tool accessing imagination to realize all aspects of a feeling, action, or outcome. With the characteristic of communicating concrete and subjective information, visualization made me see the possibility of using visual language in expressing and recording emotions.

User Involvement: Cultural Probes

Along with my self inquiry about different psychological theories, it is clear that there is a long tradition of recording as a path to self-knowledge and realization of identity, especially in psychotherapy settings (Henderson & Zimbardo, 2014). Describing emotion in a therapeutic setting places a large dependency on the ability to symbolize and qualify feelings, it provides a powerful tool for emotion regulation, influencing emotion and upgrading self-cognition. Borrowing the idea of self document from CBT workbook and visualization techniques from art therapy, I put my emphasis on investigating different methods of recording emotion, and conducted a cultural probe to get users involved. At this phase, I used Cultural Probes as a research method, in order to gain insights from participants. I wasn't trying to reach an objective view of the Chinese young people's needs through the probe, but instead a more impressionistic account of their daily lives and desires, their aesthetic preferences and cultural concerns. Moreover, I intended to open up a wider conversation about expressing and recording emotion.

Cultural Probe Project: Emotion Recording

As Shiota and Kalat stated in the book *Emotion*, the scientific research methods of studying emotion mainly included self-report, physiological measurement and behavioral response. And self-report was still considered as one of the most useful and primary ways to access emotion (2015). Although It may not be very precise and less technology-dependent, it does encourage a sense of conscious awareness and management about our own emotion. In CBT, mood tracking is considered as a useful way to keep track of your mood fluctuations across days or weeks or months. This is great for helping you understand patterns in your mood. Especially for socially anxious individuals, borrowing the concept of Social Interact Log used in therapy setting: to better understand your feelings and thoughts through daily documentation, and help you take control of your own negative thoughts and to be aware of your negative emotions, withdrawal behavior, and anxiety experiences (Henderson & Zimbardo, 2014). Just like taking a diary, recording emotion encourages the ability of emotional awareness and management. It can be the first step to you better understanding how your external environment and cognition affect your feelings. And a way of encouraging self-confidence and a sense of independence. Since "the only person who can help you is you, and only you" (Board, 2017).

However, for centuries, we used written or spoken language as a means to express our thoughts and feelings. But we are sometimes unable to find the right words, we are restrained by our language. So if it cannot be said, can it be shown? Emotional experiences can be thought of as our "data" and our emotion history as one of our natural datasets. When you accept the framing of emotions as data, you are freed up to engage with emotions in ways you previously ignored or avoided. You are able to realize that emotions are variables that can change and evolve quickly, and thus are never indicative of character, ability or other more long-lasting states in people (Nino-Murcia, 2018). As you learn how to identify and express your emotional experiences as data, you will glean insights from the patterns that emerge. And because this data is soft and qualitative, maybe our articulation of it should be a creative

interpretation. Not limited to well-worded text, or precise numbers, but to have empathetic and abstract graphic language which liberates further potential for action.

Cultural probes (also called diary study) is a technique used to inspire ideas in a design process. It serves as a means of gathering qualitative data about people's lives, values and thoughts through a series of activities (Murphy, 2006). In my study, the aim of conducting cultural probes is to get insight into the lives of the participants and in particular into their daily feelings in social situations, when they socialize and interact with others (no matter in-person or virtually). Moreover, based on the preliminary discovery of recording emotion, I wanted to investigate different qualifications and expressions of emotional data. On this basis, I planned to develop a set of activities for testing the recording system and exploring different methods of recording emotional experience. Gathering data about how people perceived their emotions and which means of expression and storytelling they felt representative and intuitive to record and reflect the emotion.

The probe design was a survey which asked participants to record their emotions in social situations for 12 days and qualified them through three different recording systems: linguistic (with written words); statistical (with numbers); and visual (through radar charts and collages). And after handing back the kits, they were asked to have a short one-on-one interview to share feedback and thoughts about recording their emotion.
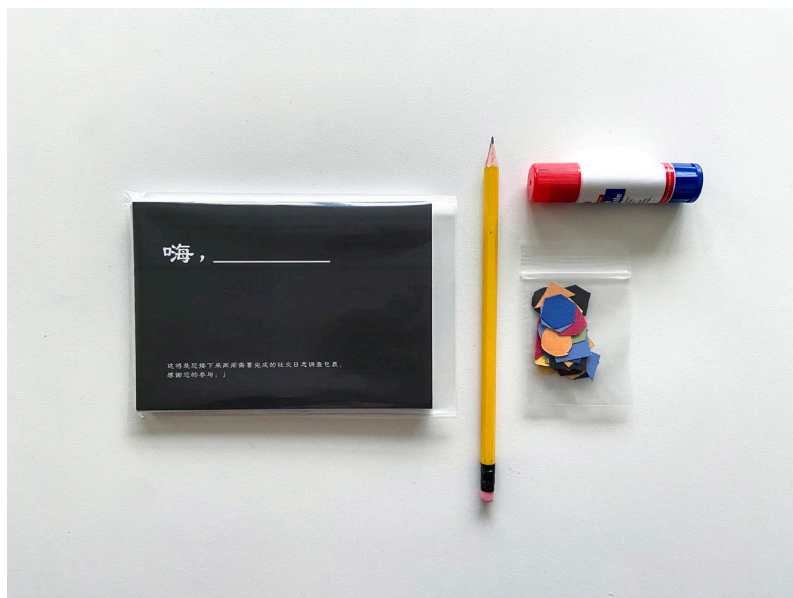
FIG. 20
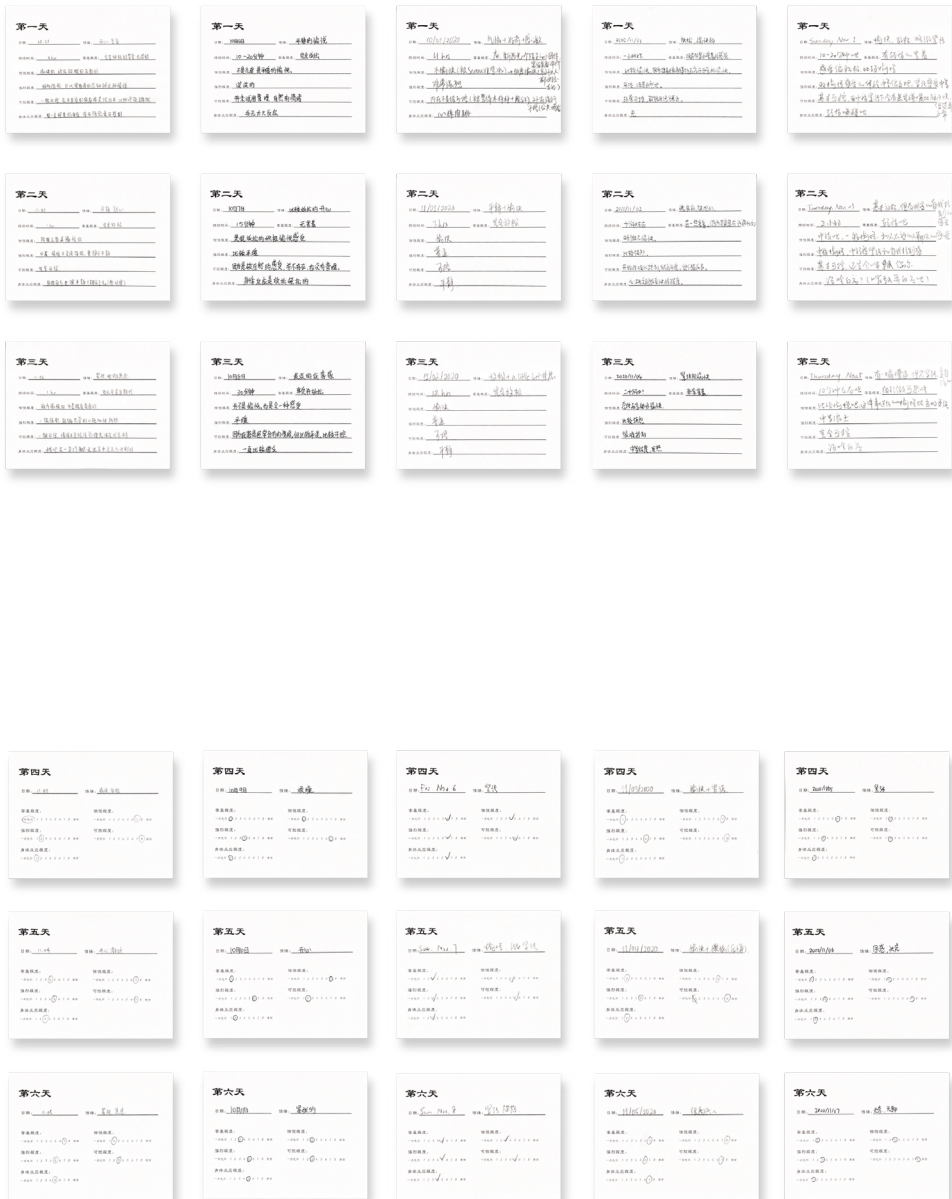"Cultural Probe Project: Emotion
Recording". Probe kits. 2020.

