Emotional Care In Interactive Product Design: An Examination Of Healing Products

Jiang Jieling[1] ,
Sakon Phungamdee[2]

[1]Ph.D, Candidate,Arts Performance Communication,
Schoolof Liberal Arts, Shinawatra University, Email:404341206@qq.com
[2]Dr,Shinawatra University School of Liberal Arts,
Email: sakon.p@mru.ac.th

Abstract

This article aimed to study: (1) the interaction between female users and healing-themed products and how to convey emotions, (2) the evaluation of the interactivity of healing-themed products using the interaction types proposed by Rafaeli and Sudweeks, and (3) the design and evaluation of four types of healing-themed products aimed at conveying a sense of care.The sample consisted of female consumers within a specific age range, selected using a simple random sampling method. Data was collected through structured questionnaires and situational storytelling, and analyzed using descriptive statistics and content analysis.

Research findings were as follows:

1   The wave of healing-themed products originating from Japan can fill the void and loneliness created by societal pressures.

2   Noddings' theory of care was applied to the interactive design of healing-themed products, enabling the conveyance of emotions.

3   The four types of healing-themed products developed received positive reviews from participants, proving that products can serve as a medium for emotional communication.

Keywords: Healing Products, Interaction Design, Product Design, Emotional Design, Contextual Storytelling

Introduction

Under the influence of the 18th-century industrialization, society continued to progress, with economic growth improving people's quality of life. However, the busy pace of life has led to increasingly indifferent and distant relationships between individuals. According to a survey conducted by Manpower, 50.9% of working individuals in mainland China feel unhappy, while only 19% are happy. The 2020 China Mental Health Index Survey revealed a significant decline in the

mental health of Chinese citizens, with one-fifth of respondents failing the mental health index, constituting a high-risk group requiring medical attention. A staggering 43% of people are pessimistic about the future, and 35% are dissatisfied with their achievements, reaching an all-time high.

In this high-speed society, how to alleviate inner desolation is a pressing issue confronting modern individuals. Nowadays, people tend to alleviate stress through products that can evoke joy, a shift that sees purchasing factors transitioning from the pragmatic aspect of products towards their emotional appeal. This trend has led to an influx of 'healing products' on the market, a concept that originated in Japan and has since been embraced by many disheartened modern consumers. Such healing products primarily function as emotional redirects, claiming the ability to alleviate stress, soothe the mind, and elicit pleasant sensations. This phenomenon reveals a shift in modern society towards symbolic consumption: rather than seeking solace from friends or family during moments of loneliness and desolation, individuals turn to products for consolation. This trend demonstrates how individuals derive emotional satisfaction from interacting with products. The symbolic value these products represent fills the emptiness in people's hearts, gradually leading to a decrease in the most crucial relational element between individuals - the transmission of care and empathy. Products that convey a sense of care should not be confined to emotional interaction between humans and products but should extend to foster emotional connections between individuals, positioning the products as a medium for emotional communication and thus realizing the true purpose of conveying care. It can be observed from recent product designs that emotional design has increasingly become a design trend. If combined with technological advancement, a broader spectrum of interactive modalities can be created, facilitating emotional interactions between products and people, and in turn building emotional bridges between individuals.

Research Objectives

The main theme of this study is "conveying caring emotions" within the scope of interaction design. First, we explore the characteristics of "healing products" available on the market and how they satisfy emotional needs through interactions with users. This provides a basis for subsequent product creation. Through survey research, we compile statistics on women's needs for caring emotions and apply these findings to our design cases. Second, although the proliferation of information provides many conveniences, it has gradually created a sense of distance and indifference among individuals. Through this research, we hope that people can achieve the aim of conveying caring

emotions through interactions with products, thereby closing the gap between individuals. The objectives of this study are listed as follows:

(1) Conduct a survey on the degree of conveying caring emotions in the healing products available on the market, and summarize the related characteristics of conveying emotions.

(2) Investigate the demand for caring interaction among female test subjects.

(3) Based on the need for caring interaction, conduct a design for interactive products that convey caring emotions.

(4) Propose recommendations for enhancing the degree of emotional conveyance in products.

