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Master's Thesis
Academic Year 2020

PowerRING: Reviving Self-esteem
during Living Abroad through
Compassionate Self-talk Voice Accessory



Keio University
Graduate School of Media Design

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

Pinjavee Rienmora

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Abstract of Master's Thesis of Academic Year 2020

PowerRING: Reviving Self-esteem
during Living Abroad through
Compassionate Self-talk Voice Accessory

Category: Design

Summary

The World Mental Health Report revealed that psycho-social problems are causing suffering in approximately 450 million people around the world and a number of people have no experience in any therapies and deal with it on their own [1]. The COVID-19 pandemic also has a critical impact on uncertainty e.g. financial strain, job cuts, loneliness caused by social distance and various big changes [2] [3] which has been intensified mental health issues. Therefore, to tackle the mental health problems including reviving self-esteem can be counted as one of the crucial issues in this year.

Self-esteem is connected to emotional well-being, human behavior [4], and a number of psychological issues including self-enhancement, defined as a prone to searching for an opportunity to develop themselves or self-concept [5] [6]. Interestingly, in respect of innovations and products for supporting self-esteem which can empower individuals to live their lives to the fullest effective and potential feasible [7], there is a shortage of insight into the intrapersonal level relationship between categories of product design and individual emotions. In order to strengthen the emotional well-being, self-esteem products can be further improved to serve the unmet mental health needs. There are various potential gaps in the market for the products which promote mental well-being by integrating psychological elements and design that seamlessly blended with individuals' lifestyles.

Therefore, this paper introduces PowerRING, a bracelet that keeps compassionate self-talk voice messages in the QR code, aiming to encourage individuals practicing compassionate self-talk and can listen to their voice messages to revive self-esteem when struggling with some life circumstances during living abroad such as culture shock, language barriers, loneliness, and depression. PowerRING is targeted towards Millennium people, 24-to-39-year-old young adults [8], who are living in Japan. The objective of this study is to examine whether compassionate self-talk voice accessory engenders reviving self-esteem and to find key attributes in designing the bracelet for reviving self-esteem.

PowerRING comprises a bracelet and a voice QR code attached on a hanging charm. PowerRING has 3 phases of design - (1) Customization: The samples do self-compassion exercise, record their voice while reading their compassionate self-talk messages aloud, and choose their favorite color (2) Creation: The researcher generates voice QR code and make the bracelet (3) Wearing and Listening: The samples wear their bracelet and scan the QR code to listen to their voice messages before falling asleep at night to access subconscious mind for 21 consecutive days, and when feeling low self-esteem.

PowerRING was designed under the guidance of Professor Masa Inakage and Professor Kai Kunze at Keio Media Design. In order to evaluate PowerRING, the researcher conducted user studies with the samples who live in Japan and examined the result by qualitative measures: Rosenberg Self-Esteem Scale (RSES), Robson Self-Esteem Questionnaire (RSCQ), an in-depth interview with the active listening method. The results of this study proved that PowerRING can help the samples revive their self-esteem, eliminate self-criticism, have more positive self-image, become more self-confident, and can identify their own competencies.

Keywords:

Self-Esteem, Self-Compassion, Self-Talk, Mental Health, Accessory, Millennials, and Living Abroad

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Contents

Acknowledgements	ix
1 Introduction	1
1.1. Background	1
1.2. Research Objective and Questions	5
1.3. Contribution	7
1.4. Evaluation	9
1.5. Thesis Structure	9
2 Related Work	10
2.1. Self-esteem and Self-compassion	10
2.1.1 Self-esteem	10
2.1.2 Self-compassion	16
2.2. Self-talk and Subconscious Mind	21
2.2.1 Self-talk	21
2.2.2 Subconscious Mind	23
2.3. Millennials and Anxiety	26
2.4. Self-esteem Products	27
3 Design	33
3.1. PoweRING Design	33
3.1.1 Design Concept	33
3.1.2 Design Procedure	36
3.1.3 Instruction	36
3.2. Design Concept	42
3.2.1 Definition	42
3.2.2 Concept Idea	43

3.2.3	Unique Selling Point	44
3.3.	Target Audience	46
3.3.1	Target Persona	47
3.3.2	Vision Story	48
3.4.	Design Iteration	49
3.4.1	Design Concept	49
3.4.2	Instruction for the First Mockup	52
4	Proof of Concept	56
4.1.	Experimental Design	56
4.2.	Experimental Setup	57
4.2.1	Sample Description	57
4.2.2	Environment	57
4.3.	Qualitative Measure	58
4.3.1	Rosenberg Self-Esteem Scale (RSES)	59
4.3.2	Robson Self-Concept Questionnaire (RSCQ)	60
4.3.3	In-depth Interview with Active Listening Method	62
4.3.4	Rosenberg Self-Esteem Scale (RSES): Pre-Use and Post-Use Result	63
4.3.5	Robson Self Concept Questionnaire (RSCQ): Pre-Use and Post-Use Result	64
4.3.6	Pre-use Interview	65
4.3.7	Post-use Interview	68
4.3.8	Sample Observation	72
4.3.9	Voice	74
4.3.10	Interaction	76
4.3.11	Physical Object	77
4.3.12	Personalization	79
4.3.13	Privacy	80
4.4.	Result of Design Iteration	82
4.4.1	Pre-use Interview	83
4.4.2	Post-use Interview	83
4.5.	Summary	87

5 Conclusion	94
5.1. Conclusion	94
5.2. Future Research Recommendations	95
5.3. Limitations	98
References	99
Appendices	113
A. Self-Compassion Messages Written by Each Sample	113

List of Figures

2.1	ThinkUp Application for positive affirmations and motivation . . .	28
2.2	Users can record their voices and choose music	28
2.3	Cuff bracelet from ‘Fanery Sue Store’: materials and messages are customizable (source: www.amazon.com , accessed November 15, 2020)	29
2.4	Cuff bracelet from ‘The Silver Swing’ allowed to customize messages engraved inside and symbols on topside (source: www.etsy.com , accessed November 15, 2020)	30
2.5	Bangle bracelet from ‘Pawtastic Designs’ allowed to customize shape, charms, and messages engraved on the front and the back of the disk charm (source: www.amazon.com , accessed November 16, 2020)	30
3.1	The prototype of PowerRING	33
3.2	Front	34
3.3	Back	34
3.4	Materials for the prototype	34
3.5	Color picker (source: https://htmlcolors.com/google-color-picker , accessed December 3, 2020)	37
3.6	Generating QR code: The adequate contrast between the color of both background and code is required. (source: www.qrcode-monkey.com , accessed October 1, 2020)	38
3.7	PowerRING was set in a heart-shaped to represent the inner love. The prototype was kept in a plastic bag with a tiny encouraging message card attached.	39
3.8	Encouraging message card attached in the plastic bag. In Thai language, Palang means power, and Weelaa means time.	39

3.9	Subject L and her PoweRING	40
3.10	Subject N wearing PoweRING (left hand) and the first mockup (right hand)	40
3.11	Subject S and her PoweRING	41
3.12	Subject W and her PoweRING	41
3.13	Subject T and her PoweRING	42
3.14	Target Persona	47
3.15	The first mockup of PoweRING	49
3.16	Materials for the 1st mockup of PoweRING. A red color of the paper and a heart shape carved into the cover were to represent love for themselves.	50
3.17	Speakpipe, a web-based tool which individuals can record their voice messages without smartphone and can send the messages via URL (source: www.speakpipe.com , accessed October 17, 2020)	50
3.18	The samples can record voicemail messages of 90 seconds. (source: www.speakpipe.com , accessed October 17, 2020)	51
3.19	The samples can check their voice messages, write title and their names after recording. (source: www.speakpipe.com , accessed October 17, 2020)	51
3.20	Draft of 1st mockup	52
3.21	1st mockup	52
3.22	Generating a QR code via www.qr-code-generator.com	53
3.23	The first mockup with a note.	54
3.24	Subject A wears the PoweRING on her right wrist	54
3.25	1st prototype for Subject C (a female worker)	55
3.26	Subject N (a housewife) wears PoweRING	55
4.1	Rosenberg self-esteem scale (source: https://mpira.ub.uni-muenchen.de , accessed December 9, 2020)	59
4.2	Robson Self-Concept Questionnaire (1-2) (source: https://idoc.pub , accessed November 25, 2020)	60
4.3	Robson Self-Concept Questionnaire (2-2) (source: https://idoc.pub , accessed November 25, 2020)	61

4.4	Pre-test and post-test result of the Rosenberg Self-Esteem Scale (RSES)	63
4.5	Self-Concept Result	64

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Chapter 1

Introduction

1.1. Background

*“It is time we closed the gap between our physical and our psychological health”
(Guy Winch, 2014) [9]*

In terms of education, physical education is one of the mandatory subjects in schools to provide students the knowledge about playing sports along with health literacy. Individuals have been educated to protect their physical health since when they were students. Speaking of physical illness, individuals have been taught how to strengthen physical health and to receive medical help and hospital treatment with the attitude towards these physical situations as common problems that naturally happen and acceptable. In contrast, education involving mental health has not yet taken the necessary steps as much as physical health in some schools.

The definition of mental health literacy is “knowledge and beliefs about mental disorders which aid their recognition, management, or prevention” [10]. A psychologist Guy Winch stated on TED Talk in a topic “why we all need to practice emotional first aid” about paying more attention to our own emotional distress such as feeling isolated and treat it in the same way as dealing with their body pains [9]. Individuals are prone to worry about psychological vulnerabilities less than their physical pains. Thus, when it comes to being aware of mental health problems themselves, individuals have limited skills to cope with and disregard their emotions.

Nowadays, our societies have been surrounded by disruptive innovations including machines and cutting-edge technologies. Unlike the more and more convenient lives, the mental health issues still remain. The World Mental Health Report 2001

revealed that psycho-social problems are causing suffering in approximately 450 million people around the world and a number of people have no experience in any therapies and deal with it on their own [1].

Unfortunately, the gap between mental and physical health remain unchanged. Unlike paying attention to physical health, some individuals tend to less aware of their mental health. In 2013, the WHO World Mental Health (WMH) Surveys [11] revealed the obstacles of looking for psychological therapy. Three factors that individuals keep away from psychological treatment are : (1) Attitudinal hindrances, ranked the utmost described [12] [13] i.e. pessimistic viewpoints towards health [14] and misconceiving about consequences of treatment, (2) Low perceived need, and (3) Structural barriers, ranked less reported, i.e. location barriers and difficulty in making an appointment [15].

Interestingly, a common reason that individuals are worried about sharing their mental problem or receive treatment is having a concern about being judged by other people which categorized as an attitudinal hindrance. WMH surveys explained more about viewpoints based on these three barriers below.

- **Attitudinal hindrance:**

“I was concerned about what others might think if they found out I was in treatment.”

“I thought the problem would get better by itself.”

“I wanted to handle the problem on my own.”

- **Low perceived need:**

“It went away by itself, and I did not really need help.”

- **Structural barriers:**

“I thought it would take too much time or be inconvenient.”

In terms of mental health issues, self-esteem is one of important fields. Self-esteem has been connected to emotional well-being and behavior of human [4] and correlated with a number of psychological issues including self-enhancement which is defined as a prone to searching for an opportunity to develop themselves or self-concept [5] [6]. Self-enhancement in high self-esteem individuals is explicitly in accordance with the optimistic personality and results rather than individuals with low self-esteem [16].

Together, the relation between self-esteem and self-concept also supported the notion proposed by Maslow that teachers play a vital role in cultivating students' self-esteem. Students who are accepted and acknowledged their own value by teachers, along with studied within an encouraging atmosphere, are able to extend their utmost capabilities in school, whereas low self-esteem students gain academic performance lower than standard [17].

Therefore, providing individuals the literacy of emotional health and encouraging them to take care of their minds are supposed to be a global concern, and have a potential opportunity for innovation designers to things for tackling the challenges.

In our competitive societies, young generations are expected to be successful by societies. The more individuals grow up, the more individuals have high expectations for themselves to achieve the goals and to be capable of managing their lives. Thus, individuals are likely to too hard on themselves including comparing themselves with other people and self-critic. Yet, not all the circumstances of life along with the outcomes from all situations are under control. Still, some thoughts i.e. accepting uncontrollable outcomes, acknowledging oneself as human beings who can be vulnerable sometimes are tough to clearly admit for some individuals.

The researcher believes that human beings have a hope to see themselves become a better version and stronger in any way possible. Similar to several real-life samples such as studying with the aiming to attain the knowledge to become wiser, and exercising in order to get in shape and get stronger stamina.

Nevertheless, as human beings, human errors and failure can possibly happen. As a result of being unable to meet self-expectations, it possibly leads individuals to compare themselves with others. Comparing oneself with other people on capabilities leads to social comparison [18], which is the factor of low self-esteem.

Besides, to make a decision on moving from home town to live abroad can be considered as a major life change to some individuals. The expectations of getting either a better life or gaining some achievements after moving abroad are paralleled by the image of the future self. On the contrary, setting immensely high expectations also leads to low self-esteem and perceived as if a failure when the results are under expectations [19].

In particular, based on data gathered during the COVID-19 pandemic, the number of companies in businesses are dealing with the reduction of the hiring of foreign students [20]. International employees are the first target to more likely to be unemployed during ‘corona cuts’ [3]. The wide range of unpredictable situations surrounding a job hunt possibly cause discouragement and low self-esteem. In addition, one of the challenges foreign students experiencing in Japan is personal psychological issues. General living issues possibly are hindrances to their studies [21].

Aside from the struggling of studying the Japanese language, the socio-cultural issues including racism as well as discrimination affect students’ mental health [22]. The COVID-19 pandemic has intensified these issues. During the quarantine and social distancing, some people are capable of managing their stresses and lonely feelings during the extended stay-at-home period of time alone. In contrast, some people are anxious as well as uncomfortable. The intense loneliness is inherent in lower self-esteem and lower self-efficacy [23].

As a result of the stressful COVID-19 pandemic, to tackle the mental health problems including reviving self-esteem can be counted as one of the crucial issues in this year.

In order to suitably reach Millennials, digital technology related treatments that provide convenient access are necessary for the market [24]. Therefore, to succeed in this challenge, the researcher believes that fostering the skills of coping with mental health problems together with low self-esteem issues are necessary. While being alone or being in a situation which is unable to receive mental supports from surrounding people, the skills act as the inner and personal first aid box which allow individuals to use in every circumstance and help them survive in the competitive and full-of-expectation society.

Aside from the cooperation of families, policymakers, and educational institutions which are able to take a role in nurture individuals the mental toughness and mental health literacy since they are young, there is some potential gaps for the market which requires the collaboration of innovation creators, designers, and mental health researchers to initiate psychological innovations integrated into this kind of product design.

Recently, the variety of the up-to-date psychological treatment including application services are more increasing and more convenient for users to reach out such as Ooca.co [25], a telemental health platform that encourage individuals to feel more relaxed to consult about their mental health troubles through video calls with with psychiatrists.

In addition to the mental health support services, mental health-related product designs have a possibility to tap into the new market which makes the innovation for mental health become more approachable and more tangible. Thus, the study regarding psychological product design, which enables human beings to improve their social well-being in parallel with the constantly evolving world which turning to more and more technology-driven, is crucial to be considered on serving the consumers' current mental health needs and foresee future consumers' needs.

1.2. Research Objective and Questions

This research is about an accessory designed in a charm bracelet shape with a QR code that enables access to the recorded compassionate self-talk voice message.

The motivation of PowerRING comes from the belief that individuals have their own inner power and the innovative product can help individuals be aware of their emotional health in aesthetic design such as a fashion accessory. PowerRING is inspired by the desire to add the value to a half physical and half digital fashion accessory which can match their lifestyle and personal preferences, and enable to help individuals use their inner power by practicing compassionate self-talk as an emotional first aid to revive self-esteem while living abroad. With the aim to remind individuals to compassionate self-talk, the part of the body for wearing an accessory in which they can simply notice is the wrist. Hence, comparing to other fashion accessory such as necklace, hairpin, and earrings, the bracelet is the most appropriate choice of accessory.

The objective of this study is to examine whether compassionate self-talk voice accessory engenders reviving self-esteem and to find key attributes in designing the bracelet for reviving self-esteem, in order to help individuals enable revive their self-esteem and can be emotional first-aid by themselves.

PowerRING is a bracelet designed with the aim to revive the self-esteem of Millennials, which are individuals from the age of 24 to 39, born in 1981-1996 [26], who is currently living abroad. With aiming to comprehensively understand the potential of accessory with regard to reviving self-esteem, the researcher conducted in-depth interviews and prototype experiments.

While the number of products for exterior beauty decoration to improve individuals' appearance i.e. cosmetics, bags, and clothes have been famous for a long time, this paper proposed 'PowerRING' which is an accessory for building interior strength that has a tendency to become an innovation for the future. Besides, compassionate self-talk skills could be considered as a power of inner strength. The author believes that the more individuals be familiar to practice compassionate self-talk skills, the more possibility for individuals to be ready to utilize the skill whenever and wherever facing difficulties and feel low self-esteem.

The design of the prototype of PowerRING is improved and integrated from the initial data collected from the research. By beginning the studies along with extracting the insights of users' needs and core value of the accessory, the key findings have a possibility to be elaborated in details and functions, aiming at expanding into a new market of a prospective business to serve customers' needs and lessen the gap between consumers' daily life and the positive psychological product including motivating compassionate self-talk. Additionally, to enlarge the benefit of an accessory to strengthen the power of individuals' minds rather than the prior function of beauty and attractiveness.

The short-term goal is to bridge the gap between mental health and product design to help individuals revive self-esteem and foster compassionate self-talk skills through an accessory. When individuals have compassionate self-talk skills, they will enable them to be their own good friend. Eventually, it would help in getting ready to utilize the skills whenever and wherever even when they are not wearing the PowerRING.

The ultimate goal is contributing to society in terms of tangible innovation that supports individuals to foster emotional strengths, along with raising awareness on the importance of mental health in order to create a society of emotional strength.

Based on the objective of the research, two following research questions are posed with respect to this design:

1. *Can the accessory combined with compassionate self-talk voice message help people revive their self-esteem during living abroad?*
2. *What are key elements in designing a mental health-related accessory that can revive self-esteem?*

1.3. Contribution

This study is interaction design research, aiming to bring back self-esteem of individuals who are living abroad, heal their mental sufferings from low self-esteem, along with providing them regarding implementing compassionate self-talk as an their private emotional first aid, especially during the COVID-19 pandemic. This pandemic has a critical impact on uncertainty e.g. financial strain, job cuts, loneliness caused by social distance and various big changes [2] [3] which has been intensified mental health issues. Therefore, to tackle the mental health problems including self-esteem can be counted as one of the current crucial issues.

With the motivation to get rid of full interaction with a smartphone including using applications and serving the internet for long hours, along with adding value to a fashion accessory that combines aesthetic and strengthening mental health, the fashion accessory which is easy-to-see on body like a bracelet was designed to provide physical touch and encourages individuals to remind individuals to compassionate self-talk when looking at the bracelet.

In this study, five Thai Millennial women living in Japan were requested to do the self-compassion exercises proposed by a psychologist Kristin Neff [27], write a compassionate self-talk message, and after that read out to record the message. Later on, those files of voice messages were kept in Google Drive and the URL of the drive was used to generate a QR code to be printed out and attach to the hanging charm of the bracelet.

After finishing the making process, the five samples were requested to wear the bracelet and scan the QR code to listen to their voice messages before falling asleep

at night to access the subconscious mind [28], and when feeling low self-esteem for 21 consecutive days.