FIG. 22
"Cultural Probe Project: Emotion Recording".
Probe kits collected back from participants.
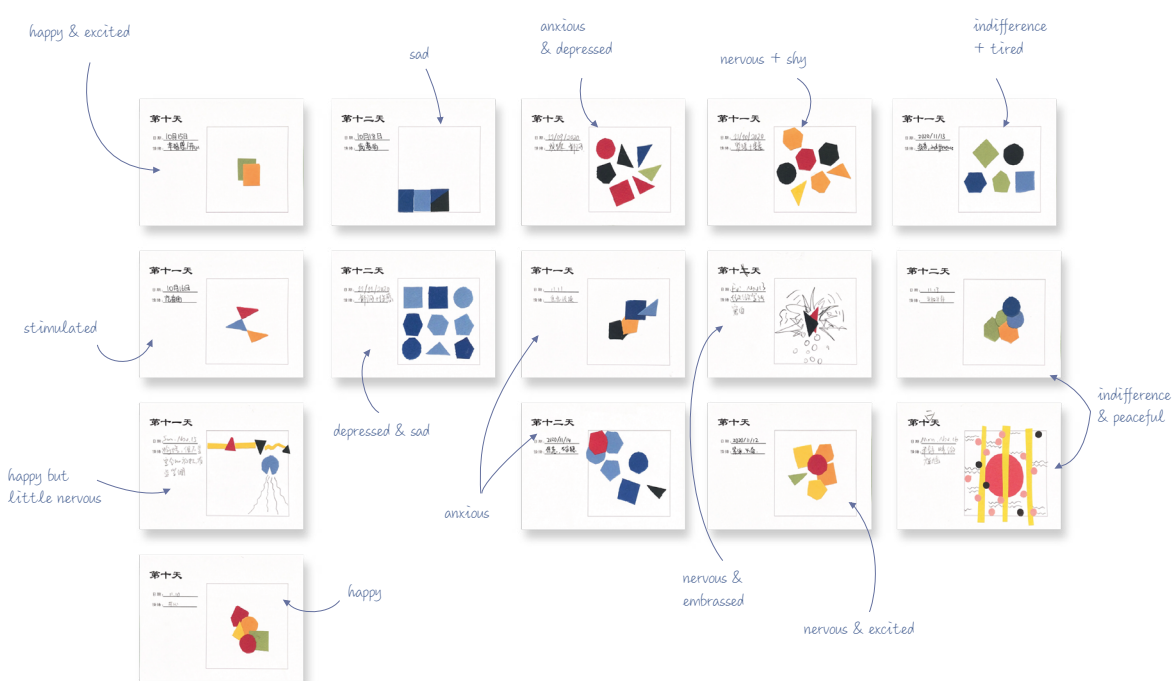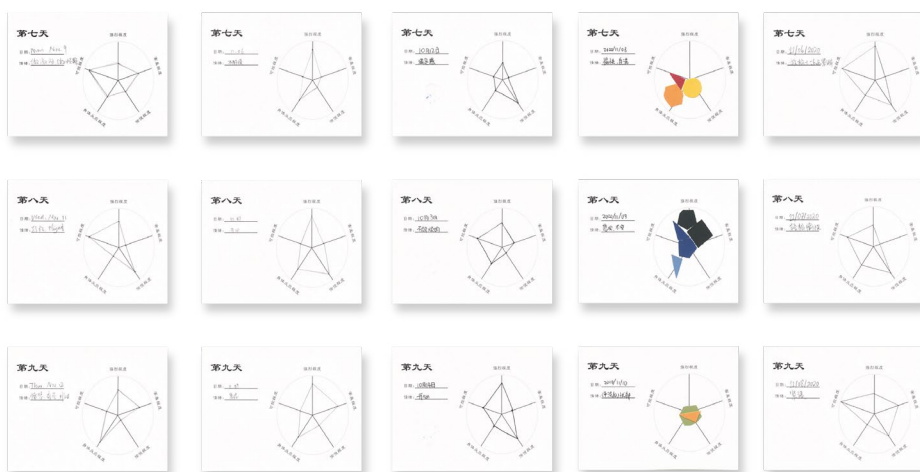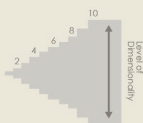"Linguistic & Statistic Log" parts. 2020.

happy & excited

sad

anxious & depressed

nervous + shy

indifference + tired

stimulated

depressed & sad

indifference & peaceful

happy but little nervous

anxious

nervous & embrassed

happy

nervous & excited

FIG. 23
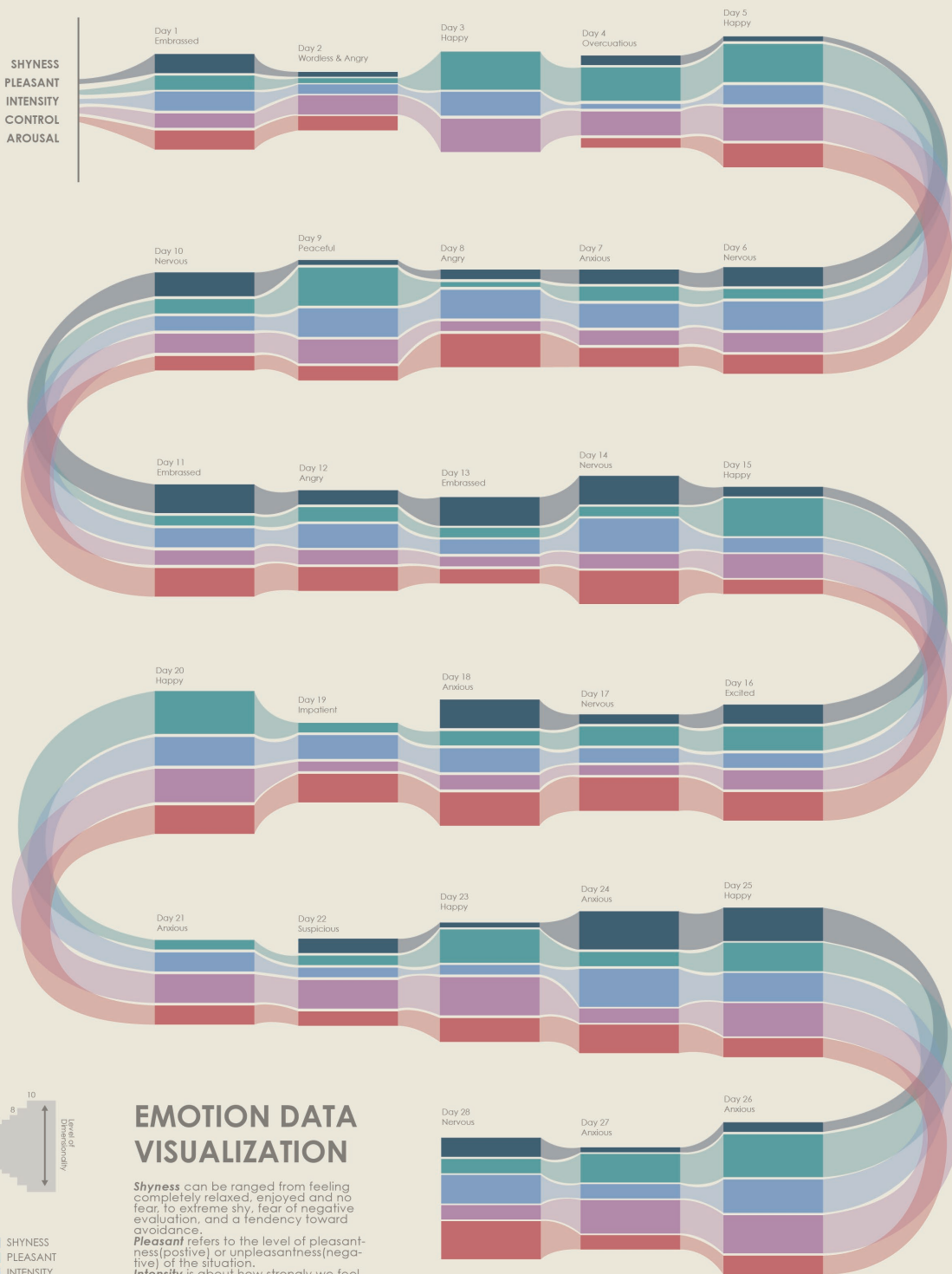"Cultural Probe Project: Emotion Recording". Probe kits collected back from participants. "Visual Log" part. 2020.

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Experimenting with cultural probes created an interesting relationship between designers and participants: They stated that they felt like they were given a gift and gave back by participating in the activities in a generous and personal way. The types of insights I got were varied and opened various discussions. I am glad to see how participants use different shapes and colors freely to build up their very own emotion collages. According to the feedback, most of the participants responded that, compared to verbal and written information, using non-verbal/non-textual language to depict emotional experience was more intuitive. They thought radar charts were most useful for detecting patterns, and expressive visualizations were most fun to express freely within a range of choices of colors and shapes. With visualization displays, individuals are easier to pick out new patterns as they occur and thus can respond to changes in the patterns quickly (Card, Mackinlay & Shneiderman, 1999). Especially when talking about our experiences and emotions, which are highly elusive and intangible, by using visualization, we can see things in a new way. If we could find a way to mix these two languages, that of numbers and concepts with that of shape, color and pattern, then we could really begin to visually depict "softer" data.

Refining Representations: Emotion Visualization

An earlier use of the term "visualization" meant an attempt to construct an image in the mind as a way of using mental processing to initiate real-life health improvements. As I've discussed, visualizations after their creation also play a role as an important communication tool. Emotion visualization can act as reinforcement or rehearse for an emotional experience, which expresses something that we already know but need to reveal and reflect in a meaningful way.

In 2016, psychologist and emotion researcher Paul Ekman conducted a survey of emotion researchers to gather data on what they all agree about. And then created the project "Atlas of Emotions", a unique map about the landscape of emotions. It builds our vocabulary of emotion and illuminates our emotional world, including where they come from, and how we react to them. The goal is to gain greater control over what triggers our emotions and how we respond. Another example of visualization is "Dear Data", which is more expressive and experimental types of visualization. "Dear Data" is a project made by information designers Giorgia Lupi and Stefanie Posavec (2015). They are living on different sides of the Atlantic, by collecting and hand drawing their personal data and sending it to each other in the form of postcards, they become friends. It is the process of recognition and naming, together, through visual expression. For each week, a topic was chosen (like instances of indecision or frequency and type of complaints) as well as a system with which to visualize the data. Some of the systems reflect traditional patterns but others are more expressive. Both because of the project's hand drawn quality and its allowance for imprecise representation, a visual dialect is constructed that conveys more than numbers and categories. Just like expressive collage exercise in my cultural probes project, ambiguous shapes and colors not constrained by accessibility give a freedom of expression to these instances of very personal experiences. The process of visualizing emotion or personal experience, as we've seen from Ekman, Lupi and Posavec, one becomes more aware of themselves and their surroundings. Nonetheless, if an expresser is not skilful enough when presenting their experiences, they have little chance to translate the language back into the experience, and reflect upon it.