Literature Review

Discussion on Emotional Care

As society changes and progresses, individuals leaving home to study or to improve their living conditions in large cities face various pressures. They are prone to negative emotions and loneliness. In their eager pursuit of personal achievement and a better life, they often overlook the importance of emotional care and exchange. Loneliness manifests as a lack of interpersonal interaction, including cognitive loneliness, behavioral loneliness, and, most impactful to human beings, emotional loneliness (Frank, 1998). Lonely individuals often feel isolated, forgotten, and lacking companionship (Wu Jingji, 1997).

Maslow proposed that among the five basic human needs, love and care are indispensable. Loneliness researcher Wu Jingji (1997) also pointed out that, paradoxically, while both birth and death are lonely, we all desire human interaction. Loneliness can be divided into emotional loneliness and social loneliness, with those experiencing social loneliness feeling a lack of belonging and a sense of isolation and abandonment (Peplau and Perlman, 1982; Qiu Qionghui, 1990).

A 2006 survey by Vision Magazine showed that 12.3% of urban residents often feel lonely, a proportion especially high among young people (ages 20-29). This might be due to the loneliness and anxiety these individuals feel when facing various life choices. 40.8% of respondents believe that living apart from their families also contributes to feelings of loneliness. The survey data reveals that those in adulthood, in particular, are susceptible to feelings of loneliness. This aligns with Erikson's psychosocial stage theory (1902-1994), indicating that individuals at this age are experiencing a role transition and are in a key period for establishing emotional relationships. If they cannot establish good emotional relationships with others, they will feel lonely.

Emotional Design

In recent years, the mainstream trend in product design has shifted

towards "form follows emotion," where designers have begun to pay attention to users' emotional needs. These products not only provide substantial functionality but also interact with the users, serving as conduits for conveying emotions (Donald A. Norman, 2000).

The renowned American company Frog Design has proposed the concept of "form follows emotion" (Dylan Evans, 2005), emphasizing that product design should take into consideration its impact on users' moods. A product capable of eliciting positive emotions has a stronger influence on user mood, subsequently leading to higher user efficiency.

In his book "Emotional Design," Donald A. Norman (2000) states that beyond considering functionality, a very important factor in product design is "emotion." He categorizes emotions into three levels: visceral, behavioral, and reflective, each with its respective product characteristics.

Jordan (1998) in his research pointed out that objects possess the potential to evoke four levels of pleasure: physio-pleasure, socio-pleasure, psycho-pleasure, and ideo-pleasure. Physio-pleasure is associated with the visceral level and part of the behavioral level of emotion, socio-pleasure derives from interactions with others, and psycho-pleasure arises from the joy of using the product, corresponding to the behavioral level. Ideo-pleasure, on the other hand, is derived from reflective thoughts on experiences, possibly based on aesthetics or the emotional response generated by positive changes in life quality, and belongs to the reflective level (Norman, Ortony & Russell, 2003). These research findings not only showcase the significance of design but also underscore the pivotal role of emotions in design. Only when product design can touch people's emotions and provoke inner responses, can it truly achieve the "form follows emotion" design concept.

Discussion on Healing Product

Modern people have accumulated a considerable amount of negative emotions, leading to an increasing number of stress-relieving products appearing on the market. The practicality of these products is not high, but their emotional function is the main reason for attracting consumers (Wu Hengyi, 2005). With the change in consumption patterns, we have now entered an era of emotional consumption. When people buy products, it's not just due to functional needs, but because the product itself can satisfy consumers' emotional needs and bring positive emotions.

Huang Zhenjia (2006) mentioned that the healing economy in Japan, especially after enduring a prolonged economic stagnation lasting for more than a decade, is booming. Various products and

services are constantly being innovated, and services that can help people alleviate stress and soothe wounds are collectively referred to as the "healing style". In Japan, "healing style" has become a keyword and a category concept. Any person, event, or object that can help soothe the wounded souls of the modern era can be categorized as "healing style". The healing products studied in this research come from the popular "healing" products in Japan. They mainly have the effect of calming people's minds, helping them forget pain and annoyance, and making users feel comfortable and relaxed.

User-oriented healing products, through interactive design, can make the effect of emotional transmission more significant. However, there are level differences in interaction. The level of "interactivity" is mainly determined by the degree of interaction between the transmitter and the receiver. The higher the degree of interaction, the higher the level.