The results of this study proved that PowerRING can help the samples revive their self-esteem, have more self-love, eliminate self-criticism, have more positive self-image, become more self-confident, feel more motivated, and can identify their own competencies. It is vital for innovation designers to initiate innovative products to help individuals be aware of their mental health including self-esteem, aiming to thrive in the rapidly changing society. Compared to other mental health-boosting products in the market, PowerRING design contributes five features.

- First, with the self-compassion exercise and voicing out part combined in the first step of product customization, this design can enlarge its value from an ordinary accessory to the self-esteem reviving accessory.
- Second, with the shape of a bracelet on the easy-to-see body part which can blend with everyday lifestyle, this design also helps remind individuals to be kind and compassionate self-talk to themselves like they treat a good friend. Additionally, it helps lessen the barrier gap between avoiding and encountering mental health treatment by encouraging individuals to feel familiar with their emotional health issues. This uniqueness of the product acts as an emotional first-aid, allowing them to use it when self-esteem getting lower.
- Third, this design provides the customization function which allows individuals to write and modify the message by themselves to suit individual feelings and situations.
- Forth, this design offers an easy and clear process with minimal requirement through smartphone such as recording and scanning the QR code, which allows individuals to promptly access their message when they need emotional support.
- Lastly, keeping the voice message in the Google drive of which password is required, and generate QR code from the URL of the Google drive can protect personal information in the voice messages secure privacy from being visible to others and accessible by others.

1.4. Evaluation

This study is qualitative research, collecting and analyzing data to gather in-depth insights from user experiences and opinions. Based on the year of the study, PowerRING is targeted towards Millennial women, known as people who were born between 1981 and 1996, who are living abroad. Five samples were participated in the experiment by wearing the accessory for 21 consecutive days. The researcher implemented the Self-Esteem Scale (RSES), the Robson Self-Concept Questionnaire (RSCQ), and in-depth interviews before and after the experiment to evaluate to what extent PowerRING enables reviving self-esteem through compassionate self-talk and the changes regarding mental health and behaviors. Along with evaluating the design components comprising of V.I.P strategy (voice, interaction, physical, personalization, and privacy) to collect product feedback for product development.

1.5. Thesis Structure

This thesis is divided into six chapters as follow:

- **Chapter 1**

The introductory chapter describes the background, research questions, research objective, along with research goal and contribution.

- **Chapter 2**

The related works and Literature Review present related studies in three areas: (1) Self-esteem and self-compassion (2) Self-talk and subconscious mind (3) Millennials and anxiety (4) Self-esteem boosting products

- **Chapter 3**

The PowerRING design, design concept, target audience, and design iteration.

- **Chapter 4** The experiment design, evaluation, and the result of analysis

- **Chapter 5** The conclusion, limitations, and future works.

Chapter 2

Related Work

2.1. Self-esteem and Self-compassion

This section aims to describe definition, significance, a correlation between self-esteem and self-compassion, along with the studies about reviving self-esteem.

2.1.1 Self-esteem

Definition of Self-esteem

Self-esteem is categorized as a psychological theory, founded by Abraham Maslow in the paper “A Theory of Human Motivation” in Psychological Review published in 1943, and known as the fourth level of Maslow’s five tiers of human needs. Maslow’s hierarchy of needs comprises psychological needs; safety needs; belongingness and love needs; esteem needs; and self-actualization [17]. Self-esteem is considered a necessary social-psychological area and has been discussed among psychologists over many decades [29].

There are a number of definitions of self-esteem proposed by psychological researchers.

- Rosenberg described self-esteem as an evaluative element of the extensive viewpoint of individuals have towards self which can be pleasurable or unpleasurable [30] [31].
- Robinson proposed the concept of self-esteem as a range of definitions that align with the definition of the word ‘esteem’ such as self-worth, self-regard, self-respect, and self-acceptance [32].

- Neff explained that self-esteem is the measurement which individuals use to judge their goodness as worthy people, and derived from perceiving the capability of doing only what is meaningful to them [33].
- Nathaniel Branden gave a definition of self-esteem in his book called Six Pillars of Self-Esteem as “the reputation we acquire with ourselves “ [34].
- Cohen defined self-esteem comes from the level of correlation between the real self and the imaginary self which individuals perceived [35].
- Mayo Clinic nonprofit organization proposed that self-esteem means the perspectives which individuals have towards themselves; including the attitudes towards their own capabilities and barriers [36].

According to the definition stated by Maslow, self-esteem is divided into two main groups: (1) esteem for oneself comprising pride, accomplishment, proficiency, and non-alignment; as well as (2) the wish for social approval combined with position and reputation [17]

Self-esteem is classified into 2 types: global self-esteem and specific self-esteem. Global self-esteem is involved with mental well-being evaluation towards overall circumstances, while specific self-esteem is engaged in measuring their own accomplishments towards particular things such as academic achievement [19] [37].

Interestingly, self-esteem seems to act as a mirror reflecting the emotions of individuals. Each situation, which individuals are experiencing at that time, can cause their self-esteem to swing up and down [38]. This can be assumed that staying in new environments i.e. living abroad probably leads to the fluctuation in self-esteem.

Self-esteem is constructed and influenced by a number of elements [36].

- Individuals’ thoughts and perceptions
- Reaction of other people
- Experiences at home, school, work and in the community
- Illness, disability or injury

- Age
- Role and status in society
- Media messages

Esteem needs become more and more necessary once individuals are fulfilled by the prior three needs [39]. On the other hand, while Maslow's hierarchy of needs is widely discussed as one of the five forms in which mankind motivations normally shift, it has been criticized in terms of inappropriately presenting the dissimilarity of needs to those raised in collectivist and individualist cultures. The researches Gambrel, Patrick A, and Cianci, Rebecca argued that Maslow's hierarchy of needs does not correspond with a hierarchy of needs in collectivist societies as self-esteem is eradicated [40].

Significance of Self-esteem

Self-esteem is an important field as it has been connected to emotional well-being and behavior of human [4] and correlated with a number of psychological issues including self-enhancement, defined as a prone to searching for an opportunity to develop themselves or self-concept [5] [6]. Self-enhancement in high self-esteem individuals is explicitly in accordance with the optimistic personality and results rather than individuals with low self-esteem [16].

Together, the relation between self-esteem and self-concept also supported the notion proposed by Maslow that teachers play a vital role in cultivating students' self-esteem. Students who are accepted and acknowledged their own value by teachers, along with studied within an encouraging atmosphere, are able to extend their utmost capabilities in school, whereas low self-esteem students gain academic performance lower than standard [17].

In regard to the correlation of the degree of self-esteem and individuals' psychological health, low self-esteem is described as a factor of mental problems and a hindrance to performances as it causes them to underrate their viewpoints and pay more attention to their defeats and shortages [4] [38].

Guindon described the traits of low self-esteem students, accumulating from the most frequent words out of 1,000 words provided by school counselors [41]

- Furious
- Acts out
- Under-performing
- Negative viewpoint
- Unhappy, Sorrowful, and Poor self-image
- Reserved, Socially unskilled, and Poor communication
- Dependent, Insecure, Lacks self-confidence, Lacks motivation, and Non-risk-taker

Yet, a number of studies explained high self-esteem as a positive factor. Rosenberg and Owen explained that low self-esteem is a factor causing being easily distracted by defeat and possibly extend the circumstances as being worse [42]. Contrary to low self-esteem, individuals with high self-esteem are not only prone to feel less negative emotions including anxiety, isolating, depression; and normally perceive more positive emotions such as joyfulness, assertiveness, healthy relationship, and confidence, but their friends also explain them in positive images such as sociability, creativity, together with well managing their emotions and relationship [4] [37], meaning that the level of self-esteem can predict psychological well-being, sense of pleasure, as well as capability to overcome limits plus to reach their full potential plus being trusted and impressed by their societies.

Nonetheless, several researches argued that high self-esteem individuals are likely to explore and measure their career with bias and overestimate their abilities e.g. unreasonable positive evaluation in educational capability [16] [37] [43] [44]. Additionally, the finding from Neff's studies also aligned with this concept in terms of trying to achieve high self-esteem is assumed as the link to further complications [33].

Therefore, the healthy degree or the appropriate degree of self-esteem is neither too high nor too low self-esteem, yet moderate self-esteem. Individuals with healthy self-esteem are defined as those who have a precise perspective of themselves including acknowledging their own strengths, yet being able to accept their mistakes. Healthy self-esteem provides a variety of advantages such as believing in themselves when doing things, being self-assured in communicating thoughts, abilities to build positive relationships and to let go of toxic ones, as well as being kind to self [36].

In terms of low self-esteem, several researchers have suggested a number of methods of dealing with it. Self-esteem can increasingly intrude reviving positive emotions involving self after self-esteem threats [45] [46]. On the other hand, there is the likelihood that the outcome of those strategies will not last long and cause individuals to resist rather than revealing their sufferings through enhancing responsiveness to threats to self-worth later [47]. It is also inclined to shift the focus of individuals to less look for paying close attention than sustain their worthiness [48]. This means the pursuit of restoring self-esteem can lead to non-permanent results, which possibly leads to triggering some points of perceiving low self-esteem again.

A number of studies have been done to investigate the connection between expressing their experiences through their own words and the solution of self-esteem issues. Chandler identified how a creative writing program can raise self-esteem and self-efficacy in teenagers. Self-efficacy comprises four elements: (1) mastery experiences i.e. accomplishment, (2) vicarious experiences i.e. simulated modeling, (3) verbal persuasion i.e. praise, encouragement, and supportive stories, and (4) emotional provocation, which includes both positive and negative sides i.e. pride, anxiety and angry [49] [50].

This study conducted a writing experimental study, aiming to measure whether daily writing does help teenagers increase their self-in-relation self-esteem and self-efficacy for 14 days; 11 high school students of an urban New England vocational high school with low-income and prone to minority were recruited. During the English class, participants were asked to write their own stories without judgment by others in their own languages for 10 minutes and read it aloud after finish writing in order to allow them to hear their own thoughts.

The outcomes indicated that individuals can perceive their own feelings and thought processes more concretely when hearing their written messages in their own voice during speaking out. Furthermore, individuals become stronger and more confident to take control of their lives, along with being capable to manage difficulties once they are trained to explore their inner self and express through their real voice [49].

These findings above also aligned with the claim by Atwell [51]. In terms of the final evaluation regarding the self-esteem of participants, some students explained that this writing makes them understand themselves more and helps them try self-talk. Additionally, writing exercise with the aim of enhancing self-in-relation self-esteem along with the four areas of self-efficacy were examined as a factor of an increase in well-being.

Psychologist Guy Winch proposed 5 ways to cultivate lifelong self-esteem [52] which are (1) Use positive affirmation correctly (2) Identify your competencies and develop them (3) Learn to accept compliments (4) Affirm your real worth, and (5) Eliminate self-criticism and introduce self-compassion.

When self-esteem gets low, individuals are prone to criticize themselves. This can assume that if individuals are able to diminish the habit of self-criticism, their self-esteem is likely to be increased. Interestingly, self-compassion is mentioned as a method to relieve self-criticism. For that reason, self-compassion is vital for fostering long-term self-esteem.

2.1.2 Self-compassion

Definition of Self-compassion

According to Oxford English Dictionary, the definition of compassion is “The feeling or emotion, when a person is moved by the suffering or distress of another, and by the desire to relieve it; pity that inclines one to spare or to succour” [53]. In regard to the word ‘compassion’, it is not the new word created recently and individuals have been taught to be compassionate towards others.

In some religions, compassion has been fostered over decades. Among Catholics, the word ‘compassion’ has been nurtured since childhood. Refer to the Catholic Thing website, the meaning of compassion is related to the feeling of suffering together along with the concern to relieve that person [54]. Like Catholics, Buddhists have been taught about the necessity of compassion along with dealing with human suffering to become awakened individuals. Compassion, extended to all sentient beings including humans, non-human animals, and creatures, is also considered a critical concept for enlightenment [55] [56].

Among the variety of beliefs and cultures, compassion has been cultivated and interpreted as the core of generating happiness for other humans and life-beings, yet one of the lifelong crucial and useful soft skills to be determined such as self-compassion or being kind and understanding oneself as an ordinary human with imperfections [33] [57] seems to remain an unknown concept for some people and not been mentioned widely in some societies.

Most of the meanings regarding compassion which individuals are familiar with are related to focusing on compassion towards others but not one’s self. This leads to draining inner power gradually. Neff defined self-compassion as “treating oneself with kindness, recognizing one’s shared humanity, and being mindful when considering negative aspects of oneself.” [33]

Although many studies examined that self-compassion is the main factor of promoting positive self-regard, Gilbert and Irons criticized that self-compassion differs from self-esteem in several aspects [58] [59]. For instance, self-compassion urges self-soothing functions including a sense of security and stops the threat system such as anxiety and defensiveness. While self-esteem dissimilarly focused on feelings of being better or worse than others.

Significance of Self-compassion

With regard to uplift low self-esteem issues, self-compassion has been debated as a solution. The researchers have found that self-compassion and self-esteem are connected to the optimistic concept towards self [33] [48]. Furthermore, Neff also described that the outstanding benefit of self-compassion can accurately soothe individuals who are emotionally injured by self-esteem such as feeling embarrassed, unworthy, and facing a sense of inadequacy. Moreover, Neff presented that the degree of self-compassion affects self-esteem as it is able to estimate feelings of worthiness as well as explicit positive psychological senses of individuals.

Like healthy self-esteem [36], self-compassion encourages individuals to accept both weaknesses and strengths of themselves as a human [59]. Ravi [60] also suggested that self-compassion is a crucial factor for cultivating healthy self-esteem and resilience as it supports a steady self-perception during facing some losses or having a difficult time.

Furthermore, compared to individuals who have enough self-compassion, those who lack it are prone to less perceive their worthiness and heavily criticize themselves rather than accepting themselves as a human being who is unable to control all things and achieve expected results every time. Additionally, self-compassion is likely to support the capability of self-soothing and lessen anxious emotions and loneliness that occurred while dealing with difficulties by themselves [59], which are vital for individuals who are living abroad.

A study regarding healing the distress activated by self-esteem threats, presented by a group of researchers: Jessica, Allison, David, and Vanja. The researchers proposed a study that examined the correlation between self-compassion and self-esteem [48]. The study has conducted an investigation to explore whether cultivating self-compassion promotes disclosure of experiences that threaten self-esteem. The study was based on a belief that group recuperating has more potential to relieve threats to self-esteem than dealing strategies within the self.

The study's setting was with 85 female undergraduate students who were asked to recall a negative situation that caused bad impressions towards themselves, related to when their self-esteem was threatened such as rejection and failure, during the previous 5 years. Informed that the manipulations are aimed at lessening negative emotions from their chosen events. Subsequently, with aiming at making certain of those experiences to be more clear, open-ended inquiries were thrown at participants.

After that, the researchers chose one of three experimental writing exercises: self-compassion, self-esteem, or free-writing for each participant by random. The length of their writing is not fixed but required to complete by 10 minutes. Once the writing process was done, the prospective advantages of revealing pains together with a session of exchanging encouraging communication with another participant were described to the participants. However, each participant can select the part of their own letters that they are comfortable to share with.

The experimental conditions for writing the letter are comprising of three parts.

First, the self-compassion related letters [61] which involves 1) self-kindness including concerns involving self; 2) mindfulness; and 3) common humanity comprising the mutual experiences which might happen with other people.

Second, the self-esteem related letter, designed to increase participants' self-esteem by supporting three components: 1) individual's capabilities including positive personalities and validating of potentials worthiness, 2) defensive attributions such as factors of a negative situation that participants think it was not caused by them, 3) the recall of the previous achievement.

Third, the free-writing related letter, aimed to encourage participants to find their deepest process of thinking, emotions, and concepts regarding the event.

According to the result, compared to participants who were selected to use an indirect writing method as free-writing, those of which experiences were more self-esteem threatening, strengthening self-compassion and self-esteem encouraged more intensive revealing. While self-compassion writing nurtured more extended disclosures.

The researchers indicated that the individuals will be able to communicate their sorrowful experiences in regard to self-esteem threatening deeper and longer to other people by fostering self-compassion and fixing self-esteem [48]. Thus, according to the study, self-compassion is assumed that it has an impact on individual's self-esteem.

In addition to the study above, Neff and McGehee also suggested that self-compassion plays important role in well-being for adults as well as teenagers, and can be considered as a potential intervention target for adolescents painfully affected by negative perspectives towards self [62], meaning low self-esteem.

Self-compassion exercises

Neff proposed 8 self-compassion exercises on her website <https://self-compassion.org> [27]. The researcher found that the exercise 1, 2, and 3 are suitable to allow samples explore and express their own stories and feelings as a part of personalization for designing the accessory. Below are the details of the 3 exercises.

Exercise 1: How would you treat a friend?

- Part 1: Considering how would you treat a beloved friend when notice their deep suffers, in particular when you feel comfortable the most. Later on, write down the way you react, and words as well as tones you normally use when talking to them.
- Part 2: Asking yourself about how do you generally react to yourself in struggling circumstances? Later on, write down the way you react, and words as well as tones you normally use when talking to yourself.
- Part 3: Trying to question some differences whether any factor of fear causes the differences between the way you treat yourself and your beloved friends.
- Part 4: During those painful moments, how things possibly change if you treated yourself like you normally treat a close friend.

Exercise 2: Self-compassion break

Consider about a difficult moment causing you pressure, and notice the real feelings and the mental pain. Then say to yourself as below.

- Suffering and being struggling are parts of being a human. It is not only me but other people also can feel the same.
- May I gently treat myself. Try to question yourself “What sort of words do I want to hear right now to show myself kindness?”

Exercise 3: Exploring self-compassion through writing

- Part 1: What shortcomings and failures cause a feeling of insecurity or unworthy? How do you feel after coming up when considering them?
- Part 2: Imagine yourself as an unconditional beloved friend who truly understands all of your strong and weak points, your family background, your uncontrollable life experiences, your self-image, and admits you as an ordinary human with limits, without judging. Later on, imagine what would they compassionately tell you about your suffers and write a letter to yourself from that standpoint. Also, consider how what feasible recommendations they would provide to improve these negative thoughts.
- Part 3: Put the letter down for a moment, after that read it again with the compassion to console your feelings.

To summarize, on account of a number of psychological researches, self-esteem and self-compassion are strongly associated. Aside from the studies above, self-compassion has been academically discussed in parallel with self-esteem among psychological researchers over years in regard to fostering self-compassion can be another method to solve self-esteem issues. However, some arguments regarding self-esteem have been stated as high self-esteem provides some difficulties and have individuals concentrated on superiority.

Nevertheless, in this research, to revive self-esteem is not defined as promoting high self-esteem or encourage self-boast in human beings, yet to support individuals to bring their self-esteem back to the healthy or stable status which is neither too high nor too low. Moderate self-esteem is counted as the healthy level of which may allow individuals to realize their capabilities and their worthiness as a human.

Even though treating oneself like a good friend involves kindness and accepting oneself self as an actual human being, it does not mean spoiling or allow to be some negative traits such as carelessness or laziness. A good friend would encourage his or her friend to do appropriate things and to refrain from doing anything that would not be fruitful for themselves.

In the psychological field, an intervention acts as a tool for affirming one's self which helps control negative results, and express what encompasses their original beliefs. The appropriate interventions also effectively support development in the study, health, and interpersonal relations [63], therefore to self-compassion supports the idea about reviving self-esteem and individuals may use self-compassion as an effective tool to alleviates them when suffering from low self-esteem problems.

2.2. Self-talk and Subconscious Mind

This section aims to focus explicitly on research about the relation of voice, self-talk, and subconscious mind conducted by other researchers to extend knowledge of essential and practical practices in this specific field.