SHYNESS
PLEASANT
INTENSITY
CONTROL
AROUSAL

Day 1
Embrassed

Day 2
Wordless & Angry

Day 3
Happy

Day 4
Overcuatious

Day 5
Happy

Day 10
Nervous

Day 9
Peaceful

Day 8
Angry

Day 7
Anxious

Day 6
Nervous

Day 11
Embrassed

Day 12
Angry

Day 13
Embrassed

Day 14
Nervous

Day 15
Happy

Day 20
Happy

Day 19
Impatient

Day 18
Anxious

Day 17
Nervous

Day 16
Excited

Day 21
Anxious

Day 22
Suspicious

Day 23
Happy

Day 24
Anxious

Day 25
Happy

Day 28
Nervous

Day 27
Anxious

Day 26
Anxious

10
8
6
4
2

Level of
Dimensionality

EMOTION DATA
VISUALIZATION

Shyness can be ranged from feeling completely relaxed, enjoyed and no fear, to extreme shy, fear of negative evaluation, and a tendency toward avoidance.

Pleasant refers to the level of pleasant-ness(postive) or unpleasantness(nega-tive) of the situation.

Intensity is about how strongly we feel emotions.

Control refers primarily to attempts by an individual to manage the genera-tion, experience, or expression of emotion, and/or one's emotional responses.

Arousal is a state your body feel from the range of calm (no/low aroused) to heart out the chest (over aroused).

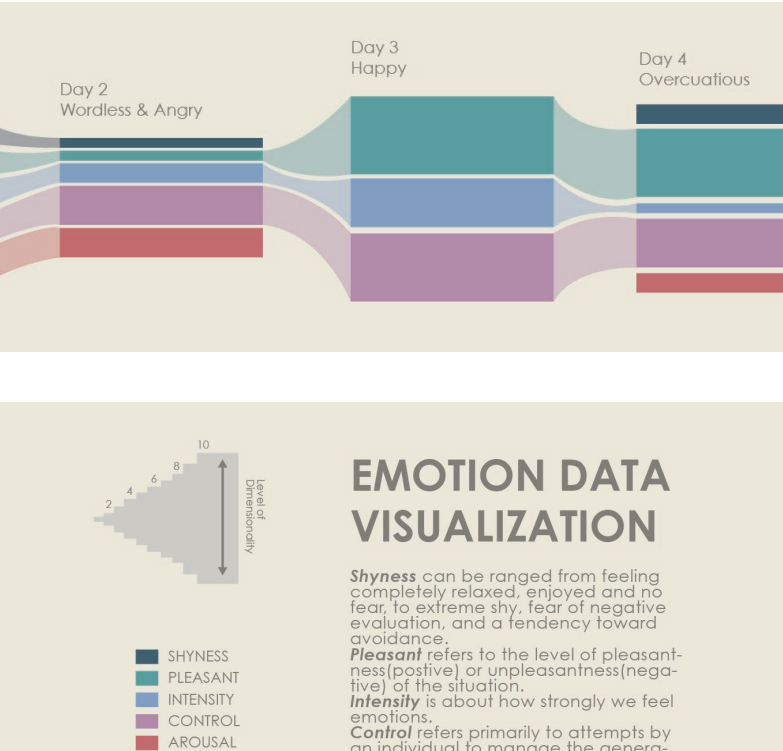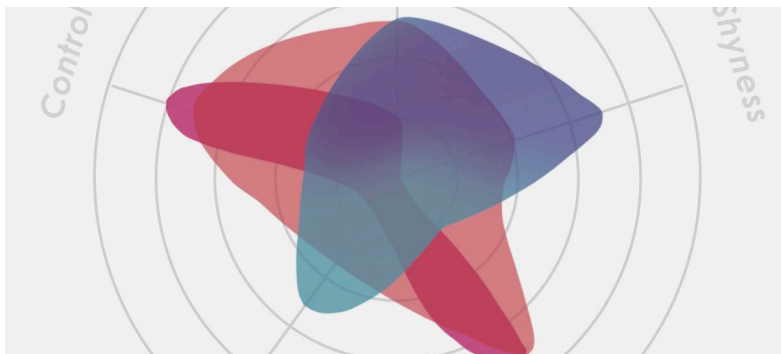* All data come from Danni Li's Self Recording

SHYNESS
PLEASANT
INTENSITY
CONTROL
AROUSAL

Day 3
Happy

Day 2
Wordless & Angry

Day 4
Overcuatious

10
8
6
4
2

Level of
Dimensionally

EMOTION DATA
VISUALIZATION

Shyness can be ranged from feeling
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Pleasant refers to the level of pleasant-
ness(postive) or unpleasantness(nega-
tive) of the situation.
Intensity is about how strongly we feel
emotions.
Control refers primarily to attempts by
an individual to manage the genera-

SHYNESS
PLEASANT
INTENSITY
CONTROL
AROUSAL

Control

Shyness

- ● Happy
- ● Relaxed
- ● Anxious
- ● Annoying
- ● Nervous
- ● Embrassed
- ● Worry

Shyness can be ranged from feeling completely relaxed, enjoyed and no fear, to extreme shy, fear of negative evaluation, and a tendency toward avoidance.
Pleasant refers to the level of pleasantness(postive) or unpleasantness(negative) of the situation.
Intensity is about how strongly we feel emotions.
Control refers primarily to attempts by an individual to manage the generation, experience, or expression of emotion, and/or one's emotional responses.
Arousal is a state your body feel from the range of calm (no/low aroused) to heart

FIG. 27-29
"Emotion Data Visualization
Poster". Radar Charts. 2021.

EMOTION DATA VISUALIZATION

Participant A
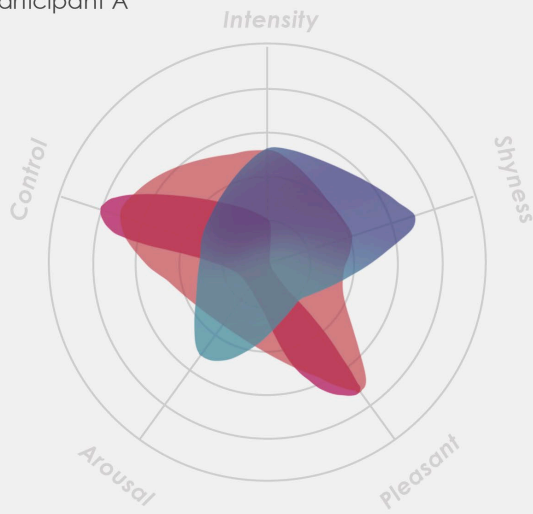
Participant B
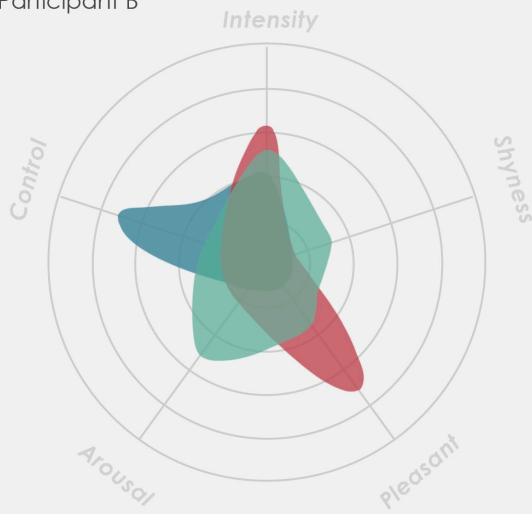
Participant C
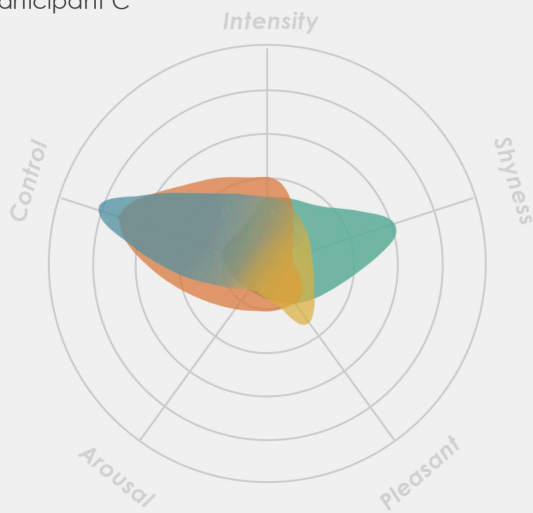
Participant D
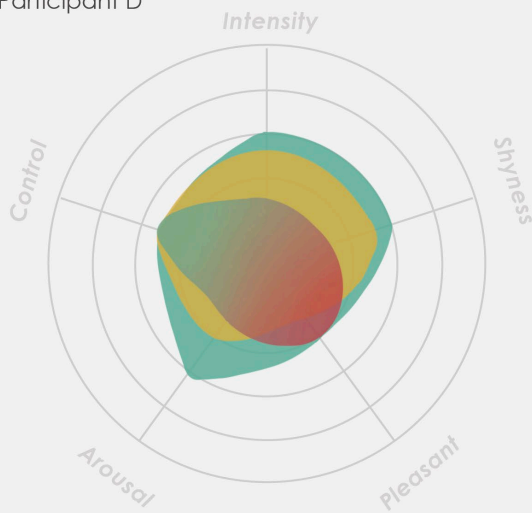
Participant E
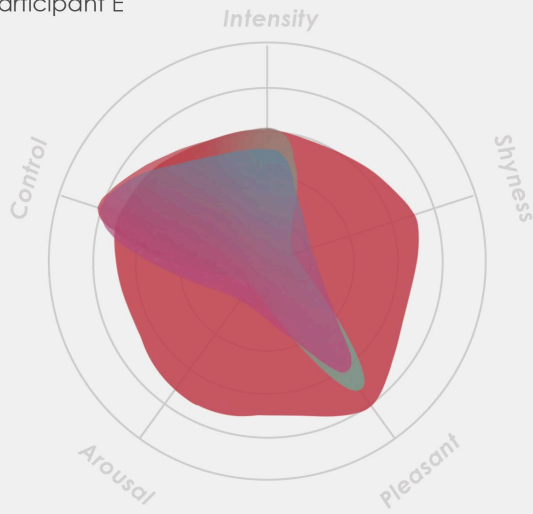
- ● Happy
- ● Relaxed
- ● Anxious
- ● Annoying
- ● Nervous
- ● Embrassed
- ● Worry