This study classifies the levels of interactive modes for healing products, referring to the interaction levels proposed by Rafaeli & Sudweeks (1997), and categorizes the operation interface and the degree of feedback after users interact with the product into three types according to the level of interaction forms. These are arranged according to the degree of "interactive feedback" as (1) Directive - No Feedback (2) Reactive - No Emotional Feedback (3) Sensory - Emotional Feedback (see Figure 1). The following will discuss the healing products on the market for each type.
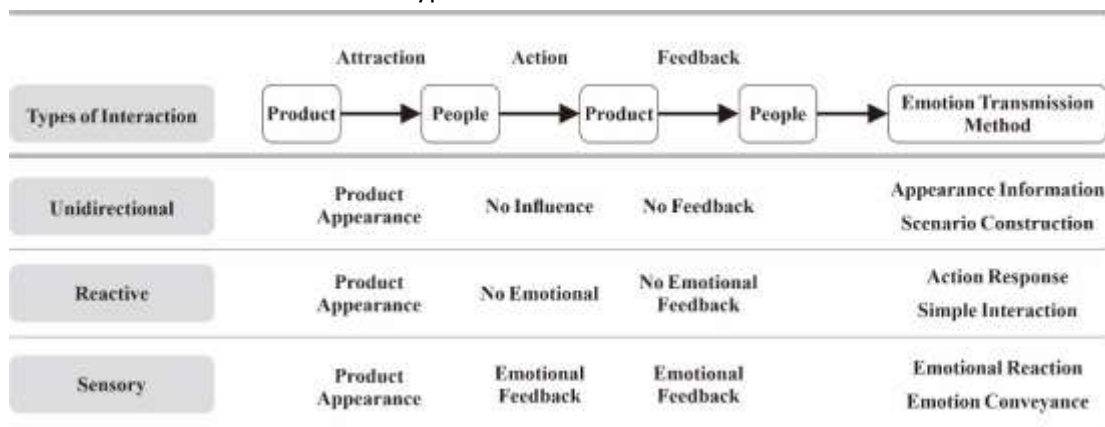

Types of Interaction	Attraction	Action	Feedback	Emotion Transmission Method
	Product → People → Product → People →			
Unidirectional	Product Appearance	No Influence	No Feedback	Appearance Information / Scenario Construction
Reactive	Product Appearance	No Emotional	No Emotional Feedback	Action Response / Simple Interaction
Sensory	Product Appearance	Emotional Feedback	Emotional Feedback	Emotional Reaction / Emotion Conveyance

Figure 1.Types of Interaction in Healing Products
(Source: Drawn by this research)

Conceptual Framework
This paper employs a two-stage questionnaire survey to conduct the experiment. The first stage of the questionnaire investigates consumers' feelings about the degree of care conveyed by healing-themed products currently on the market, as well as their demand for emotional care. It collates the level of interaction respondents have with healing-themed products and the degree of care they feel they

receive, along with the statistics about their demand for emotional care. Based on the questionnaire results, designs for interactive products that convey a sense of care are developed, with the situational storytelling method as the design framework.