2.2.1 Self-talk

Self-talk is described as either aloud self-talk or internal dialogue, influenced by subconscious mind [64]. Interestingly, Shad Helmstetter also defined self-talk in the book 'What to Say When You Talk to Your Self' that "self-talk is a way to override our past negative programming by erasing or replacing it with conscious, positive new directions." Anything which individuals tell their subconscious mind long and powerful enough, it will trust and conduct new directions which are able to convince them to do accordingly [65].

In terms of communication, five senses are used to send and receive both verbal and nonverbal messages. Apart from a facial expression which can be seen by eyes, voice is another element of the five senses which helps individuals communicate their feelings and pass on innate and fostered emotional signs more effectively. [66].

Since individuals were born, they have been taught to speak with other people such as calling their mother or someone's name when reaching the age that is able to communicate. Whereas, practicing self-talk or trying to listen to the inner voice seem strange and unfamiliar to some individuals. In contrast, positive self-talk plays a significant role in self-concept and self-esteem [67] [68] [69].

Self-talk or intrapersonal communication has been proved as a necessary factor for individuals in increasing the possibility of accomplishing their goals both for ordinary people and players. Alan St Clair Gibson and Carl Foster also proposed the concept of self-talk in the book called 'The Role of Self-Talk in the Awareness of Physiological State and Physical Performance' that positive self-talk acts as a psychological technique used for driving athletes to raise their performances during training periods [70].

A few studies also have examined that the increase in exercise performance, including greater persistence, has associated with positive self-talk [71] [72]. This proved that positive intrapersonal communication with gentle wavelength affects the emotional level and act as the first aid for soothing feelings.

C. James Jensen and Joseph Murphy mentioned in the book called 'Expand the Power of Your Subconscious Mind' that self-talk is considered as the utmost influential conversation which determined individuals' future along with having a greater impact on their behaviors, determinations, faiths, and particularly self-concept. Self-talk is one of the prior factors of building self-concept of which defines the accomplishment of individuals.

According to the correlation between self-concept and self-esteem, it is vital to clarify how self-concept is formed as it enables individuals who have low self-esteem to rebuild the pattern of self-esteem and decrease the previous unhealthy self-concept [73].

2.2.2 Subconscious Mind

Several studies stated that thanks to the dissimilarity of each frequency of brain wave of humans, the Electroencephalogram (EEG) is divided into five types of brainwave signals: Delta wave, Theta wave, Alpha wave, Beta wave, and Gamma wave. Each brain wave has its own functions which connected to mental states and conditions differently: Delta wave is related to the state of deep sleep and unconscious; Theta wave is linked to intuitive, recall, and imaginary; Alpha wave is associated with relaxation; Beta is allied with alertness; while Gamma wave regards upper mental actions [74] [75] [76] [77]. Juliana Yordanova, Vasil Kolev, Ullrich Wagner, Jan Born, and Rolf Verleger also examined that Alpha EEG power converts the presleep unreserved understanding to postsleep categorical insight [78].

The human's brain produces alpha waves when being in a state of wakeful relaxation or being conscious but in a relaxed state such as right after waking up in the morning and just before falling asleep at night [28]. With the capabilities of the alpha state which allows the body to lessen blood pressure and blood sugar levels related to the declining in stress hormones, scientists have validated that the alpha state enables individuals to produce the healing powers [79]. Although individuals' conscious minds are saying that they already forget their hurtful moments, they are likely to still keep them subconsciously. Those moments are just suppressed and engraved in their subconscious mind like an iceberg below the water. Regardless of that fact, individuals can enter into those emotions of hurtful moments and replace those emotions at a subconscious level [80].

According to a book, *New Psycho-Cybernetic* written by well-known doctor Maxwell, the 21-day rule for mental training exercise was explained that individuals are able to loosen negative pressures and withdraw self-image wounds by spending half an hour for 21 days in a row to repeatedly work on quiet reflection [81].

Besides, a psychotherapist Dujdao Vadhanapakorn and a psychologist Norrapan Thongchuem argued in the R U OK Podcast Episode216 that individuals are capable to learn how to grasp happiness. Being happy is connected to positive thinking which is a skill that individuals can practice little by little like collecting

a point during being in a neutral mood state or in a good mood. With the result that while feeling down, forcing the mind to think opposite to the emotions at the moment is almost impossible e.g. thinking positive when feeling negative [82].

Additionally, James K. Van Fleet mentioned in the book ‘Hidden Power: How to Unleash the Power of Your Subconscious Mind’ that the subconscious mind will instinctively and neutrally help individuals reach the goals of which have been decided. Individuals can turn their subconscious minds to be their close friends by training them by talking to it the same way as talking to others. The most appropriate state in which to exercise the self-talk skill, which connected to mental picturing to visualize things desired, is the Alpha which will be produced during the daydreaming, being about to sleep, and just waking up in the morning [83].

Similar to the above findings, Ronald Glassman and Mollie Doyle stated in ‘The Alpha Solution for Permanent Weight Loss’ book [79] that by conduct a study for the individuals who are struggling with food and weight loss by dealing with rewriting a blueprint and reframing the definition of the future self in the subconscious mind. By training the subconscious mind for reaching goals and reframing the future self, individuals’ consciousness will be constantly overturned by their subconscious minds. The authors of the book organized self-talk exercises for their clients by asking them to read the script mentioning their vision for their future self and record their voice on MP3.

For the first step, according to the concept that the subconscious minds are prone to tune in and accept a statement spoken by the familiar voice rather than the unfamiliar voice, the clients were required to utilize their inner voices and kept saying the statements after the authors. With repeating reading the message with their own inner voices, their subconscious minds were being told to adjust accordingly.

For the second step, the clients were required to listen to their recorded voices every night for a week and ten days as the rehearsal is vital to the subconscious. Besides, the reason why listen at night before bed is that the channel bridging the subconscious mind and the most effective time for self-talk to motivate the inner strength is the Alpha wave, produced while being relaxed on the bed and about

to sleep.

Ronald Glassman and Mollie Doyle also mentioned that due to the concept of the subconscious mind will be more ready to admit the new pattern when it is delivered in a closely acquainted voice of which the subconscious mind feels believable, the more the subconscious minds perceived a thought, the more the subconscious minds are going to turn it into reality. As a result, individuals can train their subconscious minds to have both healthy and unhealthy tendencies by getting patterned for [79].

As a result of the benefit of the Alpha involving the entrance to the subconscious mind, it can produce healing powers and helps humans recall what has been forgotten by their conscious mind [83]. Similar to a psychological technique for improving the performance of athletes through a means of positive self-talk [71] [72], listening to compassionate self-talk voice messages during the time in which the brain produces alpha waves can be assumed that those positive messages will be stored in the subconscious mind that can help individuals heal themselves with self-compassion when self-esteem getting lower.

2.3. Millennials and Anxiety

According to the surveys conducted by the American Psychiatric Association (APA) collected from a nationwide representative sample of 2,023 adult participants, the findings were that the generation who experience anxiety the most is millennials. In particular, compared to males, the anxiety among females is higher. 86 percent of the representative sample revealed their thoughts towards their psychological health that it has affected their physical health. Besides, the various points of life, such as emotional well-being and families, are able to crucially affected by the rise in anxiety [84].

A study by King's College, which conducted on 2,000 millennials, stated that millennials who perceived loneliness have the likelihood of feeling anxious more than binary [85].

Millennials are prone to set high expectations for themselves. Unhappiness and anxiety in this generation are possibly caused by the main factor as decision-making. Compared with generations ago, the millennials have much higher frequencies of looking for mental health treatment services, for instance consulting with psychiatrists and psychologists.

During living in hometown, mental health issues may occur at times, whereas research called "The Mental Health Status of Expatriate Versus U.S. Domestic Workers " [86] found that individuals who are living abroad as expatriates are much more likely to encounter mental health problems. A study conducted by Foyle, Beer, and Watson also support the above concept [86]. The researchers examine the historical aspects of expatriate mental health by collecting data from 397 individuals who work abroad. The result from the interview demonstrated a connection with stressors i.e. concerns regarding career and hometown, health issues, and adapting to new cultures.

To summarize, millennials are a potential generation who can lead nations to a better future and initiate more disruptive innovations to the world. Millennials may reach their fullest potential if they are driven effectively to thrive both intelligently and emotionally. Thus, understanding millennial users' psychology is a critical factor to design a product that can attract their inherent needs.

2.4. Self-esteem Products

A variety of self-esteem and mental health-related products have been initiated in the market. Both physical and digital such as mobile applications have been invented.

Speaking of interactive function, most of the mental health-related products are fully digital or online material in which internet access or smartphone are required, and the concern of the aesthetic aspect or physical touch are less significant i.e. mobile applications or online exercises. In contrast, when it comes to tangible products, the interactive function is neglected such as rings, bracelets, T-shirts, and tote bags with printed or embedded positive or self-affirmation messages.

Steve Job presented the significance of interaction design as it is connected to experiences and pleasure of users towards a product [87] and also stated the famous quote “Design is not just what it looks like and feels like. Design is how it works.”

John Kolko suggested in his book ‘Thoughts on Interaction Design’ [88] that in order to reach the emotional level and the utmost personal level of individuals, the interactive function is crucial for designing. In addition, the dialogue, both tangible and intangible including emotional element between a product and a user, is the key factor of an interaction. The material of the product is not long-lasting as it will gradually get worn and users’ inherent reactions possibly convert over time, therefore integrating a subtle, long-term, instinctive dialogue can count as the highest goal of interaction design.

ThinkUP application is a mobile application, available for both iOS and Android users, designed to encourage individuals to develop their self-esteem by using self-affirmation and uses’ voice strategy. For a free version, users can record their voices for three sets and can choose some background music to play along with their recorded voices, yet they are not allowed to set a timer to stop in when playing their voices. The reminding time is allowed to set. For the paid version, starting from 850 Yen per month, users will be allowed to record unlimited amounts and unlimited length of affirmations, upload their own personal music and utilize all options such as a timer and separate volume controls.

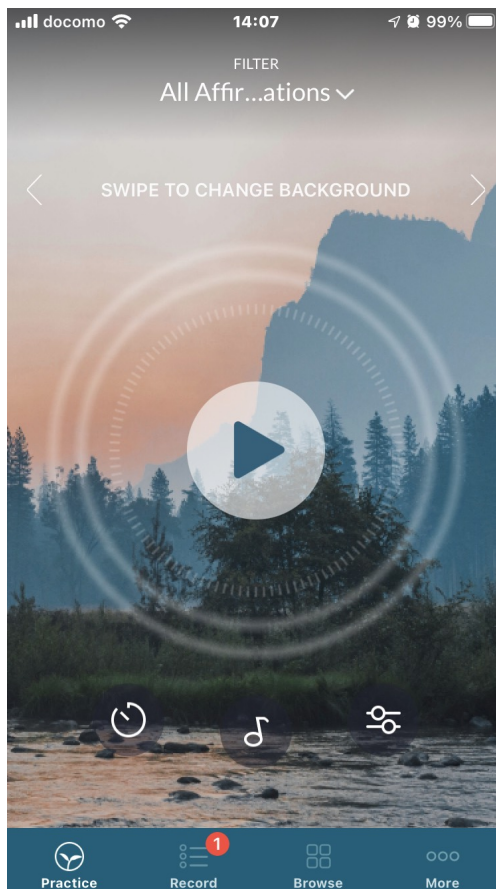


Figure 2.1: ThinkUp Application for positive affirmations and motivation

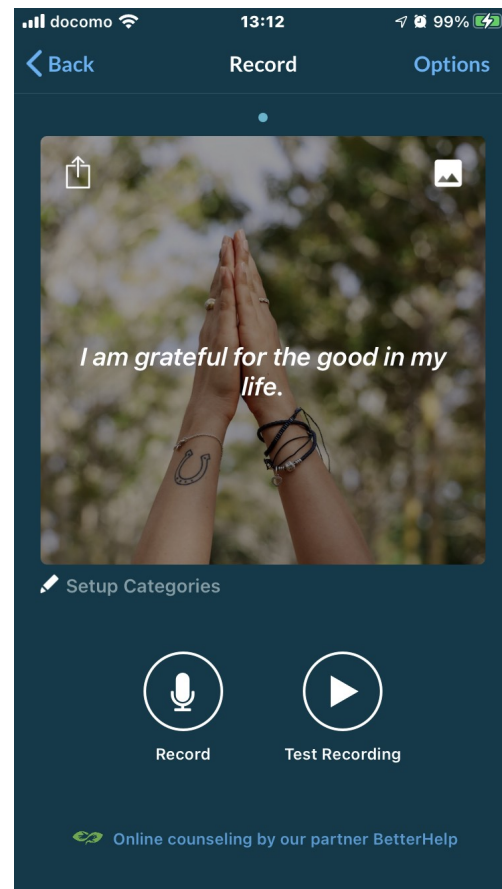


Figure 2.2: Users can record their voices and choose music

However, ThinkUP combines voice, interactive, personal, and privacy functions, yet the application itself is still embedded in a smartphone and lack of physical element. The application is required users to interact with smartphones only and when their smartphones run out of battery, no object is available for perception.

With rising concerns about the privacy issue, individuals as consumers are likely to pay more importance to and be aware of their privacy. Proposed by Wunderman Thompson Intelligence [89], "The Privacy Era" report conducted a survey to investigate individuals' viewpoint towards data privacy and security by collecting data from 1,501 people in the US. The report mentioned that privacy and data security are considered a valuable asset and connected to their feelings.

The utmost concern is data security is a top concern. The study found that 58 percent of samples are paying high attention to ensure that their personal information is safely protected. This can assume that facilitating privacy is a key element for product design.

Aside from ThinkUP, these three bracelets are the product which uses the personalization strategy in designing by allowing customers to personalize the encouraging messages and can choose charms for decoration (as seen in Figure 2.3-2.5).

In terms of psychology, personalization is not only connected with feelings of personal control and stress management but also create a greater sense of belonging and ownership as it is more correlated to their needs. For marketing purposes, personalization is one of the crucial factors that make individuals desire the product. [90] [91] [92]. Shortage of personalization causes one-third of customers leaving business relationships [93], supposing that personalization is a critical factor for increasing engagement between individuals and businesses.

Besides, with regard to physical object and aesthetic, individuals cannot wear the applications on their body to remind, they still need to touch their phone and fully rely on the phone which is digital product and also not provide the sense of beauty product and physical touch. Mobile applications do not provide the sense of fashion and beauty

Moreover, the length of the voice message is limited by the time-limiting condition. Individuals are not allowed to record the message as long as they want to talk to themselves.

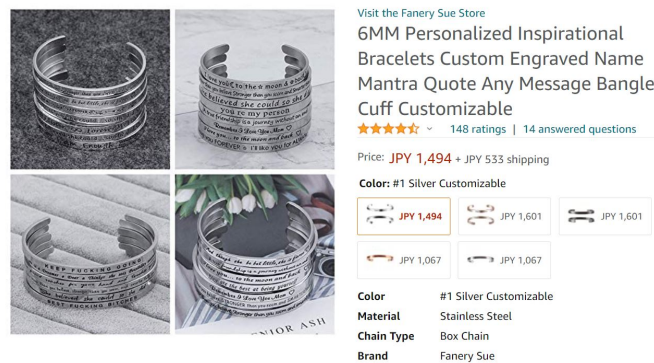


Figure 2.3: Cuff bracelet from ‘Fanery Sue Store’: materials and messages are customizable. (source: www.amazon.com, accessed November 15, 2020) [94]

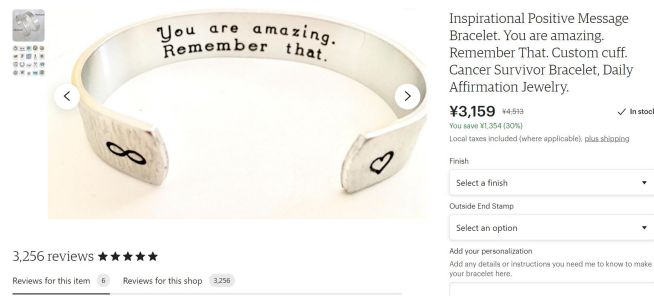


Figure 2.4: Cuff bracelet from ‘The Silver Swing’ allowed to customize messages engraved inside and symbols on topside (source: www.etsy.com, accessed November 15, 2020) [95]

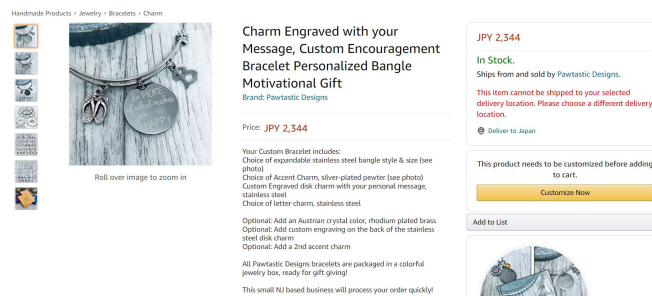


Figure 2.5: Bangle bracelet from ‘Pawtastic Designs’ allowed to customize shape, charms, and messages engraved on the front and the back of the disk charm (source: www.amazon.com, accessed November 16, 2020) [96]

The process of design is convenient as customers enable to customize online. However, customers unable to interact with the product and might lead to less engagement and attachment over time. Additionally, the messages engraved on these bracelets are visible to anyone and unable to maintain the privacy of the owner like posting a message on their Facebook without setting only me mode, therefore, for those who highly concern about privacy, these product designs might not be the suitable option.

Nonetheless, the design thinking about its appearance to fit with customers’ preferences is not enough. To consider more about the way to reach users’ emotions and create engagement are also vital aspects. This is in line with the emotional design concept proposed by Norman [97]. The aesthetic aspect along with

emotional design are crucial areas to be concerned, as a human is an emotional being and somehow they estimate their preferences towards something by using their emotions [97]. Furthermore, one of the important aspects regarding the factors causing individuals to like or dislike products around them is their emotions. Designers need to keep in mind that to increase product engagement, the more personal, the more users feel attached to the products. This concept is also supported by a statement of Norman “People can more easily relate to a product, a service, a system, or an experience when they are able to connect with it at a personal level.”

Apart from emotional design [97], Patrick also identified about this concept in his book ‘Designing Pleasurable Products’ [98] that apart from function and outer attractiveness, provoking end-users’ emotion through four types of pleasures are vital aspects for designing a product for as below:

- Physio pleasure: The pleasure obtained from human sensory
- Psycho pleasure: The pleasure obtained from the emotional reactions
- Socio pleasure: The pleasure obtained from social interaction with people
- Ideo pleasure: The pleasure obtained from embedded values

In deciding what kind of product to utilize in this study, bracelets proved to be the most appropriate choice for presenting emotional support in a form that individuals can be seen on the wrist to have them recalled their voice messages and enable them to wear on their bodies in everyday life. In the study of PowerRING, the researcher decided to design a product focusing on 2 types of pleasure: physio-pleasure and psycho-pleasure.

Personalization through allowing individuals to take part in the making process of their product can extend the feeling of belongings and attachment. This is supported by the IKEA effect [99] which is defined as the increase in valuation of product individuals made by themselves, together with the concept of emotional design by Norman [97] about personal level connection. When individuals are allowed to participate in the production process of their products, the value they put into that product will be leveraged.

Moreover, self-compassion skills are mostly fostered in clinical places. Psychologist Neff explained that other environments such as educational institutes or companies might be potential options for fostering the skills suggested for future research [57]. Aside from cultivating these skills in organizations or provided by other people, the researcher believes that there is a wide range of potential execution or intervention of the method for nurturing self-compassion skills for a more mindful life to be considered i.e. initiating everyday-use mental health support products to serve the unmet needs.