Shyness can be ranged from feeling completely relaxed, enjoyed and no fear, to extreme shy, fear of negative evaluation, and a tendency toward avoidance.
Pleasant refers to the level of pleasantness(postive) or unpleasantness(negative) of the situation.
Intensity is about how strongly we feel emotions.
Control refers primarily to attempts by an individual to manage the generation, experience, or expression of emotion, and/or one's emotional responses.
Arousal is a state your body feel from the range of calm (no/low aroused) to heart out the chest (over aroused).

* All data come from "Cultural Probe: Emotion Recording " Project, Statistical Log

When exploring further how the representations could look like, the initial iterations of visualizations tended to follow traditional patterns. These were quite recognizable as mainstream data visualization. The one on page 42-43 uses Marimekko Charts, which are used to visualize categorical data over a pair of variables. Visualization representing five dimensions individually with variations in size and color. The one on page 44-45 adaptes Radar Charts with color variation for different emotions. Which are useful for comparing multiple quantitative variables and seeing which variables are scoring high or low within a dataset, making them ideal for displaying outcomes and picking out patterns.

However, in two ways, I found that these explorations weren't expressive enough for emotion data. First, they lacked the inclusion of the contextual data in an emotional experience. For example, the triggers, circumstances, and thoughts of our emotions, which are hard to be quantified. How to mix these two languages (contextual and visual) to depict "softer" data is what I am attempting to do. Second, the visualization of emotion is meant to be an attempt to make visible a process that is largely invisible and only partially perceived by the one experiencing it. It must reflect the narrative quality of our personal histories, even if only as a visual metaphor. To do that, the visualization must be engaging. What we make of our emotional experiences helps us create our identity. If we can express our emotionality through a visualization, we are able to connect with, engage with and reflect upon it. And to see the bigger picture of our cumulative experience.

Through analyzing the emotion information, I also realized that for most of the time, there will be multiple emotions appearing during one social situation. And for individuals with emotion disturbance, it is very important to encourage them to notice each emotion, even less visible one. So that they can understand the importance of emotional awareness and observe themselves more deeply. And it also becomes clear that an emotion tracking tool, which takes into consideration how a user would want to record personal data, should be digital and interactive. Which enable efficient and intuitive interaction, and allow diverse visual variables.

Gamifying Recording Process

Gamification refers to the use of game thinking and game mechanics in non-game contexts to engage users in solving problems and increase users' physical or psychological pleasure. There is a recent trend involving the creation of "serious games" with a psychoeducational component designed to improve particular mental conditions. Serious games that are specifically designed as interventions or supplements to treatment have been delivered to people undergoing Cognitive Behavioral Therapy (CBT), and experiencing depression, anxiety, stress, eating disorders, autism, or other conditions (Shah et al., 2018).

Research shows that there are many people who use digital games specifically for the purpose of mood enhancement and certain serious games have been developed to aid mood disorders and related conditions (Shah et al., 2018). Such as "SPARX", a CBT game designed for adolescents with clinical depression, significantly improved depression, anxiety, and hopelessness with better remission rates than treatment as usual (TAU). "SPARX" is a seven-level fantasy game with the goal of restoring balance by addressing the negative thoughts affecting the fantasy world. Another CBT and mindfulness game designed for individuals with anxious and depressive symptoms is "Worrydolls", in which players are given a small doll who is ready to listen to what is worrying you. Tell your worry to the doll, then track it over time. Meditation games such as "PLAYNE", helps players learn and build a daily habit of meditation. Through growing and transforming the game world by meditating, to help players build resilience to stress, experience calm and relaxation.

Depending on the game types and target audiences, serious games can vary from simple puzzle-type games to more complex games involving additional components: fantasy, story genre, immersion into the game, visual enjoyment, and level of interactivity. They all work as interventions or supplements to particular mental conditions from very different angles and aspects. Moreover, individuals often show a preference for computerized screening over face-to-face psychotherapy when the subject matter is sensitive in nature (Bradford & Rickwood, 2015). Therefore, the use of gamifying mode for the design outcome not only meets the needs of being digital and interactive, but also brings a sense of engagement and leisure.

Design Outcomes

"Monologue"

My final design outcomes are the prototypes of an interactive emotion tracking tool for socially anxious individuals, including Graphic User Interface and possible final models. The app "Monologue" is a mobile screen-based game, and designed for socially anxious people to record their daily emotions in social situations and generate a unique daily visual image based on customized personal emotion data.

The name "Monologue" comes from dramatic media. In theatre, a monologue is a speech presented by a single character, most often to express their thoughts aloud. And in psychology, inner monologue is referred to as "internal dialogue", "the voice inside your head", or an "inner voice". Borrowing from those definitions, in my study, it means a private space and an inner solitude isolates from all noise, anxiety, restlessness, to seek a quiet dialogue with the self. My intention of designing this tool is not meant to replace therapy. Rather, it is an idea that can be used to answer the lack of intuitive visual solutions for recording and expressing our experiences. I present just one possible solution for supporting when a person is struggling in Social Anxiety or emotion disturbances and is interested in or feels needed to understand mood and anxiety on self-report measures.

With "Monologue", it can do more than daily mood tracker, though, it can also be used as evidence-based mental health supplement, but in the form of gamification. The centerpiece of Cognitive Behavioral Therapy (CBT) is learning to identify negative and distorted thinking patterns to change your emotions and your behaviors for the better. In CBT, a "emotion/thought record" guides you through the steps of identifying, challenging, and reinterpreting negative thinking patterns. In it, you can document your emotions, analyze flaws in your thinking, and re-evaluate your negative thoughts into more balanced ones. Through translating these key principles into a visually recording process, people

are able to reshape thinking patterns and cognition by changing negative
attributional style and remodeling of self-concept. "Monologue" also
highlights the idea of expressing itself as a kind of healing. With
the design of visual representations, precise style and interaction, it
is dedicated to provide a private space for expressing and relaxing.
Not limited to traditional self-report techniques, this project aims to
offer a system for emotional experience recording, a visual language
for representing emotion, and a personal experience for prompting
reflection.

Visual Metaphor

To achieve the objectives of expressiveness and engagements of
emotion visualization, using visual metaphor in visualization can
help readers use their existing knowledge to explain the unfamiliar.
Metaphor is foundational to human thought, and using it creatively in
visualization can help strengthen its impact and beauty (Risch, 2008).
For this project, I employed a metaphor of an iceberg to apply and
interpret the core principle and main elements of CBT's ABC theory
in a visual way. This metaphor comes from Freud's description and
analogy of his three-level interpretation of how our minds work: the
consciousness, precociousness, and unconsciousness. Not only does
iceberg fit Freud's description of our consciousness, but it also reflects
the model of ABC theory, which is a basic CBT technique framework

Consicousness

"C"- Consequences
(Emotion/Behavior)

Preconsicousness

"B" - Beliefs/Cognition

Unconsicousness

"A" - Activating Event
(Triggers)
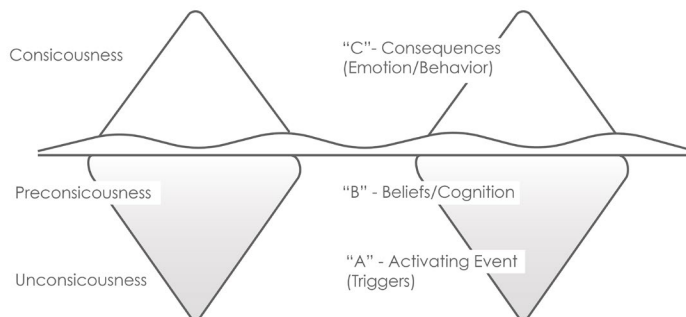
FIG. 30
"Monologue". Freud's metaphor for the conscious
is illustrated. How the metaphor is adapted for the
visualization is illustrated on the right.

for the assessment and formulation of emotion disturbances with three major components: activating events, beliefs, and consequences. I will break down the anatomy of the emotional experience using the iceberg, and to start experimenting with more detailed visualizations that took into consideration visual metaphors that we already or easily understand in reality to help us make sense out of other, less well understood phenomena.

Freud's Iceberg Model

Sigmund Freud used the analogy of an iceberg as a visual metaphor to describe the three levels of the mind. Freud (1915) described the conscious mind, which consists of all the mental processes of which we are aware, and this is seen as the tip of the iceberg. The preconscious contains thoughts and feelings that a person is not currently aware of, but which can easily be brought to consciousness (1924). The preconscious is like a mental waiting room, in which thoughts remain until they "succeed in attracting the eye of the conscious" (Freud, 1924, p. 306). Finally, the unconscious mind comprises mental processes that are inaccessible to consciousness but that influence judgments, feelings, or behavior (Wilson, 2002). According to Freud (1915), like an iceberg, the most important part of the mind is the part you cannot see. Our feelings, motives and decisions are actually powerfully influenced by our past experiences, and stored in the unconscious.