The second stage of the questionnaire assesses the care-centric interactive product design cases created by this research. The most representative design cases are selected, sample models are produced, and these are exhibited in a showcase. The experimental flow of this research is shown in Figure 2.
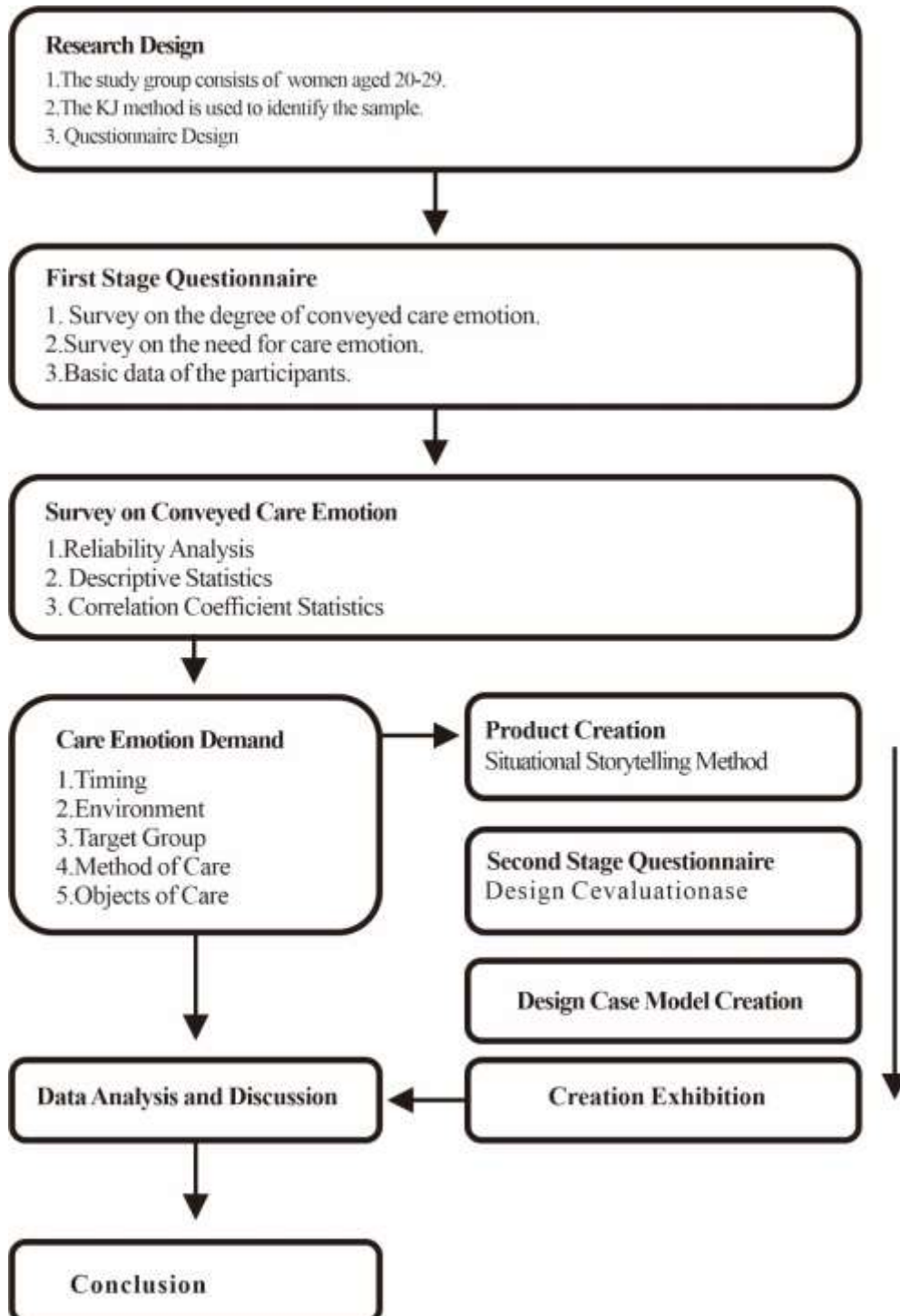

Research Design
1. The study group consists of women aged 20-29.
2. The KJ method is used to identify the sample.
3. Questionnaire Design

First Stage Questionnaire
1. Survey on the degree of conveyed care emotion.
2. Survey on the need for care emotion.
3. Basic data of the participants.

Survey on Conveyed Care Emotion
1. Reliability Analysis
2. Descriptive Statistics
3. Correlation Coefficient Statistics

Care Emotion Demand
1. Timing
2. Environment
3. Target Group
4. Method of Care
5. Objects of Care

Product Creation
Situational Storytelling Method

Second Stage Questionnaire
Design Cevaluationase

Design Case Model Creation

Creation Exhibition

Data Analysis and Discussion

Conclusion

Figure 2. Conceptual Framework

Research Methodology

Research reveals that young individuals in urban areas, particularly women aged 20-29, are more likely to experience feelings of loneliness and depression. These feelings are typically exacerbated by factors such as academic stress and are linked to the unique physiological cycle changes in women. Compared to men, this demographic is more likely to purchase "healing-style" products to alleviate stress and feelings of loneliness. Therefore, this study selected female consumers aged 20-29 as the main research subjects, with a primary focus on their use of "healing-style" products to cope with psychological stress.