To summarize, according to studies, the researcher believes that 6 elements for designing the self-esteem reviving products and to improve the design and functions to be more innovative yet reach the personal level to create more emotional attachment and served unmet needs are the compassionate self-talk element along with the V.I.P. strategy comprising of

- [V] stands for Voice
- [I] stands for Interactive
- [P] stands for Physical object, Personalization, and Privacy

Chapter 3

Design

3.1. PoweRING Design

3.1.1 Design Concept

PoweRING is designed as a bracelet, aiming to encourage individuals practicing compassionate self-talk and can listen to their compassionate self-talk voice message attached to the hanging charm that allow them to hear their own thought, in order to revive self-esteem when struggling with some life circumstances during living abroad such as culture shock, language barriers, loneliness, anxiety, and depression. In terms of color, black, brown, and navy represents a low self-esteem moment as if a dark night, and the stars are an individual's inner power which is compassionate self-talk (as seen in Figure 3.1).



Figure 3.1: The prototype of PoweRING



Figure 3.2: Front



Figure 3.3: Back

There are 5 materials for creating the prototype (as seen in Figure 3.4).

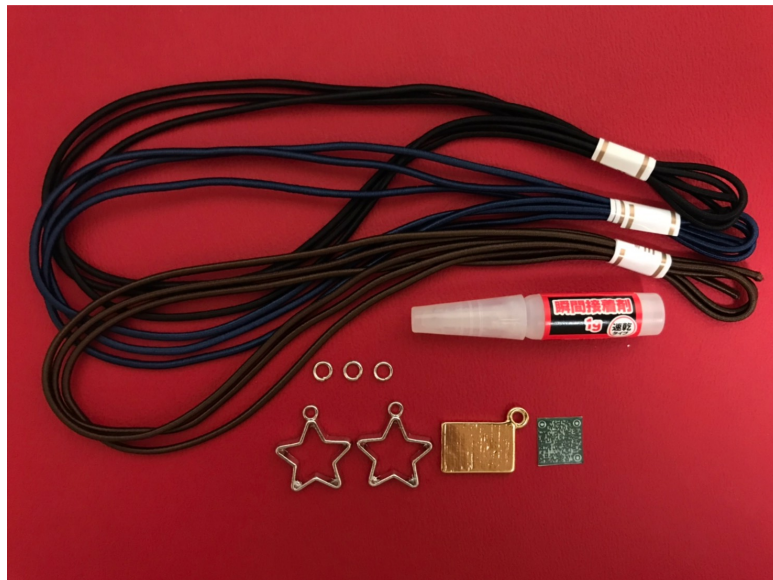


Figure 3.4: Materials for the prototype

- **Elastic rubber hair band:**

The main material of the bracelet was changed from 1 thick elastic rubber hairband to 3 thinner elastic rubber hair bands and braid three of them to make it much more durable and flexible yet thin enough to attach the jump ring.

The clasps or closures were not required for this prototype as a stopper knot was tied at the end side of the elastic cord to prevent the end from unraveling.

- **Super glue:**

The liquid touch of super glue is strong adhesive and more suitable for small accessories like charm and jewelry than the hot melt adhesive or hot glue. Additionally, the super glue was dropped at the end side of the elastic cord to prevent the cord from fraying.

- **Jump ring:**

The accessory-making essential called jump ring was used for attaching the elastic cord to charms. The gold and silver jump rings were used to be aligned with the color of charms.

- **Printed QR code:**

The QR code was printed on a water-resistant photo paper, aiming to avoid the risk of becoming blurred by water. The minimum size of the charm, which is suitable for the QR code, is at least 1 cm x 1 cm or above. However, to prevent the paper-cut accident, a size bigger than 1 cm x 1 cm can be considered as an option.

- **Charm:**

Two styles of charm used for the prototype were the star-shaped charm and the rectangle-shaped charm. The star-shaped charm is in a frame shape, representing the brightness of stars and reminding that individuals can be their own star while facing some difficulties, anxieties, and feeling low self-esteem, during living abroad.

While the rectangle-shaped charm with the back area (not only the frame) was needed due to the square shape of the QR code. The printed QR code was attached to the backside of the charm. However, the charm for attaching the printed QR code can be any shape that fits the square QR code, either rectangle-shaped or square-shaped are an appropriate choice.

3.1.2 Design Procedure

1. Tie a stopper knot at the end of one side of the braided rubber hair band.
2. Braid three basic braids by using three lines of the rubber hair band. The length should be match with the size of the user's wrist such as 14 inches.
3. Open up the jump ring to hang on the star charms and the rectangle charm.
4. Hang the jump ring with the charms on the braided rubber hair band. Keep space between each charm approximately 1 inch.
5. Tie a stopper knot at the end side of the braided rubber hair band.
6. Use the super glue to attach the printed QR code on the back side of the rectangle charm.
7. Drop a drop of super glue at both end sides of the braided rubber hair band to prevent it from fraying.
8. Once the superglue gets dry, insert one end side into a line of another side to make it become round shape like a bracelet.

3.1.3 Instruction

Owing to COVID-19, prior to the usage, the researcher conducted an in-depth interview for each sample privately over the phone. Later on, the 5 samples were requested to do self-concept and self-esteem questionnaires. The instruction for usage was separated into 2 steps as below.

- **Pre-use (customization)**

1. Do self-compassion exercise [27] and writing a compassionate message to yourself.
2. Read out the message for preparing and checking your voice before recording.
3. Record your voice while reading your compassionate self-talk messages.

4. Send your voice file to the researcher.

After sending the file, the researcher will upload the file into a shared folder such as Google drive in which only you and the researcher can access. Later on, the researcher will use the URL of the share drive to generate the QR code.

5. Pick the favorite color of QR code via Google Color Picker (as seen in Figure 3.5). [100].

With respect to generating a QR code, the website required to choose the color of both background and the code that contrasts enough to scan. For example, a light blue QR code and white background do not have sufficient contrast, hence the website suggested choosing the darker background (as seen in Figure 3.6).

6. Measure the size of the wrist and share with the researcher.

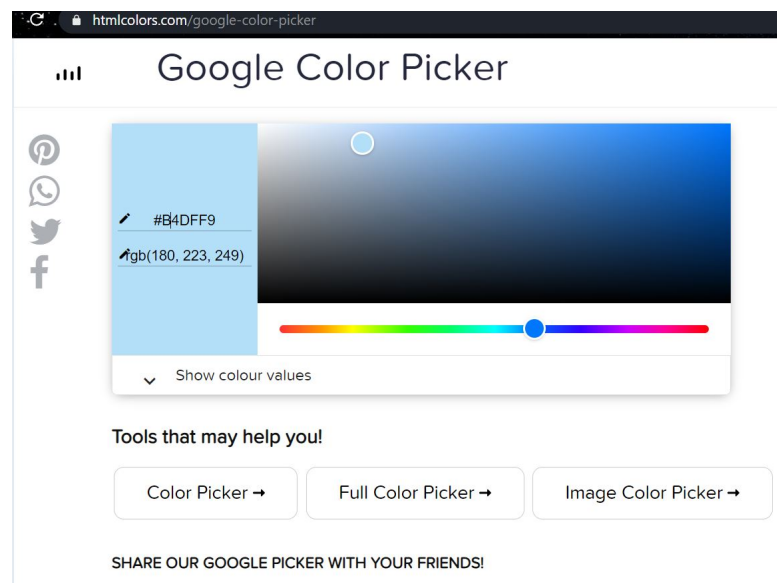


Figure 3.5: Color picker (source: <https://htmlcolors.com/google-color-picker>, accessed December 3, 2020)

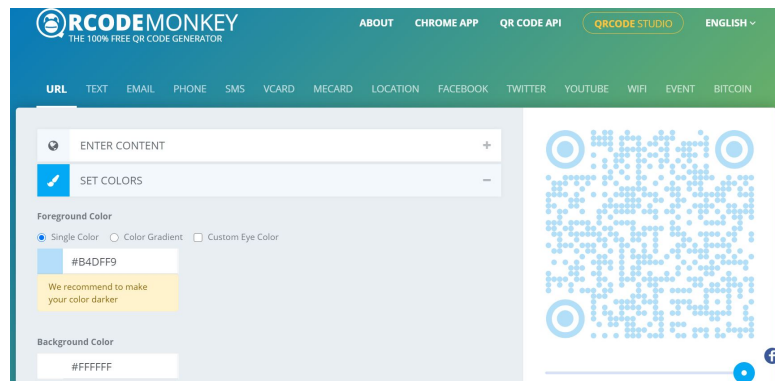


Figure 3.6: Generating QR code: The adequate contrast between the color of both background and code is required. (source: www.qrcode-monkey.com, accessed October 1, 2020)

- In-use

1. Wear the bracelet which has a voice QR code attached to the hanging charm.
2. Scan the QR code on the charm of the bracelet for listening to their recorded compassionate self-talk voice messages during just before falling asleep to access their subconscious mind [28] for 21 consecutive days, and during feeling low self-esteem.
3. During the time in which the emotional support is needed:
 - 3.1 If they are in a place in which feel comfortable to scan QR code on PowerRING to listen to the message, please do it.
 - 3.2 If they are in the place unavailable to listen to the message, please look at the PowerRING and try recalling either the message inside or how to compassionately communicate to yourself as done in the self-compassion exercise.

Due to the social distancing during the pandemic COVID-19, the researcher provided PowerRING to each sample by two methods: Sending to 4 samples by postal mail and another sample by handing to them directly. The researcher makes the address blurred to protecting the privacy of samples.



Figure 3.7: PowerRING was set in a heart-shaped to represent the inner love. The prototype was kept in a plastic bag with a tiny encouraging message card attached.

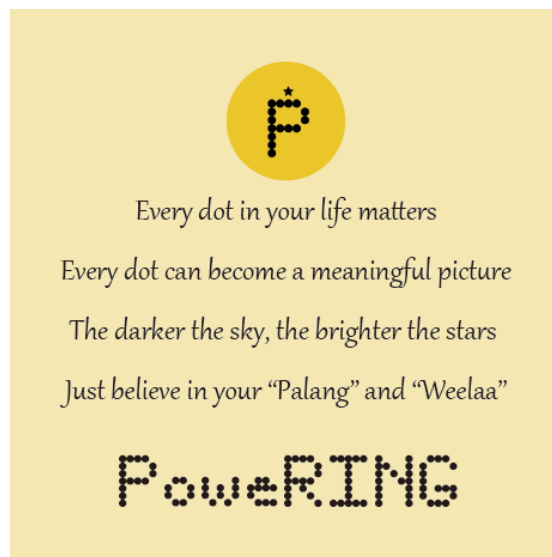


Figure 3.8: Encouraging message card attached in the plastic bag. In Thai language, Palang means power, and Weelaa means time.



Figure 3.9: Subject L and her PowerRING



Figure 3.10: Subject N wearing PowerRING (left hand) and the first mockup (right hand)



Figure 3.11: Subject S and her PowerRING



Figure 3.12: Subject W and her PowerRING



Figure 3.13: Subject T and her PoweRING

3.2. Design Concept

3.2.1 Definition

The meaning of powering according to the Cambridge dictionary is to provide a machine with energy and the ability to operate [101].

However, each element of the word Powering of this study differs from the meaning above. It is combined from ‘Power’ and ‘Ring’. The word ‘Power’ means inner strength. While the word ‘Ring’ represents a small circle of accessory which to encourage individuals practicing compassionate self-talk to revive their self-esteem.

The word ‘ing’ after the word ‘Power’, which is Present Continuous verb, is used to convey the process of reviving and building our inner strength as we are nurturing the skills to be more effective. Eventually, this skill is going to continue into the future, which means our mental health will be stronger.

In this research, PowerRING means the bracelet which helps revive self-esteem by compassionate self-talk voice message whenever feeling low self-esteem.

3.2.2 Concept Idea

The concept of PowerRING is the accessory which helps individuals revive their own self-esteem through listening to their compassionate self-talk voice message which recorded and embedded on the QR code on the charm bracelet when feeling low self-esteem and being struggle with self-criticism and negative self-talk during living abroad.

PowerRING is inspired by the belief that individuals have their own inner power and the innovative product can help individuals be aware of their emotional health in a beautiful style such as a fashion accessory. Additionally, the concept design is to add the value to a half physical and half digital fashion accessory which can match their lifestyle and personal preferences by enlarging the benefit of an accessory to strengthen the power of individuals' minds rather than the prior function of beauty and attractiveness.

PowerRING is designed to help individuals use their inner power by practicing compassionate self-talk as an emotional first aid to revive self-esteem while living abroad. With the aim to remind individuals to compassionate self-talk, the part of the body for wearing an accessory in which they can simply notice is their wrist. Hence, the bracelet is the most appropriate choice.

The concept of bracelet design with the idea of strengthening individuals' inner power is also inspired by the belief of amulets in Thailand. Thanks to the Buddhist beliefs in Thailand, amulets have been articulated in Thai society and have been created in a number of shapes including amulet bracelet. Amulets in Thailand act as the origin of consolation to revive their courage when feeling insecure or facing instabilities [102]. On the contrary, the concept of PowerRING is to provide the source of solace and emotional support which comes from their inner dialogues, not depend on superstition like amulets.

Besides, PowerRING provides six key elements which are also its unique selling point: compassionate self-talk together with V.I.P. strategy comprising of [V]oice, [I]nteraction, [P]hysical, [P]ersonalization, and [P]rivacy.

3.2.3 Unique Selling Point

- **Voice:**

Individuals can connect to their voice which is one of five senses [66], allowing them to communicate their feelings and foster emotional signs more effectively. Unlike some senses such as touch, taste, and smell, hearing or voice is more convenient to preserve in online file storage.

- **Interaction:**

With the interaction design with the minimal requirement, individuals can wear the bracelet on their wrist as a tangible product and can easily interact with the bracelet by using their smartphone to scan the QR code on the backside of the star-shaped charm to promptly access their voice message when they need emotional support. Interaction design, which combined with a dimension of feelings and perceived experiences, plays a vital part in a variety of user experience goals [103].

- **Physical object on the easy-to-see body part:**

With the shape of a wearable bracelet on the wrist, this body part is more convenient than other parts including ears (earrings) and neck (necklace), to see and to scan the QR code. In addition, the repeated exposure can help remind them of compassionate self-talk which acts as an emotional first-aid. Additionally, PoweRING can help individuals recall their voice message by looking at the bracelet when they are not available to use their smartphone to access the message.

- **Personalization:**

In order to suit each individual's personal lifestyle, preference, emotions, and current situations; the process of the product enables individuals to customize their bracelet by creating their own content which is compassionate self-talk message, using their own voice, choosing the color of QR code as well as the size that fit their wrist.

Aside from the customized message, with the provide tailor-made design, individuals can choose the color for their voice QR code and can order the size they preferred. In terms of flexibility, individuals can adjust the size of the bracelet to be suitable with the size of their wrist by themselves as the material of the bracelet is made from elastic.

Besides, the length of the voice message is unlimited. Individuals can record the message as long as they want to talk to themselves. They can enjoy their time without the condition of time constraint like using some applications.

The IKEA effect [99] is explained that the increase in valuation of product individuals made by themselves, together with the concept of emotional design by Norman [97] about personal level connection. When individuals are allowed to participate in the production process of their products, the value they put into that product will be leveraged. Moreover, shortage of personalization causes one-third of customers leaving business relationships [93].

- **Privacy and security:**

By keeping the voice message in the Google drive of which password is required, and generating a QR code from the URL of the Google drive can protect personal information and secure privacy from being visible to others. It can help individuals feel safe and comfortable to express themselves without worrying about being judged.

In terms of interaction design, the Near Field Communication or NFC technology is considered as an option that provides convenient and seamless connectivity. Nonetheless, the weakness of NFC technology is security concern [104] [105], and the investment of NFC is costly. Both factors may result in the price of the bracelet too high and might affect the purchase decision process. Comprehensive private data protection and the affordable price might play a necessary role in the purchase decision process when considering a market opportunity. Hence, NFC might not be a suitable technology for the security of personal voice messages embedded in PowerRING as the private information of users can be at risk.

- **Wearable yet look nice as a half-physical-half-digital accessory:**

While the appearance of the digital gadgets looks fairly strong and hard-touch according to the materials used, PowerRING provides a more soft appearance with smooth curves which presents a feminine look, along with the soft touch which and enables female individuals to match with their attires.

Additionally, with the wearable function, PowerRING provides more convenience to bring it everywhere without any concern such as the place to keep the product, which is different from the tote bags and the prompt journals with self-love messages.

- **Compact size and light weight yet full of the meaningful message inside:**

With 1 cm x 1 cm of the surface area of QR code on the backside of the charm, individuals can keep the length of messages in which the huge space is not required. The small size comes with lightweight also reduces the burden on their wrists.

3.3. Target Audience

The target audience of the research is 24-to-39-year-old females who have decided to move from their home country to another country for specific purposes such as pursuing a Master's degree. Based on this research conducted in 2020, Millennials are 24-to-39-year-old young adults, known as people who were born between 1981 and 1996 [8]. They like dressing up but not in a flashy style. They pay attention to their images expressing their characters and personal style through little feminine clothes and small accessories. Being open-minded with a growth mindset, they value self-improvement both physical and mental, and love joining in activities that allow them to explore other new perspectives and unknown experiences. Based on the target audience, the researcher found three main occupations of female people living in Japan as below.

- **Student:**
Individual who feels anxious when coping with academic demands, language barriers, homesickness, and a new lifestyle.
- **Female Worker:**
An individual who experiences the pressure of the unfamiliar working environment and a language barrier in the workplace.
- **Housewife:**
A foreign housewife who is under stress such as being active to fulfill her family's needs among different cultures and wanting to achieve career goals, and to be dependent on herself.

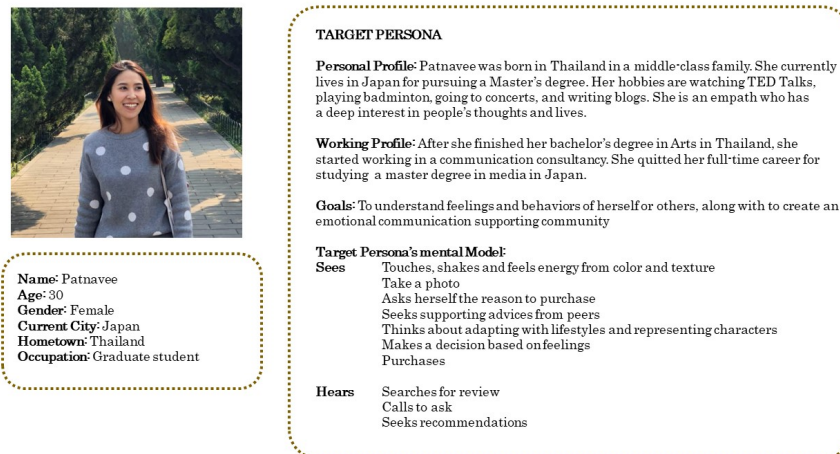


Figure 3.14: Target Persona

3.3.1 Target Persona

In order to have a comprehensive understanding of potential users in the future, a persona was created to observe their goals and behaviors inspired by their passions. Persona helps illustrate all elements involved in acquiring and serving customers' needs (as seen in Figure 3.14).

3.3.2 Vision Story

On the Friday evening, after finish weekly meeting with a professor and project mates, Pannavee feels stress seeing other students' research progress and finds it is hard to explain some details about her research to them in the Japanese language and does not want anyone to think she is ineffectual and not good enough to study abroad. She keeps self-criticize and worries about what people might think about her as she would love to be a good representative of her country. During the COVID-19 pandemic, she needs to stay at home alone that makes her less meet anyone. All of the stressful atmosphere with coronavirus news and social distancing in the pandemic period become a powerful catalyst that arouses her anxiety, stress, and feeling low self-esteem.