Cognitive Behavior Therapy's ABC Model

The ABC model was created by Dr. Albert Ellis, a psychologist and researcher. It is a basic CBT technique which focuses on behavioral or emotional responses and the automatic beliefs that might be behind them. The basic idea of the ABC model is that "external events (A) do not cause emotions (C), but beliefs (B) and, in particular, irrational beliefs (IB) do" (Sarracino et al., 2017). It aims to build a more helpful and rational thinking loop to replace the obsessive rumination and repetitive thinking. Through applying this healthy thinking pattern into the recording process, and utilizing the iceberg as a visual metaphor into the project. Which enables us to illustrate a more comprehensive, intelligible and engaging visual perception of our emotional experiences.

Lower Part: Triggers & Thoughts

The process of emotion begins with activating events (triggers), the things that trigger emotions in us can be both internal or external. In the visualization, triggers are represented as the base of the iceberg form, and sit under the water. Sometimes they are difficult to uncousicouly identify but they have the power to move us, and happen at the very beginning phase. We don't always notice the automatic thoughts and beliefs we have for our emotional experience, especially when we fall into an unhealthy thinking loop. Through improved recognition of our irrational belief, we can increase the likelihood that we are able to identify and correct negative cognitions in the future. Following ABC's model can help us think of the explanation about why the situations happened, and make sense that our beliefs about the cause of the adversity set off our reaction - how we feel and what we do. Just like the preconscious part of Freud's iceberg, which is hidden in the lower part and links A (Activating Events) and C (Consequences). Additionally, B (Beliefs) is considered to be the most important component in the process of recording emotion experience.

Triggers - Color of the form

Recording a trigger represents the "stimulus" part of the emotion process. Triggers can range from external events like natural phenomena and the behaviors of others to internal events like behaviors of ourselves when we, for example, reflect on memories and feel nostalgia. In the application, a user is able to choose between four categories when reflecting upon what caused the emotion they're tracking. The triggers are visualized as the base of the form, supporting Freud's iceberg metaphor. I used four colors with different hues to represent the four choices, since they don't have progressive relation with each other. But I retained a similar value and saturation to maintain the overall unity and harmony.

person   activity   place   others
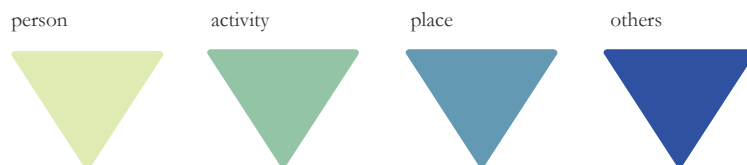
Thoughts & Cognitive Distortion - Shape of the form

People with Social Anxiety have a different mindset compared with confident individuals. They often have negative thoughts about themselves and their performance in social settings that appear automatically. Such thoughts include "No one will ever like my presentation." "I look like an idiot with my stammering." "I can't do this, I'm such a failure." or so on. By identifying the distortions in our thinking, we can begin to understand the source of our anxiety. Typical cognitive distortions include (Kim, n.d.):

- Perfectionism
- All-or-None Thinking
- Mind Reading
- Discounting the Positive
- Prospecting for Flaws
- Overgeneralization
- Emotional Reasoning
- Turning Predictions into Facts
- Assuming You Are the Center of the Universe
- False Theory of Relativity

Using the shape (the number of triangles) as the direct representations of the number of cognitive distortions we have exactly.

one

two

three

four

five

six

seven

eight

nine

ten
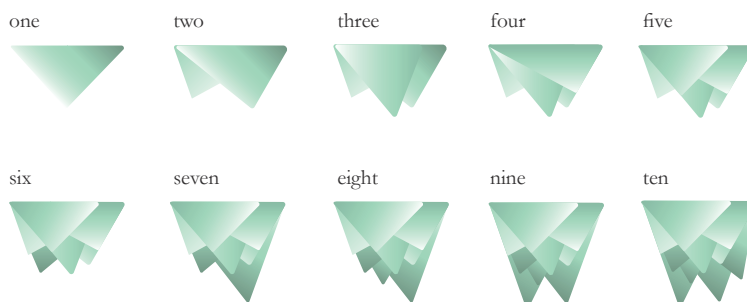
Upper Part: Dimensionality of Emotion

After our brain and body have already experienced the trigger (the situation or event) and formed beliefs (thoughts about that event), we will be aware of what we feel and how we feel. The consequences (emotions/behaviors) act as the consciousness part, which is the most manifest and easiest to identify, and build the form of the iceberg above the water in the visualization. Emotions, in general, are always subjective and immeasurable, but by analyzing the dimensionality of emotions we were able to qualify, analyze and understand emotions from different aspects. The dimensionality of emotion refers to some inherent characteristics of emotion, such as dynamic nature, excitement, intensity and tension of emotion. The range of variation of these characteristics is bipolar, that is, there are two states of opposites (Shiota, & Kalat, 2015). Wilhelm Wundt (1896) believes that emotion is composed of three dimensions: pleasure - displeasure, excitement - inhibition (tranquilization), and tension - relaxation. Each specific emotion is distributed in different positions between the poles of the three dimensions. The four dimensions included in the visualization were chosen based on Wundt's three dimension theory and Subjective Unit of Distress Scale(SUDS) rating for SAD during Cognitive Behavioral Therapy. Their metaphorical references and how they are visually represented from 0 to 100 (five levels) are as follows:

Intensity - Height of the form

How intense was it? Intensity is about how strongly we feel emotions. It can be placed between tension and relaxation. Using height to represent the intensity level is based on a traditional metaphor in data visualization that the larger the area, the greater the value of the area. Therefore, if the form of the iceberg in the visualization is high, then how intense the emotion experience would also be high - and vice versa.

not intense   very intense
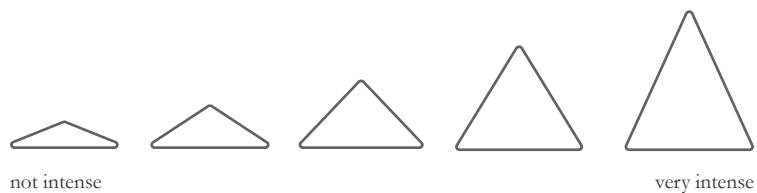
Pleasantness - Color of the form

How pleasant was it? It refers to the level of pleasantness or unpleasantness of the situation. Emotions can be positive, pleasant and give good feelings. Emotions may also be negative, unpleasant and cause discomfort. Any emotion can be placed on a scale between extreme pleasure and extreme unpleasant. In Chinese culture, cool colors like blue usually represent sad, cold. And warm colors like red have the representation of happy and hot.
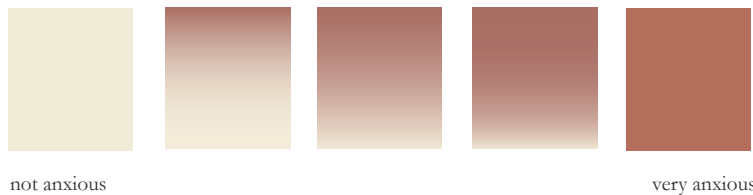

not pleasant   very pleasant

Arousal (Physical Reaction) - Texture on the form

How did you respond physically? How aroused was your body? It is a state your body feels from the range of calm (no/low aroused) to heart out the chest (over aroused). The arousal dimension is based on the metaphor that: Chinese young people tend to use " 我裂开了 (I'm cracked)" to represent the feeling of frustrated and collapse. It is a popular Chinese net cultural neology recently. Therefore, the more fractured the form is, the higher the scale of physical reaction is responded.

not aroused   very aroused
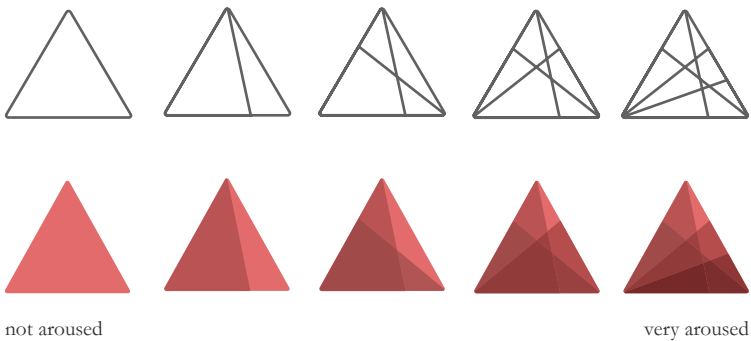
Overall Anxiety Level - Color of the background