For the selection of "healing-style" products available on the market, an online collection was carried out. The products were collected by searching the keywords "healing-style products" or "therapeutic products" online, and a total of 84 products were collected. Five young women aged 20-29, who have a certain understanding of "healing-style" products, were recruited. Using the KJ method, these products were classified and suitable samples for this study were selected.

Research Result

1. Correlation Analysis of the First Phase Questionnaire Survey
The first phase of the questionnaire in this study is divided into three parts. The first part investigates the degree to which the six selected samples convey emotions of care on different interaction levels, divided into appearance, function, feedback, and overall feeling, with a total of 18 questions. The aim of this phase of the questionnaire survey is to investigate the degree to which healing-style products on the market convey emotions, hence the question design tends to be emotional. The second part surveys the test-taker's need for emotional care with open-ended questions covering when they feel lonely, where they feel lonely, who they want to be cared for when they feel lonely, how they hope to be cared for, and what aspect of themselves they hope to be cared for. The third part is the personal basic information of the test-takers.

(1) Appearance / Overall Feeling
The correlation between the average score of the appearance and the overall feeling is r=0.158, showing a low positive correlation (see Figure 3). This result indicates that the appearance of the product has little impact on the overall feeling of the product.
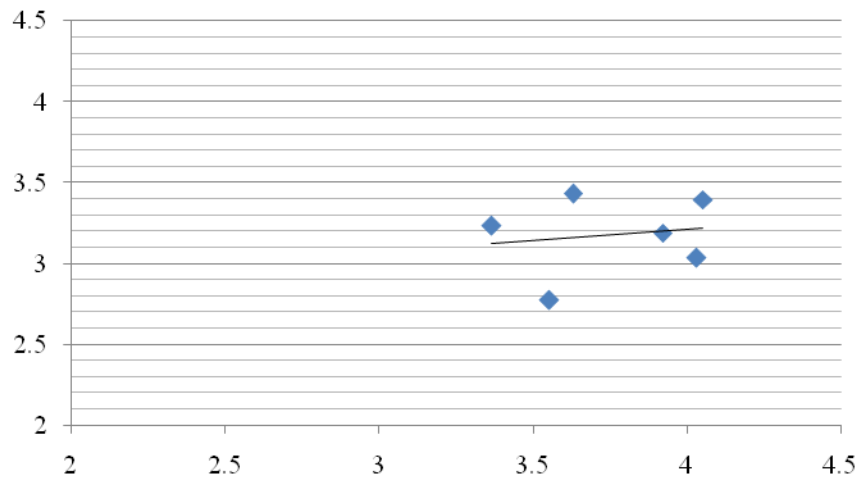
1783

Figure 3: Correlation Coefficient between Appearance and Overall Feeling

(2) Function / Overall Feeling

The correlation between the average score of the function and the overall feeling is r=0.695, showing a moderate positive correlation (see Figure 5). This result indicates that the functionality of the product has more influence on the overall feeling of the product than the appearance.
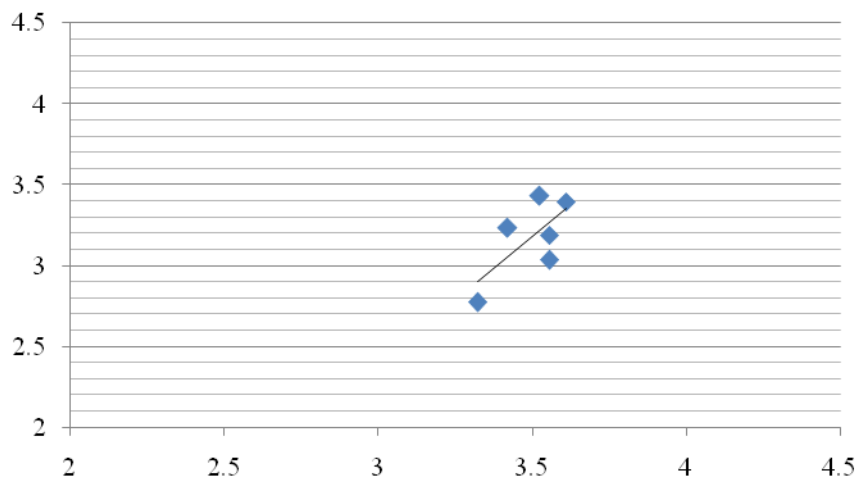