Moreover, she is sometimes in the place in which she cannot call anyone such as she is about to present her works or feel down from comparing herself to other foreigner and Japanese students, the non-stop questions repeatedly pop up in her mind such as “what am I doing here?” and “How can I overcome all these difficulties.” In addition, while taking a break from doing research, being on Instagram and seeing some photos of her friends in her hometown getting married and being promoted to a manager-level position make her cannot stand comparing herself to her peers.

With chronically overwhelm emotional difficulties living abroad resulted from academic stress, anxieties, cultural differences, language obstacles, as well as self-expectations, she feels down and low self-esteem for a whole week. Besides, at the age of 30, she tries to be more dependent by trying to solve her own troubles and not ask for help from others all the time. However, she really needs some encouragement, affirmation, and emotional support.

One day she starts wearing PowerRING which is a bracelet that she can access to her compassionate self-talk voice message. She scans the QR code on the bracelet and keeps listening to her recorded message while drifting off to sleep at night. During the day, when she suffers from low self-esteem, looking at the bracelet can remind her of what she has told herself in the message and encourage her to kindly treat and talk to herself with compassion, and not be hard on herself. The bracelet on her wrist helps her revive self-esteem and she can provide herself emotional support through compassionate self-talk messages.

After that, she gradually feels relaxed, less self-criticized, entails being kind to herself when she feels inadequate, and finally can revive her self-esteem into a moderate status that makes her reach her fullest potential and ability.

3.4. Design Iteration

3.4.1 Design Concept



Figure 3.15: The first mockup of PowerRING

The first mockup was designed with the concept of listening to your own self-thank message embedded on the QR code put in a charm of the bracelet. For that reason, the samples were asked to record their self-thank messages through a voice recorder website and send the URL to the researcher to generate the QR code. Aside from that, in terms of design, the black elastic rubber hairband was used. In regard to the materials, the first mockup was combined with 2 main elements (as seen in Figure 3.16).

- **Black elastic rubber hair band:**

It was used to enable users to wear and take out easily due to the flexibility of the rubber hairband. However, the length was unavailable to adjust to the size of the wrist.



Figure 3.16: Materials for the 1st mockup of PowerRING. A red color of the paper and a heart shape carved into the cover were to represent love for themselves.

- **Paper-based charm:**

This part of the bracelet was made of QR code printed on paper, magnet, thread, and red paper. With the aim to make the cover part and the QR code part stick to each other, the magnet with adhesive was glued to two pieces of red paper of the cover part and the QR code part.

 A screenshot of the SpeakPipe website's pricing page. The page features a navigation bar with the SpeakPipe logo and 'Signup' and 'Signin' buttons. Below the navigation bar, there are two tabs: 'Billed annually save 20%' (selected) and 'Billed monthly'. The main content area displays three pricing plans: 'Free', 'Gold', and 'Premium'. The 'Gold' plan is highlighted as the 'Most popular plan'.

Plan	Price	Max recording duration	Storage	Widgets	Notifications	Customization
Free	\$0	90 seconds	100MB	One	Email	None
Gold	\$12/month (if paid annually)	5 minutes	5GB	Multiple	Email with audio attachment	Widget customization
Premium	\$36/month (if paid annually)	10 minutes	15GB	Multiple	Email with audio attachment	Widget customization

Figure 3.17: Speakpipe, a web-based tool which individuals can record their voice messages without smartphone and can send the messages via URL (source: www.speakpipe.com, accessed October 17, 2020)

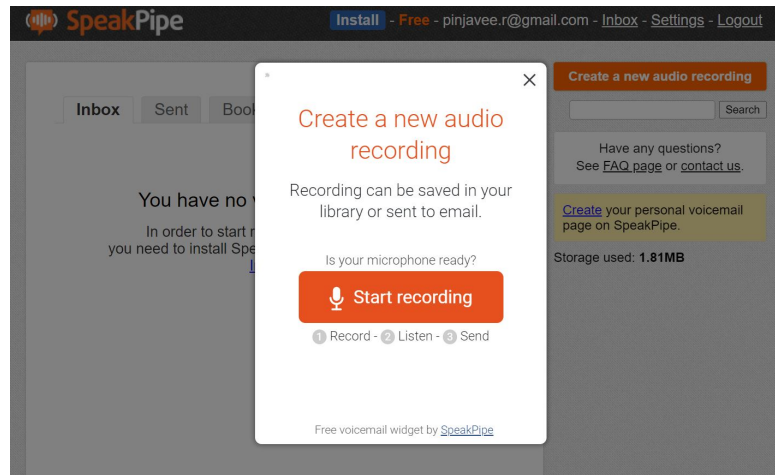


Figure 3.18: The samples can record voicemail messages of 90 seconds. (source: www.speakpipe.com, accessed October 17, 2020)

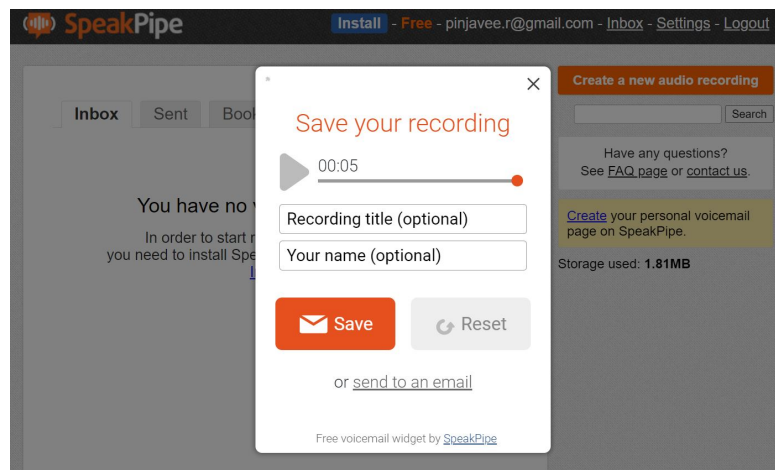


Figure 3.19: The samples can check their voice messages, write title and their names after recording. (source: www.speakpipe.com, accessed October 17, 2020)

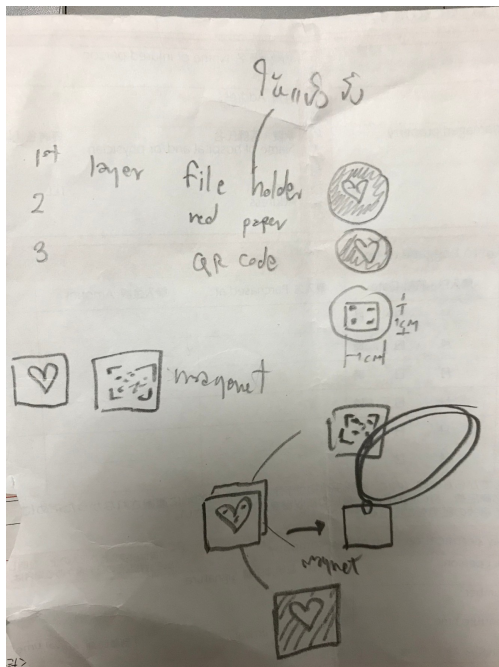


Figure 3.20: Draft of 1st mockup



Figure 3.21: 1st mockup

3.4.2 Instruction for the First Mockup

The instruction of the first mockup of PowerRING was divided into 3 parts below.

1. Speaking out:

The interview was privately conducted to allow each sample to talk about both successes and failed experiences during living in Japan.

2. Recording:

The samples recorded their voices telling the message to themselves in a compassionate and self-thank style via a free online voice recorder (as seen in Figure 3.17-3.19) [106]. The samples created their own self-thank messages in freestyle and no script was prepared in advance. After receiving the URL of audio files from each sample, the researcher generated a voice QR code through www.qr-code-generator.com (as seen in figure 3.22) and glued it on the charm.

3. Wearing and Scanning:

The samples were required to wear their bracelet and scan a QR code on the bracelet to listen to self-thank messages while feeling low self-esteem.

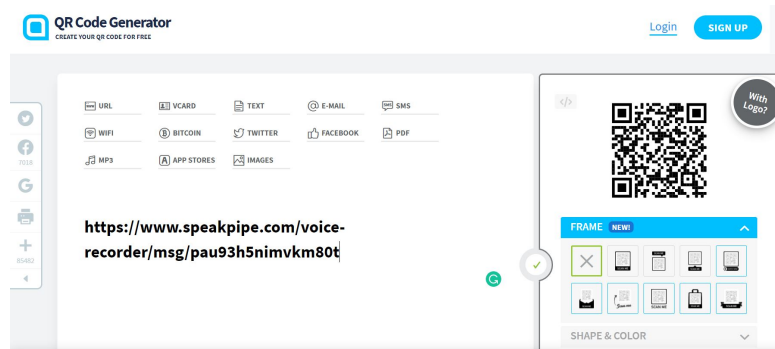


Figure 3.22: Generating a QR code via www.qr-code-generator.com



Figure 3.23: The first mockup with a note.



Figure 3.24: Subject A wears the PowerRING on her right wrist



Figure 3.25: 1st prototype for Subject C (a female worker)



Figure 3.26: Subject N (a housewife) wears PowerRING

Chapter 4

Proof of Concept

As Chapter 1 identified, in the recent development of mental health supporting design, there is a shortage of insight into the personal level relationship between categories of product design and individual emotions. The objective of the research is to examine whether compassionate self-talk voice accessory engenders reviving self-esteem and to find key attributes in designing the bracelet for reviving self-esteem, PowerRING, in order to help individuals enable revive their self-esteem and can be emotional first-aid by themselves.

The researcher believes that if individuals could be engaged in the process of personalization of the accessory, and could see their customized bracelet along with their feelings and stories embedded in the bracelet; their emotional attachment in the experience of wearing the self-esteem reviving bracelet would rise. With this contention, six key elements: compassionate self-talk together with V.I.P. strategy comprising of [V]oice, [I]nteraction, [P]hysical, [P]ersonalization, and [P]rivacy are identified.

4.1. Experimental Design

This experiment is designed to examine changes in the self-esteem of five Thai females living in Tokyo and Hokkaido before and after wearing the PowerRING. Five samples are involved in doing self-compassion exercises with writing messages to themselves, recording voice, and listening to their recorded voice messages.

Self-Esteem Scale (RSES), Robson Self-Concept Questionnaire (RSCQ), and in-depth interviews are implemented with pre-and post-processes to evaluate to what extent PowerRING, as relates to compassionate self-talk and V.I.P strategy (voice, interaction, physical, personalization, and privacy) enables reviving self-esteem.

4.2. Experimental Setup

4.2.1 Sample Description

The samples were recruited from Thai people whom the researcher has experienced talking with and knows their backgrounds. To be eligible, they are selected on the basis of being willing to revive their self-esteem, and suffering from experiences that caused lower self-esteem. A probability sampling approach is used to draw a sample consisting of 5 respondents, 40 percent housewives, 40 percent student, and 20 percent working lady, and 80 percent in master's degrees and 20 percent in undergraduate degrees with a wide range of 24 to 39 years old. The variation and variety of the samples' age, educational levels, and occupation are intentional since the main aim is to explore and examine mutual patterns within the mentioned variation.

Owing to social distancing requirement during the COVID-19, the samples are measured on their own available time over the phone. 60 percent of samples are comfortable to be evaluated through face-time call, while 40 percent of samples preferred voice call. 24-to-39-year-old Thai females in Tokyo and Hokkaido prefectures and feeling low self-esteem, mainly based on the result from the in-depth interview that allows individuals to express their unpleasurable attitude toward themselves. The pre-questionnaire of Self-Esteem Scale (RSES) and Robson Self-Concept Questionnaire (RSCQ) used as additional measurement followed by the in-depth interview.

4.2.2 Environment

Due to social distancing during the 2020 outbreak of COVID-19, the evaluations are conducted online and over the phone. The samples were required to do self-esteem and self-concept questionnaires. After that, the in-depth interview was conducted separately for 5 samples for approximately 60 minutes. The samples were requested to participate in the interview during living alone at any place available.

4.3. Qualitative Measure

In this study, the qualitative research method was chosen to measure the experiment of PoweRING. Qualitative research is an approach aiming at the examination of individuals' 21-day experiences. The strong point of qualitative research would greatly benefit exploring and tapping into the new academic fields [107] including the future-oriented integrated innovation topic which requires the combination of various fields of study.

Thus, the researcher believes this would be one of the most effective methods for studying and examining this topic. Studying involving psychological supporting product is concerned as a highly private topic, requiring personalization in terms of embedding each individual's experiences and identities into the product that would be truly fruitful from learning about how each sample perceives from their experimental experiences.

With regard to gaining insight from each sample, empathy and active listening without individual biases are crucial skills to make them feel at ease, trust, and allow the researcher to step into their inner worlds. Interestingly, using a proper tone of voice during an in-depth interview also affects samples' feelings and impressions. Individuals tend to worry that expressing some of their personal information including attitudes towards things, mental sufferings, as well as emotional states are sensitive and likely to be judged.

In addition, the tone of voice of designers is vital for the preliminary part of the in-depth interview to have users reflected their thoughts, feelings, and inner voices. When it comes to marketing communication for promoting products in the future, the tone of voice of designers also creates engagement with users as it matters brand positions [108]. In the Hollywood movie Hitch (2005) starring Will Smith [109], Hitch stated "60 percent of all human communication is non-verbal; 30 percent is your tone; so that means that 90 percent of what you're saying ain't coming out of your mouth."

4.3.1 Rosenberg Self-Esteem Scale (RSES)

As the study topic is correlated to reviving self-esteem, the Rosenberg Self-Esteem Scale (RSES) was used to measure the result of the experiment (as seen in Figure 4.1).

Published in 1965, the Rosenberg Self-Esteem Scale (RSES), established by Dr. Morris Rosenberg, is a widely used measure in psychological study. The aim of the Rosenberg self-esteem scale is to examine factor displaying global self-esteem comprised of an interview schedule administered in 1974 to 1,332 people [110] [111].

Regarding score calculating, the score for questions 3,5,8,9, and 10 are reversed. Strongly agree = 0, and Strongly disagree = 3 [112]. Ranged from 0-30, the scores between 15 and 25 are within the normal range, while scores below 15 define low self-esteem [113].

TABLE 1
ROSENBERG SELF-ESTEEM SCALE

#	Questions	1	2	3	4
1	I feel that I'm a person of worth, at least on an equal plane with others.	Strongly Disagree	Disagree	Agree	Strongly Agree
2	I feel that I have a number of good qualities.	Strongly Disagree	Disagree	Agree	Strongly Agree
3	I am inclined to feel that I am a failure. **	Strongly Disagree	Disagree	Agree	Strongly Agree
4	I am able to do things as well as most other people.	Strongly Disagree	Disagree	Agree	Strongly Agree
5	I do not have much to be proud of. **	Strongly Disagree	Disagree	Agree	Strongly Agree
6	I take a positive attitude toward myself.	Strongly Disagree	Disagree	Agree	Strongly Agree
7	On the whole, I am satisfied with myself.	Strongly Disagree	Disagree	Agree	Strongly Agree
8	I certainly feel useless at times. **	Strongly Disagree	Disagree	Agree	Strongly Agree
9	I wish I had more respect for myself. **	Strongly Disagree	Disagree	Agree	Strongly Agree
10	At times I think I am no good at all. **	Strongly Disagree	Disagree	Agree	Strongly Agree

** indicate negatively loaded questions

Figure 4.1: Rosenberg self-esteem scale (source: <https://mpr.a.ub.uni-muenchen.de>, accessed December 9, 2020) [112]

4.3.2 Robson Self-Concept Questionnaire (RSCQ)

According to the correlation between self-esteem and self-concept, which is defined that self-esteem is what individuals evaluate their self-concept [114], meaning that self-esteem is a subset of self-concept. Besides, individuals with healthy self-concept are explained as those who have the capability to successfully accomplish their goals [115]. Hence, the researcher used the Robson Self-Concept Questionnaire (RSCQ) as seen in Figure 4.2 and Figure 4.3, obtained from Dr. Philip Robson in 1989, to examine more about what samples perceived themselves [116].

	<i>Completely Disagree</i>	<i>Disagree</i>	<i>Agree</i>	<i>Completely Agree</i>				
1. I have control over my own life.	0	1	2	3	4	5	6	7
2. I'm easy to like.	0	1	2	3	4	5	6	7
3. I never feel down in the dumps for very long.	0	1	2	3	4	5	6	7
4: I can never seem to achieve anything worthwhile.	0	1	2	3	4	5	6	7
5: There are lots of things I'd change about myself if I could.	0	1	2	3	4	5	6	7
6. I am not embarrassed to let people know my opinions.	0	1	2	3	4	5	6	7
7: I don't care what happens to me.	0	1	2	3	4	5	6	7
8: I seem to be very unlucky.	0	1	2	3	4	5	6	7
9. Most people find me reasonably attractive.	0	1	2	3	4	5	6	7
10. I'm glad I'm who I am.	0	1	2	3	4	5	6	7
11: Most people would take advantage of me if they could.	0	1	2	3	4	5	6	7
12. I am a reliable person.	0	1	2	3	4	5	6	7
13: It would be boring if I talked about myself.	0	1	2	3	4	5	6	7
14: When I'm successful, there's usually a lot of luck involved.	0	1	2	3	4	5	6	7
15. I have a pleasant personality.	0	1	2	3	4	5	6	7
16. If a task is difficult, that just makes me all the more determined.	0	1	2	3	4	5	6	7
17: I often feel humiliated.	0	1	2	3	4	5	6	7
18. I can usually make up my mind and stick to it.	0	1	2	3	4	5	6	7
19: Everyone else seems much more confident and contented than me.	0	1	2	3	4	5	6	7
20: Even when I quite enjoy myself, there doesn't seem much purpose to it all.	0	1	2	3	4	5	6	7
21: I often worry about what other people are thinking about me.	0	1	2	3	4	5	6	7
22: There's a lot of truth in the saying "What will be, will be".	0	1	2	3	4	5	6	7
23: I look awful these days.	0	1	2	3	4	5	6	7
24. If I really try, I can overcome most of my problems.	0	1	2	3	4	5	6	7
25: It's pretty tough to be me.	0	1	2	3	4	5	6	7
26. I feel emotionally mature.	0	1	2	3	4	5	6	7
27: When people criticise me, I often feel helpless and second-rate.	0	1	2	3	4	5	6	7
28: When progress is difficult, I often find myself thinking it's just not worth the effort.	0	1	2	3	4	5	6	7
29. I can like myself even when others don't.	0	1	2	3	4	5	6	7
30. Those who know me well are fond of me.	0	1	2	3	4	5	6	7

Figure 4.2: Robson Self-Concept Questionnaire (1-2) (source: <https://idoc.pub>, accessed November 25, 2020)

Scoring

Some items are scored as printed, others are reversed.

- The 14 'normal' items (Qu 1, 2, 3, 6, 9, 10, 12, 15, 16, 18, 24, 26, 29, 30) have a full stop after the question number (e.g. 2.) — scoring for these is taken straight off the scale as printed.
- The 16 'reversed' items (Qu 4, 5, 7, 8, 11, 13, 14, 17, 19, 20, 21, 22, 23, 25, 27, 28) have a colon after the question number (e.g. 4:) — scoring is *reversed* for these (i.e. 0 = 7, 1 = 6 etc).
- Add up the numbers obtained like this to get the total score.