How anxious was it? This variation is borrowed from the Subjective Unit of Distress Scale (SUDS) rating in CBT, and it is the key aspect of identifying the overall discomfort and anxiety level of a particular social interaction. It can range from feeling completely relaxed, enjoyed and no fear, to extremely anxious, fear of negative evaluation, and a tendency toward avoidance. As it is an overview of the whole emotion experience, background color takes the direct visual representation. From "0" to "100", the background color will gradual change from light yellow to dark orange. Since high saturation colors usually represent more emotional feelings, and low saturation colors represent calm and peace in China. Here, red-ish colors are adapted again for two reasons. First reason is for the sake of simplicity, only through comparing the saturation, users can tell and compare the brilliance and intensity of the color easily. Secondly, except happy and hot, red-ish color also has the meaning of strong emotions in Chinese culture, such as high-intense anger or anxiety. It can also be told by expressive visualization in the Cultural Probe project that participants used red color to represent both positive emotions such as happy and excited, and strong emotions such as angry and anxious. Since this conflict sets deeply in our cultural specific nature, ideally it won't affect the user experience. It is also crucial to note that in existence encoding elements are based on my preliminary research and assumption, they still need to be tested and verified through user testing.
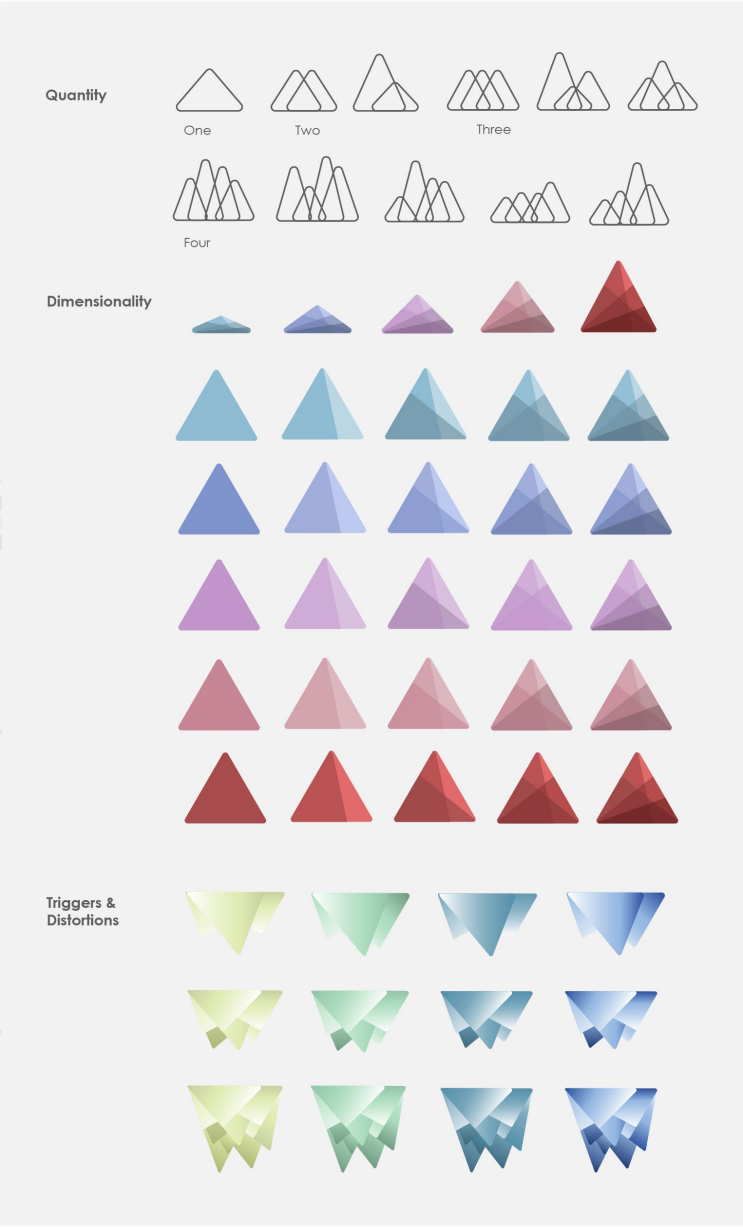
not anxious   very anxious

Quantity

One   Two   Three

Four

Dimensionality

Triggers &
Distortions

Prototype

Recording Process:

Activating Events
- what happened
- triggers

↓

Beliefs
- Thoughts
- Cognitive Distortions

↓

Consequences
- emotion labeling (what you feel)
- Dimensions (how you feel)
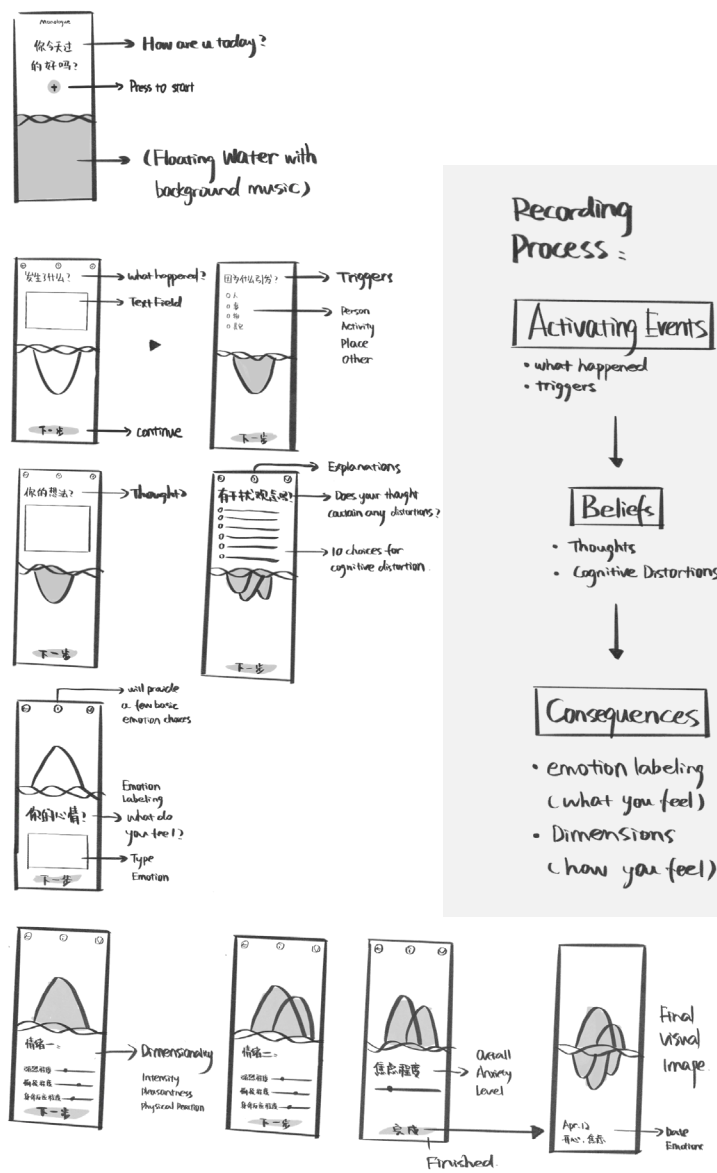
FIG. 38
"Monologue". Wireframe
of the app. 2021.

Review all
visual imagery

Home Page

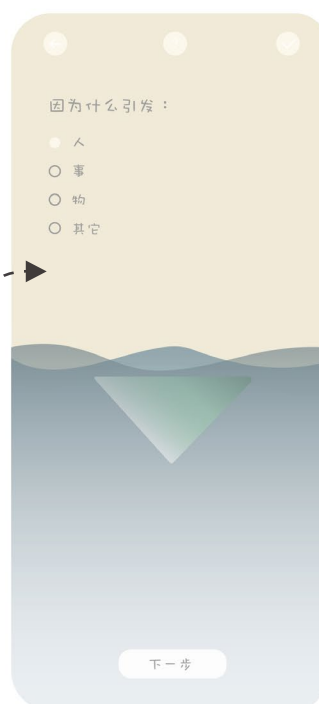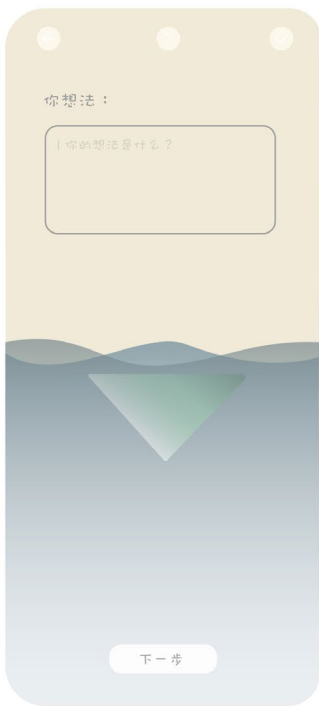Click to add new

Activating Events

事件：

| 今天发生了什么？ |

下一步

Triggers

因为什么引发：

○ 人
○ 事
○ 物
○ 其它

下一步

Emotion Labeling

心情：

开心	愤怒	诧异
伤心	厌恶	恐惧
焦虑	害羞	其它

下一步
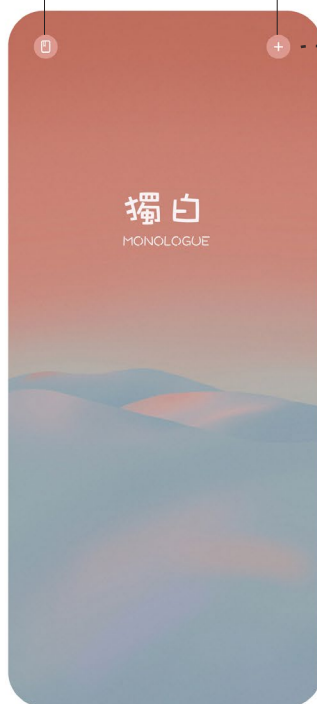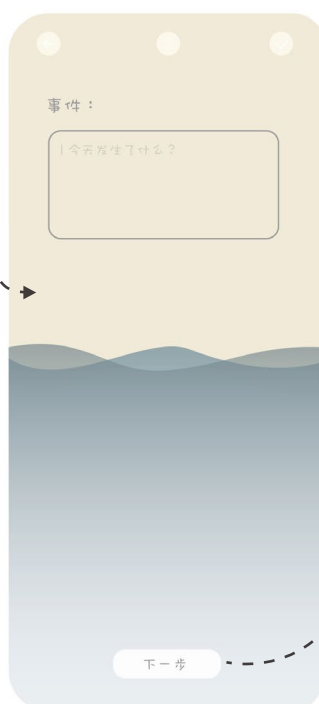
**Emotion 1
Dimensionality**

情绪1： 害羞

强烈程度
○ 25 50 **75** 100

愉悦程度
○ 25 50 75 **100**

意味反应程度
○ 25 **50** 75 100

下一步

**Emotion 2
Dimensionality**

情绪1： 焦虑

强烈程度
○ 25 **50** 75 100

愉悦程度
○ **25** 50 75 100

意味反应程度
○ 25 50 75 100

下一步

Beliefs　　　　　　　　**Cognitive Distortions**

你想法：

[你的想法是什么？]

下一步

有干扰观念吗：

○ 完美主义
　"如果我做不好我就一定要否定…"

○ 绝对式思想
　"我的专业一个失败者。"

○ 读心
　"一定要勇万事和别人比较。"

○ 缩小正面
　"我对自己是没有帮助。"

○ 夸大负面
　"我成想了所有事情。"

○ 过度概括
　"每个人都拒绝我。"

○ 感情用事
　"我觉得今为所以一定是这样的。"

○ 将预测变为事实
　"我说这件事情一定会不好。"

○ 假设你是宇宙中心
　"每个人都在看着我这一举一动。"

○ 错误的相对论
　"如果一定真讨厌，我一定讨厌。"

下一步

Click to see the detailed explanation about what is cognitive distortions, and what does each one stand for.