Figure 5: Correlation Coefficient between Function and Overall Feeling

(3) Feedback / Overall Feeling

The correlation between the average score of the feedback and the overall feeling is r=0.852, showing a high positive correlation (see Figure 6). This result indicates that the feedback of the product has a significant influence on the overall feeling of the product.
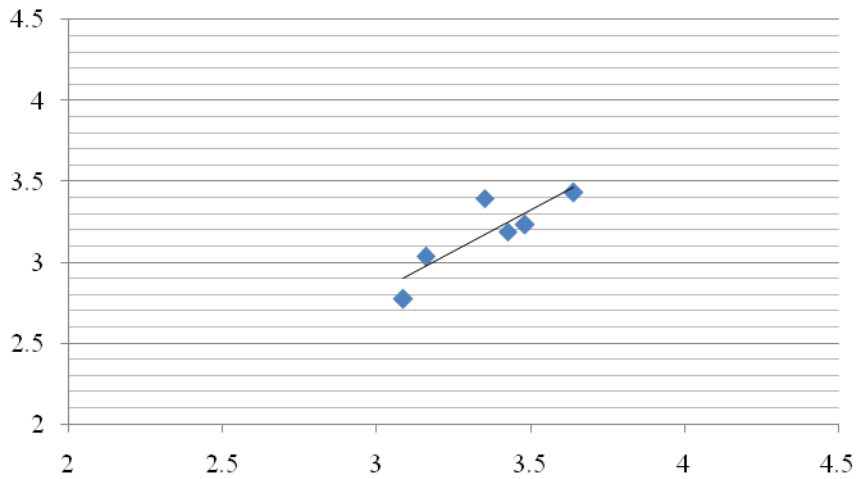
Figure 6: Correlation Coefficient between Feedback and Overall Feeling

2.   Correlation Analysis of the Second Phase Questionnaire Survey
This research finally developed four design cases, which were used as the test samples for the second phase of the questionnaire. Each sample had four main items with a total of 24 answer questions. This chapter will analyze the four main items, with the average scores of appearance, function, and feedback individually correlated with the overall feeling item to determine which of these three characteristics affects the test-taker's overall feeling for this product.

(1) Appearance / Overall Feeling

The correlation between the average score of the appearance and the overall feeling is r=0.536, showing a moderate positive correlation (see Figure 7). This result indicates that the appearance of the design case does affect the overall feeling of the test-takers.
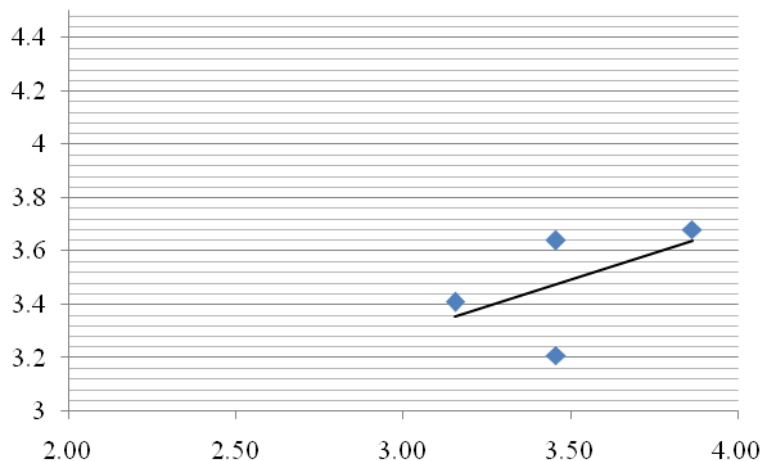

Figure 7: Correlation Coefficient between Appearance and Overall Feeling

(2) Function / Overall Feeling
The correlation between the average score of the function and the overall feeling is r=-0.096, showing a low negative correlation (see Figure 8). This result indicates that the menu design case has a low