Norms

Reference group	Mean total score	S.D.
<i>From Robson (1989):</i>		
70 controls with "...no evidence of psychological disorder..."	137.0	20.2
51 patients with DSM-III GAD	108.0	24.8
47 consecutive referrals to Psychotherapy Dept	99.8	24.0
<i>From Robson (personal communication)</i>		
200 controls	140.0	19.8
<i>From Romans, Martin & Mullen (1996) [New Zealand sample]:</i>		
225 women from random community sample (those who did <i>not</i> report CSA)	147.4	25.8
252 women from random community sample (those who <i>did</i> report CSA)	138.8	29.6

Pooling the Robson control samples gives an estimate for the 'normal' mean in British samples = 139.2 (SD=19.9); so to simplify a bit for routine clinical use we take it as mean = 140, SD = 20.

References

- Robson (1989). Development of a new self-report questionnaire to measure self-esteem. *Psychological Medicine*, **19**, 513-518.
- Romans, Martin & Mullen (1996). Women's self-esteem: a community study of women who report and do not report childhood sexual abuse. *British Journal of Psychiatry*, **169**, 696-704.

David Westbrook
October 1997

Figure 4.3: Robson Self-Concept Questionnaire (2-2) (source: <https://idoc.pub>, accessed November 25, 2020)

4.3.3 In-depth Interview with Active Listening Method

Apart from evaluating the result by the Rosenberg Self-Esteem Scale (RSES) and the Robson Self-Concept Questionnaire (RSCQ), the researcher conducted an in-depth interview with active listening, which is one of the interviewing techniques for qualitative research. The impression from the in-depth interview by using active listening was each sample seemed to feel relaxed and comfortable to express their feelings and inner self. Interview without judgment or giving opinions is the cornerstone of effective communication of getting further insight and can encourage samples to broach topics in their own minds at their paces.

The research 'Active Listening in Qualitative Research Interviews' [117] proposed a series of active listening methods. Thanks to communication strategies of active listening technique; namely restating the answers, replying with empathy, asking open-ended questions, and drawing out what hidden feelings and unspoken words by saying the answers again, the length and depth of response of samples can be more expanded. Owing to the study mentioned above, the researcher encouraged each sample to explore their thoughts deeply through 4 steps:

- **Step 1:** Starting with a topic that invites a long primary reply which can smoothly link to the next questions such as how do you usually take action with your emotions?
- **Step 2:** Probing using open-ended questions to enlarge their answers and prepare a way to the next digging up such as 'Which reasons make you think...?' and 'Why do you have an idea that ...?'
- **Step 3:** Paraphrasing acts as a pillar of the effort of active listening to build an 'understanding response'. Paraphrasing the core of answers by giving reflection in which to inspect the content, extend on it, and check whether the researcher and the sample are on the same page without translating spoken words to effectively grasp.
- **Step 4:** Measuring the hidden message as the same as reading between the line and encouraging the sample to step into it from a different way such as 'It sounds like...' 'It seems like...'

4.3.4 Rosenberg Self-Esteem Scale (RSES): Pre-Use and Post-Use Result

	Subject L		Subject N		Subject S		Subject W		Subject T	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	1	1	2	2	2	3	2	1	2	3
2	2	2	2	0	2	2	2	2	2	2
3	2	1	2	2	2	2	1	2	2	3
4	2	2	2	2	3	3	2	2	2	3
5	1	2	2	2	2	0	1	2	2	3
6	0	1	1	1	2	3	2	2	1	3
7	2	0	1	1	2	3	2	2	2	2
8	0	0	2	1	1	0	1	1	0	2
9	0	1	1	1	3	3	1	1	1	2
10	1	0	1	1	3	3	0	1	1	3
TOTAL	11	10	16	13	22	22	14	16	15	26

Figure 4.4: Pre-test and post-test result of the Rosenberg Self-Esteem Scale (RSES)

According to Rosenberg Self-Esteem Scale (RSES), 40 percent of the samples has an increase in the post-test scores than the pre-test scores. In contrast, 40 percent of the samples whose post-test scores is lower than the pre-test scores, 20 percent of the samples whose post-test scores remain unchanged (as seen in Figure 4.4). The post-test scores of subject L and subject N are 1 and 3 lower than the pre-test scores, respectively.

After calculating the scores, the researcher informed subject L and subject N of the result and asked them about external factors that might cause the lower scores. Regarding subject L, her job hunting and feeling of homesick are the external factors that caused her stressed and anxious. Therefore, these factors were likely to affect her post-test scores. However, subject L mentioned in the interview part that she notices her own positive changes regarding her attitudes. She also started to talk to herself kinder and gained more confidence to make a decision for something she feels reluctant to when compared to the interview before the experiment.

4.3.5 Robson Self Concept Questionnaire (RSCQ): Pre-Use and Post-Use Result

	Subject L		Subject N		Subject S		Subject W		Subject T	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	6	5	2	6	2	4	4	5	4	6
2	5	5	4	6	4	6	6	5	5	5
3	5	2	0	4	2	1	2	4	2	5
4	3	0	4	5	4	5	4	5	4	7
5	2	0	0	1	1	1	2	3	2	5
6	5	1	7	7	4	4	4	6	4	6
7	7	6	5	1	5	5	4	5	4	3
8	1	3	1	5	6	5	3	6	5	6
9	4	4	6	6	4	3	5	4	3	5
10	6	6	4	6	5	7	3	4	4	6
11	3	1	3	4	1	3	2	3	3	5
12	7	6	5	6	6	6	6	5	5	6
13	0	0	5	5	2	2	4	5	2	4
14	2	1	5	5	2	3	3	6	1	5
15	4	3	4	6	5	5	3	4	4	5
16	7	3	5	6	6	6	3	3	4	5
17	7	6	2	6	4	5	4	6	3	6
18	4	1	2	5	4	5	6	5	3	5
19	1	0	1	4	1	1	0	3	2	4
20	1	2	1	2	1	4	5	4	3	6
21	0	2	2	5	0	2	1	2	2	3
22	0	0	1	1	3	5	2	1	2	1
23	5	7	3	6	4	5	3	4	1	5
24	6	5	3	6	7	6	5	5	4	6
25	0	2	0	2	3	5	3	4	1	3
26	1	3	6	3	5	4	3	3	3	7
27	3	2	1	4	0	5	2	5	1	6
28	0	4	2	5	2	1	4	3	4	4
29	5	4	1	6	5	4	5	5	4	5
30	5	2	6	6	5	5	4	4	4	6
TOTAL	105	86	91	140	103	123	105	127	93	151

Figure 4.5: Self-Concept Result

To summarize 80 percent of the samples have a greater increase in the post-test scores of the Robson Self Concept Questionnaire (RSCQ) than the pre-test. In contrast, only 20 percent of the samples whose post-test scores are lower than the pre-test scores. The post-test scores of subject L are 19 scores lower than the pre-test scores (as seen in Figure 4.5). The explanation of the external factors of subject L is written above in the summary of Pre-Use and Post-Use Self-Esteem Result (under Figure 4.4).

4.3.6 Pre-use Interview

1. **Subject L (Housewife):**

“My Japanese language ability and my career have not reached the expected level yet. I quit my job and lost time I should have spent in Thailand. I used to feel like quitting school here. Quitting a job for coming to Japan is like my life graph is stopped while things on Facebook are constantly running. I face problems in Japan, while my friends in Thailand are moving forward such as getting a job offer. I do not know who can I ask for help and I do not want to make anyone worry about me.”

2. **Subject N (Housewife):**

“I do not know how to love myself and I like myself in Thailand more than here. The feelings of trying the first mockup, when I felt down, it helped me feel better somehow.”

“lost my confidence that I do not have financial freedom because I do not have a permanent job, but just a part-time job. My work was my priority when I was in Thailand. Being a housewife, relying on my husband’s salary, and still not fluent in Japanese makes me uncomfortable living here. I feel anxious and compare my life in Japan to my successful life there. I try to be strong but I need emotional support.”

3. **Subject S (Graduate student):**

“When having problems with the laboratory test here, I try to talk to some member in the lab or people who are in the environment first. I will not talk to mom until I do not know who I can talk about these issues with or I do not know what should I do. After talking to her, I gained more courage but just felt better. Mom is not in the same situation as me. I blame myself first when facing troubles as it happened because of my fault.”

4. **Subject W (Undergraduate student):**

“When I was young, I was good at many subjects and good at playing many musical instruments and joined an exchange program in Japan. I also won nationwide academic contests in Thailand.

“In Japan, teachers and classmates think I am clever and responsible, but

I do not think I am that clever and do not want them to expect about me. Sometimes I do not like myself do not dare to say that I do not know the answer, so I sometimes pretend I know. These feelings make me wonder Why I am embarrassed to tell friends that I do not know. I think it might be related to my childhood that I always had good performances. About the mid-term exam in Japan, those self-images popped up in my head. My Japanese accent is fairly good that causes foreign classmates to have an impression of me that I am clever. Recently, I have told my classmate that 'I can do this exercise but I just want to check the answer with you just in case'. Because I do not dare to let them know. I do not want other people to have a negative image of me. This makes me do not like myself. When I was in Thailand, I did not feel this much."

"I feel low in my self-esteem and stressed during the exam period. I often ask myself "why I did not choose arts-related faculties but sciences-related faculties that time" 'Why am I here?' 'Why do I need to do this science homework?' I can do it but I do not like the sciences."

"While feeling down, I normally wash dishes, watch animated cartoons, go jogging. However, I sometimes cannot stop the mind from repeating thinking the same thing over and over again while jogging. While I need emotional support, I often play rock and soul-stirring songs while laying on the bed till fall asleep. After waking up I felt relieved. I thought my problems would disappear themselves some day, but some problems actually still exist."

5. **Subject T (Working lady):**

"I decided to quit a job in Thailand and told myself 'just play it by ear,' because I believed that it might be better even I was not sure."

"I am not good at Japanese. I have been working in big organizations, and I feel like they hire me because they just want diversity. Every day I feel worthless. I cannot read Japanese emails and always ask someone to translate it. I cannot read and write. I am a dead-weight member of my team. I feel disabled like I am deaf and blind which makes me feel discouraged. At work, I sometimes can not answer which makes work slow. I am afraid that I make them annoyed. I keep thinking about the criticism I

got from my company for a whole day. I think I set a very high expectation of myself about my work. Then those comments reinforce my failure. Falling over while being alone is hurt, but falling over in the front of a station where can be seen by other people is more hurt and more embarrassed. Moreover, my Japanese close friend who used to be my roommate told me when I asked her a meaning of a word that 'You have already asked me three times.' that makes me feel I am so foolish. I think my Japanese language ability affects my relationship, work, and personal life. I criticize and reinforce myself that I should have done that way, I should have adjusted that a little more."

"I used to call my mom and told her my feelings but she did not understand thoroughly. 'Mom, it is not like that, you don't get me.' She said that I am just overthinking and she didn't understand my work, but actually, it does. I didn't overthink. Although I sometimes feel more relaxed after talking to mom, the problems still remain unsolved. I am bored of often disturbing my mom. If it is a very tough or a new problem, I want some emotional support. While if it is a light issue, I want to be able to heal myself."

4.3.7 Post-use Interview

1. Subject L (Housewife):

“About the stories that made me feel down, it is still not pleasing but I feel more optimistic when thinking about it. I am able to try to understand other people more so that I feel more relaxed. In the past, I put myself as the center and not looking at the basics of other people. After doing the exercise, I began to explore my inner self from the subconscious mind and look around the surroundings.”

“I really want to get a full-time job, not a part-time job. I want to do what I have passion for but job opportunities in the area of my place in Japan are limited. After doing the self-compassion exercise and joining the experiment, I dared to apply for a job in Thailand. Although I know that I may get the job at the expense of something. At least I took action for what I wanted to do.”

“I feel unleashed and gain more courage to do so. Just a moment that I clicked a button to apply for the job, it unlocked my feelings about whether I should apply or not. I allow myself to try, give myself a chance, and open to all conditions. In the past, I doubted my capabilities, but now I know that it is not me to decide the result.”

2. Subject N (Housewife):

“Before wearing this bracelet, I was not that positive thinking person and never neither talked to myself nor heard my own voice. I also hardly cheered myself up. After trying this bracelet, when I was in trouble or feel stressed, I have tried talking to myself that what my strengths are. Contrary to the past, I only thought about the worst cases in order to manage it. Even I did not play it when feeling down sometimes, I still remember what I have told myself in the voice message I keep listening to every night.”

“When I tried to listen to myself, it helped me become more optimistic. It is not just the message, but it is the way of thinking.”

“I started to talk to myself more kind and positive when I was in some stressful situations. Now I am able to see things in life on the positive side and can see a lot of lessons I have learned through difficult times here. Also, I started to know how to cope with the bad moment during living alone. I used to not feel like going out and doing anything like lack motivation when I feel very down. Now, I often go playing badminton these days with a new friend. I am quite good at it and I gain more confidence when playing badminton. At the court, I can meet new people as well. Although the topic of the self-talk message I recorded was fairly specific and the situation now is quite changing, I improved the idea about how to comfort myself from the recorded self-talk message.”

“All of a sudden, I had an idea that I have not wasted two years of my life here as I gained housekeeping and cooking skills and can think positively. However, I could not exactly say whether all the changes resulted from listening to my self-talk voice message. Some situations in my life are now getting better, so it can be the result of those factors or the voice message. It is a subconscious mind that I do not really know. I used to think that I was the victim of that situation. Now, I am surprised about what I am thinking. I feel I gained more self-confidence and can become my real self. The recorded self-talk message that I can remember is about what my good points are and the current situations I feel the same as what I have told myself. When I met the external factors that reinforce what I have told myself in the voice message that it is true, it really made me feel positive. For example, when someone praised me, even I never said that to myself, it reminded me of the voice message I told myself that there are plenty of people who still love me. I really feel that I am on the right track about how to deal with the problems.”

“In the past, when someone praised me, I just felt gratitude at the moment. Comparing to now, I agree with what I have been praised that it is true, and yes, I am exactly that. I recalled that I also told myself the same thing of what I have been complimented. The message I recorded was about cheering up for being me. And I started to pray that may I love myself more these days. It is very new to me. I never knew what is self-love and how to love

myself. I feel more fulfilled by myself and I become more optimistic. That is why it is linked to praying for self-love.”

“It feels good to see myself thinking more positively. I feel that I had come a long way. Self-love is very important to me. I have never loved myself before. When I began to love myself, it made me happy. It is my good moment now and I could forget the bad stories. Comparing to the past, that I did not even want to see my face in the mirror, but I am now kinder to myself. I want to be a better person and see myself being happier. I used to be a person who only care and wanted to see other people being happy. Now I am focusing more on my feelings and be able to dress how I actually want to, without caring about what other people might think of me.”

“I keep telling myself to think positive and try to go out to meet new people that made me feel more enjoyable. I used to rely on my husband a lot. I think if we try practicing self-talk, we might not need to request support from other people.”

3. **Subject S (Graduate student):**

“I feel like having a friend. Normally When I was stressed, I would tell no one on that day and waited until I felt so much stressed for several days then I could not stand sharing it with someone such as my mom. But I now feel like I have got another person who understands me. I feel less stressed when facing some difficulties. After listening to my voice message, I can stay alone with myself. Even the recorded voices are not exactly the same situation as I was facing, I can adapt it to the current situation. For example, one day I got scolded by a professor, this story was not related to the recorded voice message, but I used to tell myself in the message that it is one part of learning. Sometimes, I can adapt what I have talked to myself in the voice message to the situations now.”

“When I heard someone praise another lab mate about how well they did, I felt a bit down. I used to compare myself to other lab mates if I can do as well as them yet. However, now I can feel happy for them. I do not need to compare myself with them. I have my own way, just do my best

as much as possible. I can see the changes and I like myself much more. I am less stressed and I am able to deal with my thoughts by myself without disturbing anyone that makes me feel good. It has dropped from what I normally would tell mom. I used to tell her a lot of stressful issues many days in a week. Before that, I did not have anything to heal me, I had only one solution which was calling mom. Listening to my recorded voice message is a way of healing myself like having an assistant. I can soothe myself better and I feel I grew up a lot. At first, I didn't notice. After all, I have changed and have been able to relieve myself recently."

4. Subject W (Undergraduate student):

"After wearing PowerRING, I started to less compare myself with other people than the past. I do not think why I need to compare myself with them. I used to think positive for a long time ago and PowerRING makes me recall those optimistic thoughts. I told myself that I already decided on this issue, then I will not think about it again. Comparing to before using PowerRING, it helps reduce mind-wandering and the time spending on keeping thinking the same thing over and over again. When I have a class and face some academic difficulties that I always repeatedly think of, PowerRING reminds me of the decisions I have made and this made me do not hesitate about the past again."

5. Subject T (Working lady):

"I feel a lot better and I believe in myself. And I could recall that there was a moment that I believed in myself. During the first 2 weeks, it was encouraging me and I just felt good. I focused on the content too much. In the third week, I could feel my spirit and trust, not thinking about the messages. I imagined myself speaking those messages on the day when I felt full and spoke the messages with encouragement. I want to go back to being the one who used to say that. I considered about myself and the thoughts and the feelings spoke to myself that day. I recalled 100 percent of my confidence on the day of the recording. PowerRING makes me love myself. I felt that at that time I was so cool. I am proud of myself that I could say this word at that time."

4.3.8 Sample Observation

Regarding conducting the observation, according to several obstacles which are the Corona pandemic in 2020 and the concern about privacy during the personal night time of each user, each user was required to describe how they used PowerRING instead of the observation. 60 percent of the samples listened to the message some days, while 40 percent of them listened everyday.

1. **Subject L (Housewife):**

“On my day off, I wear PowerRING after waking up. On working days, I wear it after arriving home. I wash my hands, cook food, and then wear it until I go to bed. Before sleeping, I put it on a shelf above the bed. I listened to it when I felt down but not every day.”

2. **Subject N (Housewife):**

“Actually, I prefer to wear it all day but the material is made of fabric and not water-resistant that I could not wear after it got wet. Even though it is wet or not, the fabric material made me itchy. Before taking a shower, I take it off and wear it again once finish taking a shower. Some night I put it on a shelf above the bed.”

3. **Subject S (Graduate student):**

“Usually I did not wear a bracelet all the time because I don’t want the bracelet to get wet. My some activities will touch or relating to water or chemical substance such as attending a laboratory class at my university. Thus, I wear it when I am at home, have dinner till before going to bed, I do not wear it during washing dishes and showering. Sometimes If I did not wear the bracelet for bedtime I will scan it by iPad’s camera and put it on the bedside table. I prefer using the iPad’s camera to the iPhone’s camera for scanning it because the quality of its camera is nicer. To scan and listen to my voice message before sleeping. While I am listening, switch off the main light and dim the bed light. If something special I will remark them on a note. After listening to it, I fell asleep some nights.”

4. Subject W (Undergraduate student):

“I cannot wear the bracelet while taking a shower as it made of fabric. I wear it on the right wrist. When I feel neutral, seeing it does not make me feel anything. But when feeling down, it helps remind me of the message I have told myself.”

5. Subject T (Working lady):

“It would be nice if the charms not making noise. During the day, when I work and type on a keyboard at my company, the charms distract me a bit.”

“While going back home, I have listened to the recorded messages two times on the train. I feel that the message in the voice is more meaningful and has more impact when listening after work than listening in the morning. That is, when I listened to it in the morning, I did not feel very in. Maybe because it’s still in the good mood, powerful in the morning that does not want to recharge.”

“Usually, I wore after washing face in the morning. I took off again before taking a shower in the evening.”