Click to see the detailed explanation about what each dimensionality means, and different examples of different levels.

e.g. 0 in Physical Reaction could be really peaceful and calm. 100 in Physical Reaction could mean heart out the chest.

整体焦虑程度

(0)　(25)　(50)　(75)　(100)

完成

Dec. 10

Overall Anxiety Level

Examples Display

Dec. 09

Trigger: Others
Cognitive Distortions: 8 (Perfectionism; All-or-None Thinking; Mind Reading; Discounting the Positive; Prospecting for ... Overgeneralization; Emotional ...ning; Turning Predictions into Facts)
Emotions: Shy (Intensity:50 Pleasantness:0 ...al Reaction:75); **Embrassed** ...sity:75 Pleasantness:0 Physical ...on:75); **Confused** (Intensity:0 ...antness:50 Physical Reaction:0)
...all Anxiety Level: 25

Dec. 10

Trigger: Person
Cognitive Distortions: 5 (All-or-None Thinking; Mind Reading; Overgeneralization; Turning Predictions into Facts; Assuming You Are the Center of the Universe)
Emotions: Shy (Intensity:75 Pleasantness:100 Physical Reaction:50); **Anxious** (Intensity:50 Pleasantness:25 Physical Reaction:25)
Overall Anxiety Level: 50

Dec. 11

Trigger: Person
Cognitive Distortions: 3 (Mind Reading; Discounting the Positive; Overgeneralization)
Emotions: Anxious (Intensity:50 Pleasantness:100 Physical Reaction:50); **Overcautious** (Intensity:25 Pleasantness:75 Physical Reaction:0)
Overall Anxiety Level: 100

Dec. 12

Trigger: Person
Cognitive Distortions: 4 (Perfectionism; All-or-None Thinking; Mind Reading; Discounting the Positive)
Emotions: Happy (Intensity:75 Pleasantness:75 Physical Reaction:25); **Nervous** (Intensity:50 Pleasantness:25 Physical Reaction:50)
Overall Anxiety Level: 25

● Dec. 13

Trigger: Place
Cognitive Distortions: 9 (Perfectionism; All-or-None Thinking; Mind Reading; Discounting the Positive; Prospecting for Flaws; Overgeneralization; Emotional Reasoning; Turning Predictions into Facts; False Theory of Relativity)
Emotions: Nervous (Intensity:25 Pleasantness:25 Physical Reaction:50); **Anxious** (Intensity:50 Pleasantness:0 Physical Reaction:50)
Overall Anxiety Level: 50

● Dec. 14

Trigger: Activity
Cognitive Distortions: 2 (Overgeneralization; Emotional Reasoning)
Emotions: Helpless (Intensity:25 Pleasantness:25 Physical Reaction:25)
Overall Anxiety Level: 0

● Dec. 15

Trigger: Activity
Cognitive Distortions: 6 (Perfectionism; All-or-None Thinking; Mind Reading; Overgeneralization; Emotional Reasoning; False Theory of Relativity)
Emotions: Nervous (Intensity:75 Pleasantness:25 Physical Reaction:75); **Anxious** (Intensity:25 Pleasantness:0 Physical Reaction:50); Embrassed (Intensity:50 Pleasantness:50 Physical Reaction:50)
Overall Anxiety Level: 100

● Dec. 16

Trigger: Place
Cognitive Distortions: (Mind Reading; Discounti Prospecting for Flaws; O Emotional Reasoning; Tu Facts)
Emotions: Worried (Int Physical Reaction:25)
Overall Anxiety Level: 2

FIG. 40
"Monologue". Examples
Display. 2021.

Conclusion

Analysis and Reflection

This thesis investigated a systematic visual language for recording emotion and promoting reflection. Ambitiously, its intent is to help individuals with Social Anxiety to gain emotional self-awareness, and have better ability of emotion management. And it enables users to see their emotional experiences as mini-stories of an external world affecting an abstract character. Such mini-stories serve as mini-identities that make up a user's full emotionality. The design solution presented, "Monologue", is only one iteration of a tool for achieving emotional self-awareness. For users, the iceberg metaphor may act as a narrative visualization tool. This representation distances us from our own subjective perspectives and promotes the rational deliberation we do when recounting the things that happen to us. In the moment of an emotional experience, these are the same rational deliberations that are so hard to do, but can be practiced by impersonal observation and reflection.

This tool only offers one thematic visual output, which allows individual categories to be widely comparable. However, there may be nuance in shared compatibility, since the scales for each dimension are individually defined by the user. For instance, my "score 75" in intensity might be more or less intense compared to another user's scale. We are using our own private standard of experience. Therefore, If shared, these nuances would need to be interpreted. But for self report, Even if the scale of an individual is different from that of others, such exercises can indicate internal variation of dimensions, and demonstrate an improved understanding of our emotional experiences.

Moreover, the visual system itself needs to be tested and iterated. As it is only a prototype, its first steps in development should continue with user testing to know if this design concept is successful or not, and the effect of using this tool will have on people. In February 2021, I contacted a clinical psychologist, Doctor Zhengzhong Zhao, who worked in Chengdu Fifth People's Hospital in China, and asked about how he saw this design as a potential tool to support emotion management and regulation for individuals with Social Anxiety. Dr. Zhao believed that mental health apps had the potential to reach people who would otherwise not receive help by removing the barriers to treatment. "Sadly, only a small percentage of people actively seek professional help for their mental health problems in China," he said. "This could be for any number of reasons: they may not be physically able to leave their homes due to severe anxiety or lack of mobility, or they may not have the financial means." As for the utilization of visual representations of emotional experience in this app, "Many people learn best by following a visual approach – retaining information far more successfully if that information is given to them in a visual manner. Using visual language to help users apply CBT into everyday lives is a good try to alter their thought patterns," Dr. Zhao explained. "If a person is actually in need of therapy, these can be a great supplement, but they cannot take the place of engaging with someone who can offer individualized interpretations and insights that an app cannot provide." While ideally this tool for emotion recording shouldn't be a repair shop for our emotions or replacement for traditional therapy, but rather an assessment test and an additional help in addressing emotion regulation needs, and also bring awareness and empathy to the topic of mental health.

Future Thinking

Over the course of the work concerns about the application of emotion visualization in mental health have emerged through my research and design practice, I acknowledge that currently, my work is not yet capable of solving all the problems I have encountered and uncovered. And I still have many more questions and propositions to make and work

through even at this stage. Fortunately, I have already found my passion and interest to be a visual communication designer, and I would love to continue exploring "healing" the visual language can bring in the future. Even though design is limited in what it can do, especially in the field of psychology, it may not be possible to save lives or solve problems in any direct way. It is more likely to inspire expression and bring awareness, and to have a better, healthier world.

For the future directions, I would like to expand on my current research and continue to pay mindful attention to the development of mental wellness, especially in China. As I've discussed, visual representation of emotion is the enrichment to our written and spoken methods of self-awareness. Which creates a greater awareness of our emotions and an openness to communicate them is obvious progress for our personal lives. I believe that there is much more to be discussed and advocated about the utilization of information and data visualization. Whether I have the chance to work in the field of mental health design or not, I would love to go on explore the bridge of visual language and our emotions.

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Appendix

List of Figures

FIG. 41-43
"A Visual Exploration
of Emotion". 2020.

FIG. 44-47
"Emotion Pattern
Design". 2020.

whale

From the moment of breaking away from the matrix, each person is unique in this world. In other words, if we stand on the vertical axis of history, we are born alone. People with social anxiety, on the other hand, are some of the loneliest groups in the world. They fear of communication, but desire to be listened.

52-hertz

The 52-hertz whale is an individual whale of unidentified species which calls at the very unusual frequency of 52 Hz. This pitch is a much higher frequency than that of the other whale species with migration patterns most closely resembling this whale's – the blue whale (10–39 Hz) or fin whale (20 Hz). It has been detected regularly in many locations since the late 1980s and appears to be the only individual emitting a whale call at this frequency. It has been described as the 'world's loneliest whale'. It sings a song like no other. Some say it wanders alone across the Pacific Ocean, crying out for companionship that never comes.

DOUBLE PAGES

FRONT: BACK: SINGLE PAGES

HI _____

THIS IS YOUR KIT FOR THE FOLLOWING TWO WEEKS.
THANKS FOR YOUR PARTICIPATION :)

INTRODUCTION:

The study is about exploring daily feelings of the young Chinese generation in social situations, and investigating different quantifiers and expressive ways.

CHECKLIST:

☐ LINGUISTIC LOG (DAY 1–3)
☐ STATISTICAL LOG (DAY 4–6)
☐ VISUAL LOG (DAY 7–12)

01
LINGUISTIC LOG

DAY 1–3
PLEASE FOLLOW THE INSTRUCTIONS AND LINGUISTICALLY RECORD YOUR EMOTIONAL EXPERIENCE IN SOCIAL SITUATIONS FOR THE FOLLOWING THREE DAYS. FEEL FREE TO USE YOUR NATIVE LANGUAGE AS YOU NEED.