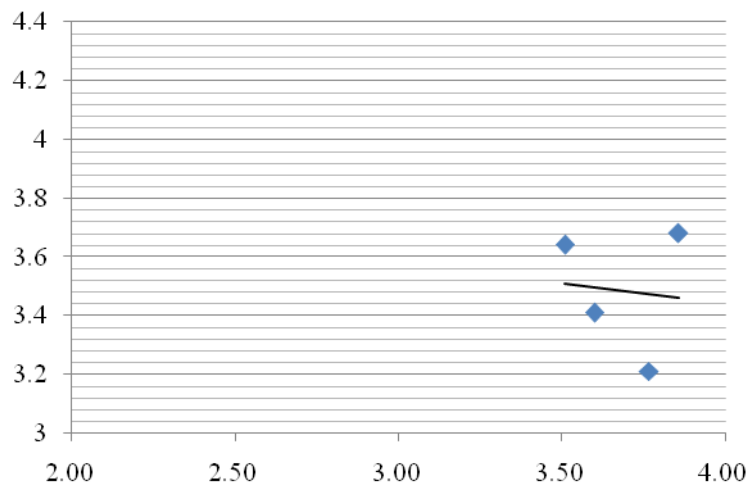negative impact on the overall feeling of the test-takers.

Figure 8: Correlation Coefficient between Function and Overall Feeling

(3) Feedback / Overall Feeling

The correlation between the average score of the feedback and the overall feeling is r=0.980, showing a high positive correlation (see Figure 9). This result indicates that the feedback performance of the design case has the most significant impact on the test-takers' overall feeling of the case.
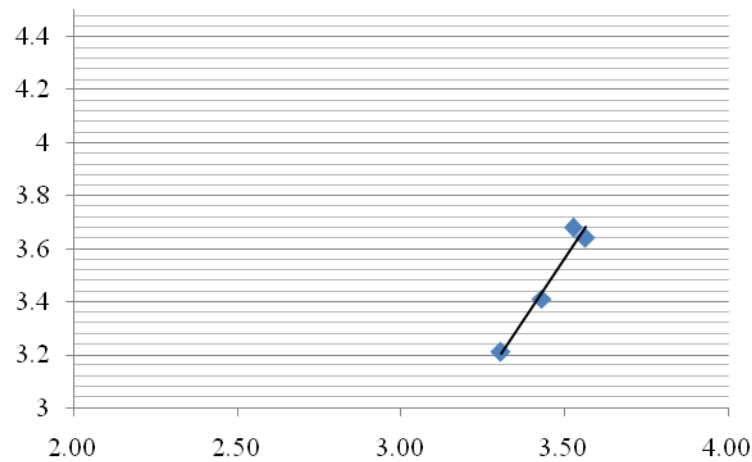

Figure 9: Correlation Coefficient between Feedback and Overall Feeling

Conclusion

The following is an integrative narrative of the findings and key points from each chapter:

(1) Interaction Levels of Healing Products Impact Emotional Transmission

According to the three interaction levels proposed by scholars in the literature review: unidirectional, reactive, and emotional, healing products on the market were categorized accordingly. A survey was conducted to determine if there were differences in emotional

conveyance across these three interaction levels. The results indicated that healing products of the third category, which allows for emotional interactions with users, yielded greater emotional satisfaction, thus demonstrating that products with higher levels of interaction are more effective in conveying emotions through interactions with people.

(2) Functions and Feedback of Healing Products Influence Participants' Overall Perception

The initial phase of the survey revealed that the functions and feedback mechanisms of healing products significantly affect participants' overall perception of the product, whereas the appearance of the product has a lesser impact. Particularly, healing products belonging to the third interaction type—emotional interaction—allow participants to emotionally engage with the product, leading to greater emotional satisfaction. Furthermore, products that provide rich feedback, especially those capable of conveying emotional responses, scored higher in participants' overall perception.

(3) Feedback Design of Case Studies Influences Participants' Overall Perception

Correlation analysis of the second phase design assessment showed that the feedback design of the products has a larger impact on the overall perception of participants than the appearance and function. This differs from the initial phase, where the function of healing products also influenced overall perception. The researchers hypothesize this difference is due to the fact that all design cases were based on emotional interaction type and provided emotional exchange features, making the functional impact of each design case less varied. Both the first and second phase surveys showed that the product's feedback had an impact on participants' overall perception of the product. It was evident from the product evaluation in the design cases that when the feedback method allowed participants to use the product as a medium to convey emotions and engage in real emotional exchanges with others, it was more effective in satisfying participants' emotional needs.