“I am very busy recently because of going out and meeting almost every hour. There were some tired moments during the meeting. I tried to look at the bracelet during the meeting to console myself to fight a bit more and told myself that it is gonna be over and I can rest soon. Usually, it was difficult to find time to listen to the voice message during the day. Therefore, I listened before going to bed. But there were 3-4 times in the morning before starting to work at home. When eating coffee or checking mail like this, it is good to work from home. There are quite a lot of personal moments”

4.3.9 Voice

1. Subject L (Housewife):

“When listening to my voice, it sounded tired and seemed that I have been through a lot. I felt worse than before. I saw myself through being pulled out of the voice, it sounds like two suffering people are together. Sometimes I do not feel like listening to a human voice even my voice. I do not want to tell myself the same words as it recalls memories I dislike. It would be nice if I can listen to relaxing music that I can stop thinking about it for a while.”

“I prefer scent and ambiance sound like a relaxing wave sound. Speaking of using the sight to see instead of hearing voices, sight is a shallow dimension that unable to communicate feelings.”

“After wearing PowerRING, I can treat myself kinder in terms of behavior treat but still not dare to talk much gently to myself.”

2. Subject N (Housewife):

“I felt shy listening to my voice, it was neither bad nor good. When recording, I just read out the written messages without emotions, not did it like talking for cheering up myself because of feeling shy and I had never self-talked.”

“I focused on the content rather than mood and tone. I just realized that the problem in my mind was that thing. When I feel down, I can remember what I have told myself from the voice message I keep listening to every night, even I did not play it again.”

3. Subject S (Graduate student):

“At first, I felt strange. I could not concentrate on the message and thought that when will it be over. I had never listened to my own voice. I think mine does not sound good. The voice I heard when I talked to someone differs from the recorded voice. However, when I kept listening for a while, I became accustomed to my recorded voice and could pay attention to the message much more.”

“If it was the only written message in a diary or a novel, it would sound in my head. Compared to the voice message, it actually took out the sound of my head which also has emotions.”

4. Subject W (Undergraduate student):

“During the first few days listening to my voice message, I felt unfamiliar with it. As the voice, I heard via the device and through my mouth sound different. I was gradually used to my voice on the fourth and fifth day. To me, PowerRING helped me a lot. I used to be a person who repeatedly thinks the same thing. PowerRING warned me that I am about to think about the same issue again. After listening to my voice messages for many days, I started to remember the content.”

“While social distancing due to the Corona pandemic, I need to study online using the iPad that has me kept looking at the screen the whole day. When my eyes got tired from studying, it made me lazy to read anything even what written in Thai language.”

“During the day time when we spend time outside or with other people, it is not comfortable to listen to the voice message. It would be good if those messages (not voice version) are also kept in the Google Drive and I can read it there.”

5. Subject T (Working lady):

“It would be nice to have two sets of sounds: refresh and recharge. One is for pulling up when feeling down. Another one is for pushing up and boosting when feeling lively like listening to pop songs during feeling good and ballad song during feeling sad for stress relieving. Voice and tone of voice can express feelings better than photos or written messages which depends on the emotions at the moment. Voice helps guide me to how I should feel, while the feeling when seeing the photos or reading the written messages depends on the actual emotions at the moment. Voice is quite powerful for limiting feelings.”

4.3.10 Interaction

1. **Subject L (Housewife):**

“While feeling down, I prefer a less complicated access procedure like a button that allows me to simply push rather than scanning. I feel like it is a more real moment for me.”

2. **Subject N (Housewife):**

“I want something like a smartwatch that allows me to listen to it whenever I want to without using a smartphone. And I want something that I can bring it anywhere including the shower room.”

3. **Subject S (Graduate student):**

“It was hard to scan by my phone as the quality of the camera is not good. I use the iPad instead. The QR code is small and took a little time to scan.”

“Scanning and listening process is not too difficult or too easy, as everyone has their own mobile phone and earpiece.”

4. **Subject W (Undergraduate student):**

“QR code is tiny and hard to scan. I think it is good to have procedures but sometimes I am lazy to scan it, open a file from my smartphone then. However, a good thing about scanning is when I forget something and then I see my bracelet, what I forgot will pop up in my head.”

5. **Subject T (Working lady):**

“Having a multi-step journey is a distraction. If I can just press the button and can listen to it right away, it will be better and make me want to listen more often as the access steps are easier. One day, I really wanted to listen to my voice messages during laying on the bed, then I needed to get up from the bed, turned on the light for scanning the QR code. During the long process, it had me forget my feelings. At that moment, it made me think it was not as impactful as pressing a button and then listening. lessening the interaction journey to get to the point where the voice is kept easier would be good.”

4.3.11 Physical Object

1. **Subject L (Housewife):**

“I normally do not wear accessory but when someone gives me an accessory I will feel like I am not alone and I still have someone who misses me.”

2. **Subject N (Housewife):**

“I think the physical object is better. If it is not in an object, I perhaps need to find it and my brain must try to think where I can get it from. To me, PowerRING is just an accessory like earrings but it is more functional than the ordinary one. It is also convenient to wear as it is normal for women to wear some accessories.” “I felt like it was an experiment and I did not have deep feelings for it or connected to my soul like an amulet. I did not feel the mental health issue is more tangible than the past, however, it could heal me in some situations.”

3. **Subject S (Graduate student):**

“If the QR is bigger, it is not okay. With this size of QR code, I could wear the bracelet without feeling cluttered, it is just nice.”

“It’s better to be a tangible object. Sometimes, although I did not listen to the recorded message, just looking at the bracelet can recall my voice talking about this issue inside. Compared with digital-only, even if I always bring a mobile phone with me, it possibly disappears. Even though I saved an image, I did not open it later. For example, an online self-talk activity on Facebook that becomes popular these days. I did not feel like spending 5-10 minutes with it at the moment that I saved the image in my phone’s gallery but I did not recall it or I should do it. Sometimes, I saved things like this then I totally forgot. Also, some of those links do not exist forever, it has already disappeared when I opened it.”

“However, as an object, even if I could not scan or the QR code gets blurred, I still remember what it is kept inside as a replacement. When I wanted to listen to my voice message but I was not in a place or a situation in which I could scan, or when I moved my hand, seeing the bracelet made me recall what I had told myself. In terms of the shape of a bracelet, it is more attractive than just a QR code and hashtag.”

“Listening frequency has some effects. Even though I still could not remember a hundred percent of the words, the more listening, the more it echoed in my head that I could remember the words. During the days I often listened to it, I could remember the feelings. And because it can always be seen as it was on my wrist, I just looked at it then I can think of those words. If it is on my phone, I might not focus on it as there are many mobile applications on my phone that I carry in all the time. But the bracelet made me think of that voice clip only.”

4. Subject W (Undergraduate student):

“Sometimes I wrote down my feelings on a note, but when I wanted to read it again, I could not read it as the note was somewhere else. Also, I used to type some messages to myself in an application on my phone and read it once in a while. However, when I have PowerRING, I just look at it then I can recall the messages.”

“The charms make some noises when they hit each other. I would love it to not to make a noise.”

5. Subject T (Working lady):

“Touch is the main sense that people can feel it. This bracelet is good, but it accesses the messages without touching. If it got a button that I can press, it will feel more attached to a physical object like a doll that just presses its face to let it speak. If the touching part is included, the benefit of the physical object will be greater and it can increase the connection between product or user.

When I did not listen to the voice message, I tried to look at the star charms and imagine like I am on the way to the star, do not give up on my goals. If I can press the button, it will add a connection and I can interact more. If I could interact by touching and then I gain emotional support, I would feel more attached.”

4.3.12 Personalization

1. **Subject L (Housewife):**

“There are stories that remind me of what I have done until I got this stuff. It becomes a thing I cannot throw away like a piece of my memory kept in an object that I want to keep forever. It differs from other products of which I just pay money to purchase. Even I do not scan to listen to my voice, I can remember what I told myself during the making process of this bracelet.”

2. **Subject N (Housewife):**

“It was fun that I could choose some elements of the product by myself. To me, if I can choose some part, I will want to wear it more, because it suits my personal style. But I am not that creative, just some parts allowing me to adapt such as a stripe would be just nice. However, this bracelet did not have many options to customize.”

3. **Subject S (Graduate student):**

“I like the things that I have been involved in. Everyone has their own style. If it is the style that I do not like to wear and not in a cute style such as come as an amulet bracelet or not my style, I do not want to wear it. The color scheme of PowerRING can match clothes very easily and is the color scheme I like. I prefer the color and the design that are easy to match with any outfit. Therefore, I did not feel embarrassed to pick it up and the color of QR that I have chosen is my favorite color.”

“If the size of the QR code is very big, its style comes in an amulet stripe, or too colorful such as red, yellow, and contrasting colors, I do not want to wear it. Because of the outstanding, people would ask me what it is and why I wear it for? It easily matches my clothes and my style. The more opportunity to design by myself such as choosing materials, the more I like it. If the color is flashy, it does not show who I am. People around me know that I have a character like this, and I like this color. They would not ask a lot as well. Being involved in creating can reflect me much more.”

“Being able to customize the design is the best because I know what I like and do not like. I know what works best for me. So, to create my own content, I feel it’s worth more than what I just bought. I pay more attention to the stuff I customized by myself. Like when I do handmade stuff for myself, I like it very much and want to keep it well. I do not want to see the D.I.Y product get crashed.”

“I agree with this kind of accessory. Personally, I do not wear rings, but the bracelet is not annoyed. If there are many options for choosing, it would be more fit with individuals’ lifestyles.”

4. **Subject W (Undergraduate student):**

“I like and want to wear it because I selected it by myself.”

5. **Subject T (Working lady):**

“When recording, I created an image of my fullness. The voice of the person speaking is 100 percent happy. I realized that I had a moment when I believed in myself that I can do my best. So, on the day I had only 70 percent of happiness left, when listening to my own voice I didn’t want to disappoint that person and I asked myself that did you forget that you had 100 percent before.”

4.3.13 Privacy

1. **Subject L (Housewife):**

“If I know that no one can access the messages I communicate, I feel more secure. However, by this experiment which I exactly know that the researcher can access my voice messages and all of my writing, I still can perceive some barriers and have a concern about revealing all of my feelings and my real self through the message.”

“From my point of view, a psychologist might have a bias against my appearance. While answering a test that only I can access, I feel like no boundary factor of communication and no bias between a user and a person who conducts this experiment, and I think it is possibly more stable than receiving treatment from a therapist who I meet for the first time. I also feel more comfortable answering the question in the exercise privately.”

2. **Subject N (Housewife):**

“I prefer my own space in the personal drive like my own account to the shared drive. I am still shy if other people can see my QR code. I want to hide it. About the message, it is better to not so obvious.”

3. **Subject S (Graduate student):**

“I do not want anyone to know about me. In terms of comforting, it is my own way that hearing words like this makes me feel good. It is better that I can listen alone.”

“I think it should have an email password for accessing a google drive account for keeping my records as private. Even though my personality act as an extrovert, I need privacy that does not want anyone to know my weaknesses and my needs. Some people think I am cheerful and strong but actually, my deep inside is not sometimes.”

“If I choose a charm with wording for a bracelet I think I overexpose myself. I just would like to encourage myself from inside. I do not want to wear anything expressing my feelings or myself to others such as “you can do it” on T-shirt.”

4. **Subject W (Undergraduate student):**

“I feel shy if the long messages I wrote by myself is displayed on something in which other people can see as if my diary is secretly read by someone.”

5. **Subject T (Working lady):**

“Having a private is good for this activity. We have a lot of online social spaces now. This drive is another private area of my own where only I know. I feel that it is special.”

4.4. Result of Design Iteration

The researcher found the pros and cons of using `speakpipe.com` for recording voice and conducted an in-depth interview with active listening for evaluating the self-esteem status before using the first mockup and their changes of self-esteem status after using.

- **Pros**

1. The free online voice recorder, `www.speakpipe.com`, allowed individuals to record their voice messages without registering the account. It is convenient and some samples mentioned that they felt relaxed knowing that it can keep their privacy (as seen in figure 3.5-3.7) [106].
2. Individuals could check their recorded voice message before sending it out.
3. The number of voice message was unlimited and allowed individuals to repeat recording
4. Smartphone was not required. Individuals can use any device which can connect to the internet.

- **Cons**

1. The length is limited to 90 seconds per one voice message. Therefore, in case that the users prepared the self-talk message which the length is longer than 90 seconds, this service is not an appropriate choice. Additionally, knowing before recording that they can record their voice within 90 seconds probably caused samples to feel worried about the length of their message.
2. Individuals take time to study about instruction before recording due to unfamiliarity.

4.4.1 Pre-use Interview

1. Subject A (Graduate student):

“I have set high expectations for myself and sometimes failed when the outcome is below my expectation. Especially, when studying in the same class with Japanese students, I ask myself ‘Why am I here’ and ‘Did I make the right decision’ many times. If I were in Thailand, it might turn out better than living here. I have lost self-confidence and self-esteem and feel like why I am so illogical.”

2. Subject N (Housewife):

“My work was my priority when I was in Thailand. Being a housewife, relying on my husband’s salary, and still not fluent in Japanese makes me uncomfortable living here. I used to be an independent woman. Now, I feel anxious and compare my life in Japan to my successful life in Thailand. I try to be strong but I have lost self-confidence and I still need emotional support.”

3. Subject C (Working lady):

“I always compare myself to other people and my co-workers. Why they can do, but I cannot reach that goal. I don’t think I am as smart as others and never compliment myself.”

To summarize, the common troubles of each sample their expectation and comparing both themselves with other people in Japan and in the home country, as well as comparing themselves in Japan and the home country. Those comparisons cause them to feel not good enough as expected, to start question themselves, and to feel unstable while living abroad.

4.4.2 Post-use Interview

Due to several factors i.e. the unstructured usage instruction, unspecified experimental period, and the fragile materials of the first mockup, the experiment was difficult to be continued and was stopped eventually. Besides, the uncontrollable factors of each sample during the experiment such as the current circumstances

and media they were consuming affect the usage frequency. Regarding the circumstances affecting their emotions such as well academic or work performances that made them joyful, thus they do not need emotional support from PowerRING. Also, regarding consuming media, Subject C mentioned that she has started to enjoy reading positive attitude related books that inspire her and did not need emotional support.

In the matter of product durability, all samples reported that their bracelets got broken. The bracelet got easily fragile after getting wet and the charm part with the QR code was fallen out of the string. The researcher suggested fixing the charm with a clear sticky tape to have it stuck on the bracelet and be able to scan the QR code.

1. Subject A (Graduate student):

Subject A reported that while running in the rain one day, the bracelet got wet and the charm part was fallen out of the string. She kept the bracelet in a pocket of her wallet. She started to listen to her self-thank voice message for the first time after almost 7 months since receiving PowerRING. On that day, she felt so down because of some situations late at night, she wanted to feel stronger and needed self-encouragement, then she recalled that she has a charm with the QR code kept in her wallet, then she scanned the QR code and listened to it. After listening, she realized that she has already very strong and felt as if being hugged by someone.

2. Subject N (Housewife):

Subject N reported that while being alone and feeling down, she listened to her voice message a few times and felt healed and comforted after listening to her voice message when feeling down and being alone.

3. Subject C (Working lady):

Subject C reported that she rarely listened to her recorded voice message as her feelings depend on the rhythm of her life. When she did not feel very terrible, she did not need emotional support. With regard to the paper-based material of the charm part, she reported that it is easy to get wet.

Aside from personal feelings mentioned above, each sample also provided other feedback regarding the function, voice, and product appearance.

- **Function:**

All samples mentioned the need for a water-resistance function to protect the QR code printed on the paper-based charm. Subject C also commented that she likes PowerRING in terms of being a half-analog-half-digital product. She can touch the tangible product that similar to the feeling of seeing and touching a printed photo which differs from the photo seen on the screen.

- **Voice:**

Subject N mentioned that being unfamiliar to hear her own voice saying something gentle to herself.

- **Product appearance:**

Subject A mentioned that she prefers a formal color that is suitable for a professional look.

However, after stopping the first mockup trial, the researchers asked three samples about their overall feelings and their self-esteem, Subject A and Subject C replied that they are in a good mood and do not feel low self-esteem. Therefore, the final experiment was only conducted with Subject N.

As mentioned in Chapter 2, the researcher found on some studies regarding one of the methods for healing sufferings caused by lower self-esteem is self-compassion and positive self-talk which have been proved as a necessary factor for individuals in increasing the possibility of accomplishing their goals for people [33] [48] [71] [72]. Therefore compassionate self-talk is utilized as one of the strategies for PowerRING.

To summarize, the researcher developed a new and better design of PowerRING based on the key findings from the feedback provided by the samples of the first mockup and related works. The additional elements of the PowerRING design are mentioned below.

1. **The unlimited length and numbers of voice messages:**

For the first mockup, the samples were allowed to record the voice not over 120 seconds via a website. Therefore, to support the samples to record their voice as long and many as their preferences, this process should change to use their own smartphones to record and send the audio file to the researcher.

2. The more formal and professional color:

The first mockup's charm was the red color, which represents vividness, and the stripe was an elastic hairband. Instead of that informal and fairly plain appearance, the researcher changed the color of the strip to black, brown, and dark blue to represent a more formal look and braids them together for being more attractive.

3. Privacy:

Concerning the privacy issue which individuals are considering more and more, the audio files were kept in Google Drive which requires a password to access.

4. Stability and water-resistance:

The charm of the first mockup was paper-based and used a thread to bind the charm to the elastic hairband. While the charms and the jump rings of PowerRING design are silver which is water-resistant and provides more stability. Besides, the paper used for printing the QR code is a water-resistant printing paper.

5. Psychological element:

In the first mockup, the samples were required to record self-thank messages without guidelines. Contrary, owing to the number of studies regarding the correlation between self-esteem, self-compassion, and self-talk, the researcher switched from self-thank to compassionate self-talk for designing PowerRING that helps revive self-esteem.

4.5. Summary

PowerRING design was developed in various elements based on the result of design iteration: (1) the unlimited length and numbers of voice messages along with allowing the samples to use their own smartphones to record and send the audio file to the researcher. ; (2) the more formal and professional design such as black, silver, dark blue; (3) higher privacy with a password for a personal drive; (4) stability and water-resistance that can strengthen the charm, prevent QR code from getting blurred by water; and (5) psychological element which changed from self-thank to compassionate self-talk.

To summarize, 100 percent of the samples mentioned that they realized some changes after wearing PowerRING for 21 days. The changes are developed in a positive way of healthy self-esteem, which are opposite to several traits of low self-esteem [41] as mentioned in chapter 2.

- **Positive viewpoint:** They have become much more optimistic and can focus on the good things such as seeing various opportunities. They also try to find what they can learn in tough and challenging situations.
- **Happy, Joyful, and Positive self-image:** They feel better, less stressed, and love themselves much more. The samples commonly explained that they are happy to know that they have become a more positive thinker. They also want to see themselves become a better and happier version. Unexpectedly, during the interview, their tone of voice and their eyes sound and look glad and joyful telling about their changes and their points of view towards stories that happened in 21 days.
- **Opened up, Sociable, and Healthy communication:** They try to go outside, start new hobbies, invite friends to do some activities together, and make new friends. They have better communication with their peers.
- **Independent, Self-confident, Motivated, and Risk-taker:** They gain more confidence and believe in their potential. They can enjoy having alone time rather than feeling lonely while living in Japan. Also, they can rely on themselves and know how to handle and soothe their emotions by themselves, compared to before wearing PowerRING that they felt anxious and

needed to call their parents when facing discomfort. Besides, they now gain more confidence and believe in their potential that they are trying their best and then can do it at their pace. They decided to take action of what they have been fear or considered for a long time, such as applying for new jobs and letting their friends know of what they are unable to do, instead of pretending like they know everything like their perfect image.