INSTRUCTION:

02
STATISTICAL LOG

DAY 4–6
PLEASE FOLLOW THE INSTRUCTIONS AND CIRCLE A NUMBER BELOW EACH CATEGORY TO INDICATE YOUR EMOTIONAL EXPERIENCES IN SOCIAL SITUATIONS FOR THE FOLLOWING THREE DAYS.

INSTRUCTION:

03
VISUAL LOG

DAY 7–12
PLEASE FOLLOW THE INSTRUCTIONS AND VISUALLY RECORD YOUR EMOTIONAL EXPERIENCE IN SOCIAL SITUATIONS FOR THE FOLLOWING SIX DAYS. STICKERS AND PENCILS CAN BE FOUND INSIDE THE KIT.

INSTRUCTION:

DAY 1 DATE: ____ MOOD: ____ HOW LONG: ____ HOW SHY: ____ HOW PLEASANT: ____ HOW INTENSE: ____ HOW CONTROLLABLE: ____ HOW AROUSED: ____

DAY 2 DATE: ____ MOOD: ____ HOW LONG: ____ HOW SHY: ____ HOW PLEASANT: ____ HOW INTENSE: ____ HOW CONTROLLABLE: ____ HOW AROUSED: ____

DAY 3 DATE: ____ MOOD: ____ HOW LONG: ____ HOW SHY: ____ HOW PLEASANT: ____ HOW INTENSE: ____ HOW CONTROLLABLE: ____ HOW AROUSED: ____

DAY 4 DATE: ____ MOOD: ____

DAY 5 DATE: ____ MOOD: ____

DAY 6 DATE: ____ MOOD: ____

DAY 7 DATE: ____ MOOD: ____

DAY 8 DATE: ____ MOOD: ____

DAY 9 DATE: ____ MOOD: ____

DAY 10 DATE: ____ MOOD: ____

DAY 11 DATE: ____ MOOD: ____

DAY 12 DATE: ____ MOOD: ____

FIG. 50
"Cultural Probe Project: Emotion
Recording". English version. 2020.

SUBJECTIVE UNITS OF DISTRESS SCALE (SUDS)

0	25	50	75	100
No anxiety/discomfort		Moderate anxiety/discomfort		Extreme anxiety/discomfort

SUDS Rating	Definition
0	Feeling completely relaxed, peaceful, calm; could perhaps fall asleep.
25	Experiencing mild anxiety or discomfort. Does not interfere with performance.
50	Uncomfortable anxiety. Anxiety becomes distracting, but ability to continue with activity remains. Clear awareness that the situation or activity is unpleasant. Concentration and focus begin to become affected.
75	Anxiety becomes increasingly uncomfortable. There is a preoccupation with symptoms of anxiety. Extreme difficulty in concentrating on the situation or activity. There are thoughts of wishing to escape from the situation or activity.
100	The highest level of anxiety it is possible to experience—absolute terror and panic. It becomes impossible to continue in the situation or activity.

SOCIAL INTERACTION LOG

Date: _____ Length: _____ SUDS level: _____ Interfering thoughts? _____

Situation: _____

Mood: _____ Initiated by: _____ Finished by: _____

Outcome: −3 −2 −1 0 +1 +2 +3   How shy (%): _____ How pleasant (%): _____

Thoughts about yourself: _____

Thoughts about other(s): _____

Feelings toward other(s): _____

Comments:

FIG. 51
English version of SUDS and Social
Interaction Log. Scanned from book *Helping
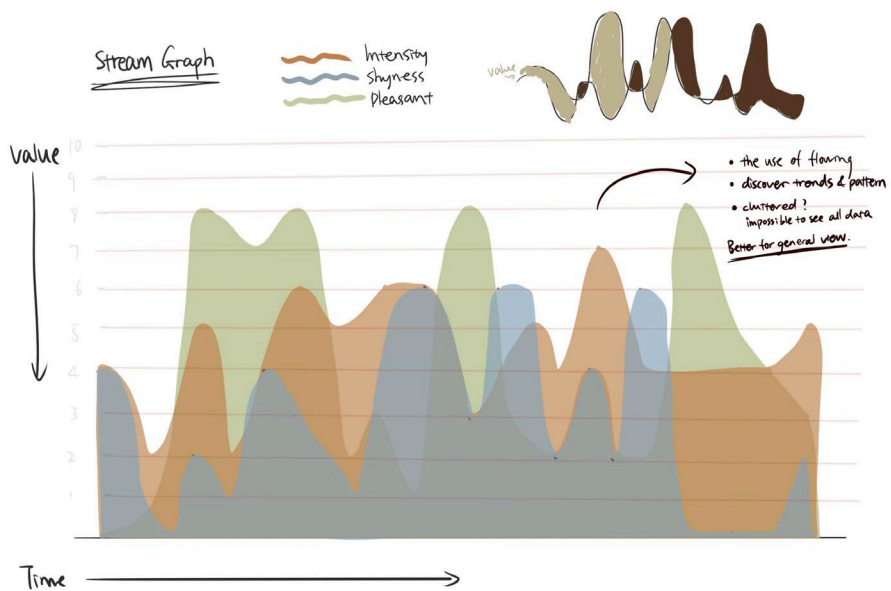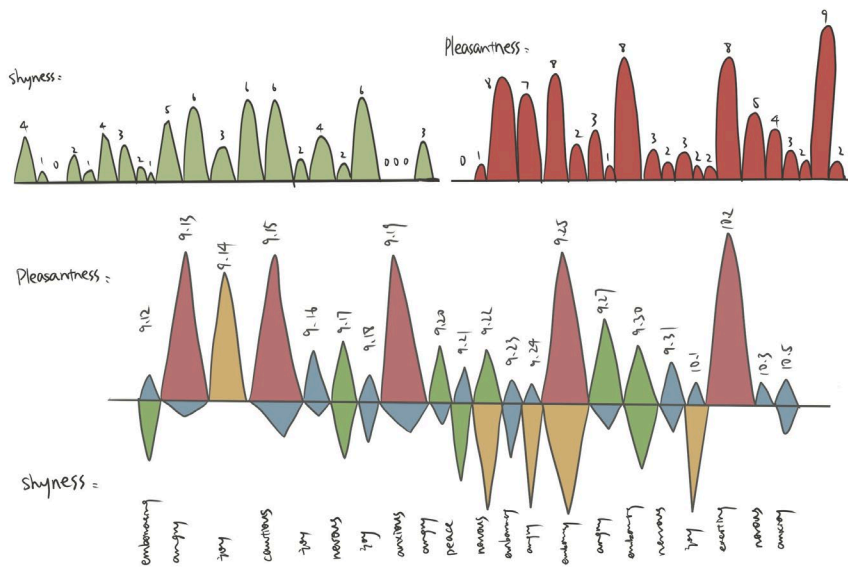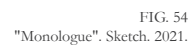Your Shy and Socially Anxious Client*. 2021.

FIG. 52-53
"Emotion Data Visualization
Poster". Sketches. 2021.

FIG. 54
"Monologue". Sketch. 2021.

Emily Carr University Research Ethics Board (ECU-REB)
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Vancouver, BC V5T0H2

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ethics@ecuad.ca

EMILY CARR
UNIVERSITY
of ART + DESIGN

CERTIFICATE OF RESEARCH ETHICS APPROVAL

The Emily Carr University Research Ethics Board approves the following project:

File #	Title	Principal Investigator:	Other Investigators
100397	Cultural Probe - Emotion Recording	Cameron Neat	Danni Li

The current approval dates are:

Approval Date	Expiration Date
October 30, 2020	November 30, 2020

The nature of the approval is as follows:

Type of Event	Type of Review	Approved Documents
New Approval Process	Delegated Review	Consent forms, Recruitment Script, Cultural Probe descriptions, Project Outline

It is the researchers' responsibility to meet all research ethics requirements in the jurisdictions in which the research takes place. The procedures and protocols described in this certification must be followed closely. Note the following conditions associated with this approval:

- For multi-site or partnered research, researchers are required to comply with all research ethics requirements that apply. Researchers are expected to share notice of this approval with partners, sites of research, or other research ethics review boards, as applicable.
- If changes to the approved application and documents are required by new partners, sites of research or other research ethics boards, researchers are required to inform the ECU-REB of these changes.

Researchers are required to report anticipated changes, adverse incidents, and project completion for further research ethics review. All reporting is managed through the research portal on the Research Management System Process Pathways Romeo - https://ecuad.researchservicesoffice.com/. Login and complete "event" reports for changes, adverse conditions, renewals, and the completion of this research ethics file.

This research ethics approval is in compliance with Tri-Council guidelines (TCSP2 2018) and Emily Carr University policies and procedures.

Keith Doyle
Chair, Emily Carr University Research Ethics Board
Emily Carr University of Art + Design

FIG. 55
Certification of Research Ethics Approval:
Cultural Probe Project. 2020.

PANEL ON
RESEARCH ETHICS
Navigating the ethics of human research

TCPS 2: CORE

Certificate of Completion

This document certifies that

Danni Li

has completed the Tri-Council Policy Statement:
Ethical Conduct for Research Involving Humans
Course on Research Ethics (TCPS 2: CORE)

Date of Issue: **1 February, 2020**

FIG. 56
Certification of Complication:
Panel on research ethics. 2020.

獨白 **Monologue: an investigation of how visualization could be used to help us record and reflect emotion**

By
Danni Li
BA in Media, Indiana University Bloomington, 2018

Supervisor: Cameron Neat

A CRITICAL AND PROCESS DOCUMENTATION PAPER SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF DESIGN

EMILY CARR UNIVERSITY OF ART + DESIGN