(4) Care Interaction Needs

Love and care are essential elements of human existence. Through open-ended questionnaire surveys, this research collected data on the care interaction needs of women, providing a basis for future product design. The results showed that women were most likely to feel lonely before sleep, when commuting alone, or when alone at home. They felt the loneliest at home or in public spaces. In times of loneliness, they most desire the company of friends, followed by family, lovers, and pets. The most desired forms of care were expressions of concern, chats, and hugs. Their most hoped-for areas of care were in their coursework/career, daily life, and emotional life.

Comparing this data to the design concepts proposed, Pet Light, a comforting night light in the form of a pet, was the most favored as it provided company at bedtime. Sweet Signal, a scarf that reflected the wearer's emotions and elicited care from friends, was the second most favored. This suggests that surveying women's care needs to inform design could more effectively result in care interaction products that resonate with women. The care needs identified in this study will provide reliable reference data for future designs of women's care products.

Research Limitations and Suggestions

1．Collection of Healing Product Data

This study collected and sorted literature on the definition and related research of "healing products". However, after actual collection of literature, it was found that there are many translations for "healing products" domestically. As "healing products" is an emerging term introduced from Japan, various names have appeared domestically, such as adult toys, office toys, healing merchandise, and so forth, but the products themselves have the same characteristics and belong to the same category. Therefore, it is suggested to collect related books and research materials from Japan, the place of origin of healing products, to obtain more comprehensive and rich information to ensure the correctness of the research on healing products.

2．Limitations of the Test Group

This study only surveyed women aged 20-29, but the user group of healing products is becoming more diverse. The emotional needs of different genders and age groups vary, so it is recommended to conduct research comparisons for different groups to provide reference for the future development of healing products that meet the needs of various groups.

3．Limitations of the Test Samples

Due to limited research funding, during the implementation of the first phase of the questionnaire, we could only collect images of healing products on the market. Testers may not fully understand the product through images and text descriptions, and it's impossible to verify if there are discrepancies in their understanding of the product. Especially for these interactive products, deeper enjoyment can be obtained after actual operation. Therefore, this study suggests that if funding allows, physical product samples can be collected to provide testers with actual interaction with the product, enhancing their understanding of the product.

Reference

Dylan Evans. (2005). Emotion as a Form of Intelligence: A Post-

Luhmannian Perspective on Emotion, Cognition and Decision Making. In Proceedings of the International Workshop on Computational Models of Natural Argument (pp. 63–73).

Erikson, E. H. (1902-1994). Identity: Youth and Crisis. W. W. Norton & Company.

Frank, E. (1998). Justifiable Treatment of Mild Hypertension: A Prospect Theory Approach. Medical Decision Making, 18(2), 174–186.

Huang Zhenjia. (2006). The Trend of Healing Economy in Japan and Its Enlightenment. International Market, (4), 86–87.

Jordan, P. W. (1998). Pleasure with Products: Beyond Usability. London: Taylor & Francis.

Manpower. (n.d.). Happiness Index. Retrieved from https://www.manpowergroup.com/wps/wcm/connect/manpowergroup-en/home/

Norman, D. A. (2000). Emotional Design: Why We Love (or Hate) Everyday Things. Basic Books.

Norman, D. A., Ortony, A., & Russell, D. M. (2003). Affect and Machine Design: Lessons for the Development of Autonomous Machines. IEEE Intelligent Systems, 18(6), 18–25.

Peplau, L. A., & Perlman, D. (1982). Perspectives on Loneliness. In Loneliness: A Sourcebook of Current Theory, Research and Therapy (pp. 1–18). John Wiley & Sons.

Qiu Qionghui. (1990). Loneliness Research. Psychological Science, (3), 76–82.

Rafaeli, S., & Sudweeks, F. (1997). Networked Interactivity. Journal of Computer-Mediated Communication, 2(4).

Vision Magazine. (2006). Vision Magazine Urbanite White Paper. Vision Magazine.

Wu Hengyi. (2005). Transformation of Emotional Consumption Mode in Japan: An Analysis of "Healing Economy". Academic Exploration, (5), 48–52.

Wu Jingji. (1997). Psychological Loneliness and Social Loneliness: A Summary of Domestic Research. Psychology Research, (5), 63–70.