Furthermore, the result is in line with the methods of cultivating lifelong self-esteem presented by Psychologist Guy Winch [52] mentioned in chapter 2.

- **Use positive affirmation correctly:** The positive affirmations the samples told themselves in the voice message are like they come to Japan to learn new things, they have capabilities, and they are worth loving.
- **Identify their own competencies and develop them:** The samples are able to identify their competencies and take time to improve those skills such as housewife skills including cooking, language skills, and sport skills. This is also in line with what Neff proposed about self-esteem, in terms of the measurement which individuals use to judge their goodness as a worthy people [33].
- **Learn to accept compliments:** The samples are able to accept compliments and feel that those words reinforce who they are. Interestingly, they can feel happy for the third person when someone compliments that person in front of them.
- **Eliminate self-criticism:** They mentioned that they are able to not compare themselves to other people, and spend less time criticizing themselves or repeatedly thinking about their previous decision that they used to feel unsatisfied.

Moreover, their perspectives towards life have been changed such as understanding themselves and others as human beings who have strengths and weaknesses. They become a kind friend to themselves and started to say a gentle word to relieve their feelings. This proved the concept of self-compassion presented by Neff, “treating oneself with kindness, recognizing one’s shared humanity, and being mindful when considering negative aspects of oneself.” [33]

As a result of keeping listening for many days during the experiment, they can remember their own voice message and it provided themselves emotional support, and they are now able to compassionate self-talk, find the solutions for a better result. Remembering their audio message helped decrease self-criticize moment and helped them less compare themselves with others. Additionally, 20 percent of the samples mentioned that they started to be able to accept compliments and really feel accordingly. When hearing compliments, they could recall their own voice messages saying kind words to themselves, and it helped reinforce each other. They could assure and encourage themselves that they made the right decisions. Moreover, 40 percent of the samples mentioned that they learned the way to soothe themselves from the recorded voice messages when dealing with new problems.

Hence, the result proves the concept of reviving self-esteem by using compassionate self-talk as a potential intervention target for those painfully affected by negative perspectives towards self [118]. Besides, the insight from the samples regarding being able to accept their feelings and their real self is defined as a part of self-esteem [32]. When individuals know to compassionate self-talk, they are capable of self-soothing and lessen anxious emotions and loneliness occurred while dealing with difficulties by themselves [59], during living abroad.

Sample observation: In terms of sample observation, due to the obstacles in regard to social distancing measures in Japan during the Corona pandemic in 2020 and one of the conditions of usage which requires the samples to listen during the night time, the explanation of their usage was used as a solution instead of observing at the actual time. According to feedback from the samples after using for 21 days, there are several common feedback as below.

First, thanks to the fabric material which is non-waterproof, the samples chose to wear the bracelet after finish activities involving water such as making laboratory experiments, cooking, washing hands, washing dishes, and taking showers.

Second, as the silver materials of the charm can make some noise when crashed with other hard materials, the sample got distracted by the noise.

Lastly, the small size of the QR code is one of the obstacles to scanning. The QR code requires good quality of smart phone's camera and enough light. During bedtime, some of the samples mentioned that they need to scan before turning off the light and put it near them. The interaction process did not allow them to listen right after scanning.

In addition to the compassionate self-talk strategy mentioned above, in regard to the V.I.P strategy comprising of voice, interaction, physical object, personalization, and privacy; the result of this design study can prove that each element are essential for designing an accessory for reviving self-esteem.

Voice: In respect of voice, the researcher found the insights which are concluded as below.

First, there are 80 percent of the samples provided common feedback regarding seeing through their thoughts via their own voices. The insights derived from samples' feedback are in line with the concept that individuals can perceive their own feelings and thought process more concretely when hearing their written messages in their own voice during speaking out [49].

Second, the researcher also found that listening to the recorded voice seems to be a good option for perceiving supportive messages during the day on which individuals are tired from daily-life intense use of their eyes such as reading books and looking at the devices' screen. In addition, increasing some relaxing background music would help soothe an individual's emotions better.

Third, during the first several days, the samples were unfamiliar with their own voice that they listened via the device and they lost concentration on the content of the voice message.

Lastly, there are 40 percent of the samples provided common feedback regarding listening to compassionate self-talk voice in each situation. During feeling neutral or being happy, listening to compassionate self-talk voice is prone to evoke uncomfortable or negative emotions. The style of the voice can be separated into 2 different situations. One is in a kind and supportive way for a hard time, while another one is cheerful in a for happy time such as some positive words of affirmation including giving a compliment.

Interaction: With regard to interaction, there is 60 percent of the samples required simple interaction such as touching a button to access their voice message, and not using a smartphone for scanning.

Although 40 percent of the samples mentioned that scanning QR code is easy to do as individuals have their own smartphones, and it is good to have an interactive process, there are 80 percent of the samples mentioned that scanning the QR code is quite troublesome due to several requirements i.e. spending time, small size, enough light, and using devices. These obstacles distracted and affected their feelings of wanting emotional support and lead to a decline in their needs of listening to their voice message.

Hence, providing a smooth process of access is a vital element. This is in line with what Steve Job presented that the significance of interaction design as it is connected to experiences and pleasure of users towards a product [87]. If the process of interaction of the product can be smoothly responded at the moment of usage experience, it is likely to reach a personal level of individuals.

Physical object: With reference to physical object, 80 percent of the samples preferred the physical object as it is visible that helps remind them of their compassionate self-talk voice messages. However, a physical object that allows individuals to use sensory such as a simple interaction including using a finger to press or tap on a button, is likely to enhance the greater engagement and attachment between the product and individuals. Additionally, the physical object also acts as an assistant or a friend who accompanies the user to provide support in time.

Nonetheless, for those who do not usually wear accessories including a bracelet, some functions of PowerRING can be combined and designed in other kinds of product which suit each individual's lifestyles and preferences.

Personalization: Concerning personalization, when individuals are allowed to take part in the making process and customize the design, these elements can further extend the feeling of attachment and sense of belongings. Several processes which required the samples to put the effort in exploring their own feelings, writing self-talk message, and recording their voice which comes from their one and only personal story, as well as the memory of each individual, engraved on the accessory is prone to extend the value of bracelet and become a precious and memorable.

This is also supported by the IKEA effect [99] which is defined as the increase in valuation of product individuals made by themselves. Moreover, the samples felt enjoy being allowed to customize by choosing their favorite color for the QR code. A wide range and a number of options for customization are likely to enlarge more relations and engagement. This is also related to the concept of emotional design by Norman [97] about personal level connection. When individuals are allowed to participate in the production process of their products, the value they put into that product will be leveraged.

Privacy: 100 percent of the samples mentioned their concerns about privacy and security. Knowing that their voices message mentioned about their personal stories are well protected, and they are the only ones who have the authorization to access their own data, provide them a sense of security and freedom to express their real self. Individuals need a private space including a personal drive. For this study, as the researcher needed to access their voice messages and personal information for the experiment evaluation, this factor caused some of them to feel insecure and not feel confident to express their thoughts freely. Individuals as consumers are likely to place more importance on and be highly aware of their privacy.

The above insights also related to the key takeout from the survey of “The Privacy Era” report [89], The survey founded that individuals want to ensure that their personal information is safely protected. Another key finding is individuals having a concern about being judged by other people if their thoughts and their stories are accessed. This can assume that facilitating privacy is one of the key elements for product design.

Interestingly, even in the case of sharing their stories with psychological specialists or psychologists, 20 percent of the sample mentioned that they do not trust those experts in terms of having bias and being judged by their appearances. This is in line with the WHO World Mental Health (WMH) Surveys [11], which presented that attitudinal hindrances including pessimistic viewpoints towards health [14] are the factors describing why individuals keep away from psychological treatment.

Chapter 5

Conclusion

5.1. Conclusion

As discussed in Chapter 1, the objective of this study is to examine whether compassionate self-talk voice accessory engenders reviving self-esteem and to find key attributes in designing the bracelet for reviving self-esteem, in order to help individuals enable revive their self-esteem and can be emotional first-aid for those who live abroad. The accessory was developed in the shape of a bracelet to provide users an opportunity to practice self-compassion and self-talk in a form of compassionate self-talk to revive their self-esteem when getting lower. PowerRING is designed as a bracelet as individuals can wear it on their wrist and bring it anywhere anytime. It is expected to develop their emotional strengths by being aware of their value in the way of healthy self-esteem that empowers them to live their lives to the fullest effective and potentially feasible. From this objective, two research questions were raised:

1. *Can the accessory combined with compassionate self-talk voice message help people revive their self-esteem during living abroad?*
2. *What are key elements in designing a mental health related accessory that can revive self-esteem?*

The three instructions of design research were conducted to elucidate these two questions. In each instruction, the participation and of samples through personalizing their own bracelets were designed and implemented in Japan from September to November 2020. Early ideas of the PowerRING ranged from the idea of how we can keep building our own emotional first aid to a tangible product.

After extensive planning and experimenting, the design concept was set into three phases: (1) Customization: The samples do self-compassion exercise, write self-compassion message, record their voice while reading their compassionate self-talk messages aloud, choose the color for the QR code, and measure the size of the bracelet; (2) Creation: The researcher generates voice QR code and make the bracelet; (3) Wearing and Listening: The samples wear their bracelet and scan the QR code to listen to their voice messages during just before falling asleep to access the subconscious mind [28] for 21 consecutive days, and when feeling low self-esteem.

From the result of the study, it can be proved that PowerRING in the shape of a bracelet could encourage the samples to be able to compassionate self-talk which helps them started being kinder to themselves which allows them to treat themselves like a good friend, and revive their self-esteem.

5.2. Future Research Recommendations

Looking at the future development of mental health supporting voice accessory, there is a wide range of opportunities for researchers and designers to study and initiate the innovations to lessen on close the gap between the physical and mental health of individuals to empower the inner strength and build a society of strong mental health. Thanks to the study, the researcher found various chances for further design researches in this field which can go beyond self-esteem, self-compassion, and self-talk. The researcher believes that arts, designs, innovation, and mental health can be combined to initiate products for the present and for the future.

- **Durability of material:** As female individuals might do some housework and placing importance on cleaning which involves utilizing water, water-resistant, and durable material such as silver and stainless steel is recommended. Providing stuff with non-itchy materials made for sensitive skin would be an interesting choice for consumer decision making.

- **Interaction:** Based on the insight that simplicity and short process of access the voice message fairly are recommended. The researcher believes that a interaction which requires only one touch such as Near Field Communication (NFC) is recommended for interactive element. NFC is a wireless connectivity technology and the short-range is required for its transmissions. Only tapping one time, it allows connection to digital devices with one touch [119]. However, the security concern for private information of users are needed to consider. Besides, the smartphone is still necessary for the NFC technology.

Nonetheless, smartwatch might be an optional device for listening to self-talk voice messages without using loudspeaker for the future research.

- **The color of the bracelet and skin color** Among the fashion and makeup industries, skin color becomes a vital area to be considered about designing beauty stuff. Female customers considerately choose the color of lipstick, makeup foundations, and clothes which well suits their skins. Female customers tend to purchase the new-launch lipsticks or beauty products aligned well in their own skin tone shades, therefore, an afford in increasing the tone of foundation and facial powder is constantly getting higher in the makeup market. Similar to those items, fashion accessories designed in a wide range of colors available to blend with skin tone shades are considered as desired items to help them confidently reveal their personalities and feel more comfortable while wearing on their bodies [120].

Apart from the skin color, launching products offered in a spanning number of different human skin pigmentation allows individuals to optimize pairing with their daily outfits in each situation such as professional look, casual look, and sporty look.

- **Personalization:** The variety style of charm for allowing individuals to customize by themselves is recommended to be considered.

As individuals tend to have different preferences in particular Millennials or known as Generation Y, an increasing need for expressing their individuality through what they wear, along with a deep desire for being accepted and heard is vital to be concerned for designing the product to serve them.

The more choices offered, the more chances to mix and match with the personal taste and a range of situation such as the professional look in working days, the informal look for casual events, the sweet and feminine style for date.

Besides, for those who do not usually wear accessories including bracelet, the functions of PoweRING can be designed as other products which suit each individual's lifestyles and preferences such as smartwatch.

- **Nationality and Gender:** Further research about psychological-oriented design should study more on a variety of design targeting global users and gender-neutral that can reach wider target users. PoweRING is targeting only females users, however, constructing a society with no gender-based prejudice can be considered as a critical issue. Mental health should be determined as one of the vital global issues that promote understanding among societies.

Any nationality and any identities which identified and not-yet-identified in the world have one thing in common which is being human that have feelings. Human beings are supposed to be allowed to be mentally fragile sometimes and can receive emotional support. Therefore, to innovate a product that can reach any identities of individuals is a potential gap in the market.

- **Avatar:** In the future, the product can be involved with A.I. or avatar character. The avatar would be nicer and make individuals want to play and interact more than their actual identity and real voice. The realistic might not provide a sense of playfulness. To provide more options of the various characters, personalities, tone of voice of friends which allow individuals to choose is recommended for further study.

The research would like to suggest the character and voice that offer a sense of emotional attachment and a sense of safe space or a judge-free zone in which allows them to express themselves freely, such as a fairy godmother, a childhood fluffy doll on the bed, childhood blankie, future self, childhood self, future lover.

5.3. Limitations

According to time constraint and resources of the present study, there were several limitations which can be improved in the further study.

- **First, the small sample was limited to Thai female millennials living in Japan.**

To conduct a better study in this area, future research is recommended to enlarge the frame to reproduce these findings with more extended and several more on a variety of samples of which self-esteem getting lower such as other generations of individuals who are living abroad, male sample, and foreigners from other countries which may have different cultural backgrounds from Thai people may increase a greater variability.

- **Second, the present study utilized a self-compassion exercise [27], for writing their message for voice recording with evaluating only short-term effects.**

The variability of the study may increase by prolonging the research time to assess long-term impacts. For example, to examine to what extent individuals are more able to cope with their low self-esteem after wearing PowerRING in the long term. In addition, to follow up on whether wearing the PowerRING revives their self-esteem has been changed or remain unchanged in the long run may make the result more clear that if this innovation can sustain compassionate self-talk skills to revive self-esteem when getting low of those who experience the accessory.

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Appendices

A. Self-Compassion Messages Written by Each Sample

The samples read aloud their own messages to record their voice for embedding in the bracelet.

- **Subject L:**

“If you are afraid of something that blocks your ability, I want you to use the courage and slowly get over it. Even though walking into a dark tunnel makes you walk slowly, feel insecure, and can’t see the way. But believe it, there is a light at the end of the tunnel waiting for you. I understand that people have the capacity to deal with suffering and to cope with the clues in the mind differently. I don’t ask you to force it. Do what you can. Don’t have to compete with anyone. Set small goals for yourself every day. It doesn’t have to be a big goal. Maybe starting with a small goal. For example, as a late awake person, if today you can wake up earlier for only 5-10 minutes. It is a change.”

- **Subject N:**

“This kind of thing happened to many people, not just you. Don’t think you’re unlucky. No one knows what the future holds. We can only do our best. And no matter what will come out, just try to accept as much as you can. You are a talented and loved by many people. Just be a good person, one day good things will come to you. People do not have to be perfect all the time. It is normal to be disappointed and frustrated. Try to find yourself and find what you really want. Then don’t compromise on it. Try

to achieve what you really want. Find happiness for yourself. Learn to love yourself.”

- **Subject S:**

- 1. When feeling homesick:**

“It’s okay, time flies. In just a moment, it will run out of 1 day, 1 week, 1 month, 1 year. Actually, there is a chance to go home. But now that there are so many incidents, and some situations arise that prevent us from going back. You must accept and wait patiently for the day to go home. It can be hard to think of the people we love every day, people we want to meet and want to talk to, to hug, and to touch, rather than just to talk or to see their faces via video call. At least, it allows you to learn and practice to be alone, and be able to rely on yourself, make your own mind much stronger. You have been studied hard and been able to do anything by yourself. Very good. You can be proud of yourself. And when the situation allows you to go home, just hurry to reserve a long ticket home.”

- 2. When stressed about the lab and research:**

“One thing to keep in mind is we are here to learn. No matter what happens and affects what we do today, it is learning. Nobody is good at and knows everything in the world since birth, but not everyone does not have what they are good at. Everyone has some talents that others don’t have. You just have to pull it out. The sooner you know yourself, the faster you can practice and learn the right way. Experimenting is no right or wrong, it’s learning. The more time you spend, the more you can learn. Trial and error. Try and then you can fix it earlier. The knowledge gained depends on how much we try. Even you tried your best and it didn’t work out, there is still something you learned along the way. Professor said that the experiment is like a gamble to look at the probability of that. If there are some possibilities enough, try doing it. If it’s too little, change the way. Just try to do your best and have fun.”

“Speaking of time, when it is sometimes limited, there may be a problem with adjusting or trying to make time to fit in with life. This one has to be learned and adjusted continuously. When does it get to the point where we could rest, you can fully rest. Don’t overthink anything, just clear the brain and yourself. And then come to continue with the lab”

3. When feeling tired, angry, sad, and stressed:

“When something bad happens, keep calm with it for a while and then think twice about what the whole story is like. If you are wrong then find a solution, and apologize to those with who you have done wrong properly. If you are angry with something, you can control your emotions a little bit before. But don’t keep it to yourself for long. Try to finish and forget as quickly as possible. Actually, you are not a person who is easily angry. When you’re tired, just do what you want your body, brain, and mind to really relax. Go for a relaxing run, listen to your favorite music, or just lying around watching something and sleep without thinking for a while.”

“If you are sad and want to cry, then cry. If you angry and want to cry or talk with someone, then just do it. If you don’t know who to cry with, your mom is the first person to be able to rely on at that time. You have been crying with her since birth. Don’t be ashamed. Actually, you usually talk about daily life with Bell every day too, which is a good thing. But you can also try talking to your friends and siblings, in order to share stories with each other. Try to make your life fun. If we don’t have these emotions in life, it would not be colorful, right?”

- **Subject W:**

“It’s good to listen to my own voice once in a while. I know that you are not good at communicating with words, but sometimes escaping problems is not a good idea. Not all problems have to be solved now. You can keep it for later. So this time, let’s look at what you can do.”

“First, study issue, you have been thinking about it till you have got the answer that you decided to choose this way. It’s not that bad. You also passed the entrance examination. There is a clear path where you just have to step-by-step clear it, like playing a game. Think that the scholarship sent you to work here. When finished studying, take a break, set aside time to exercise, listen to music, draw pictures, watch cartoon animation. We can enjoy our hobbies while studying.”

“The matter that just aware of during this period is the lack of confidence to ask. It’s okay, nobody knows everything in this world, and being afraid of losing face is not a bad thing. The key is, if you don’t ask, you will never know. When you don’t know, you will regret it later again. If it is necessary to know, try asking and you will not regret it later. Or just try reading and searching by yourself first. If you don’t really know, then ask. At least you try to find the answer by yourself. And I want you to try to arrange a time. During this time, you feel tired and stressed, because the deadline is approaching. If you arrange time well, you will have more time to rest and more time to do what you love. Let’s take it slow and adjust it. A good life schedule is not done in a single day. Let’s keep making it better.”

- **Subject T:**

“Hey T, I know this is a difficult time for you, you’re struggling and feeling really down, but I believe that you are doing your best, so I’m sure that things are going to go well. Don’t worry. You are amazing and you can do this. It also happens to everyone in the same situation, not just you. I’m seeing that you are doing everything you could and it’s actually going well. Many times things just don’t go our ways, but please don’t be too harsh on yourself. If I were you I might also have it worse. So please believe in yourself. Please don’t think about it too much and take some time to rest. And please always know that I will always be there for you no matter what happens.”