



Faculty of Applied and Creative Arts

**Creating Awareness among Young Generation in China on Modern
Hanfu Design by Using Interactive Design Applications**

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Creating Awareness among Young Generation in China towards on Modern
Hanfu Design by Using Interactive Design Applications

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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ABSTRACT

The Han people are the largest ethnic group in China, and their traditional costume, Hanfu, has a rich history that reflects the formation and development of the Han nation. Modern Hanfu is a type of Hanfu that features innovative designs suitable for contemporary wear while still maintaining the typical characteristics of traditional Hanfu. In recent years, there has been a surge of interest in modern Hanfu design. However, this trend has also brought about some issues. Some designers misuse Hanfu elements, resulting in the misrepresentation of Hanfu culture. Some others just design similar-looking modern Hanfu. This highlights the importance of promoting a greater understanding of Hanfu culture and encouraging more original, high-quality designs. This study aims to raise awareness of modern Hanfu design through interactive design applications among the young generation in China. The study used a mixed research method, including semi-structured interviews with 16 respondents and a questionnaire survey with 315 respondents. The data from these sources revealed the Chinese perception of modern Hanfu design and identified areas for improvement. The respondents agree that Hanfu is essential but needs a better understanding of its cultural significance. Secondly, it discussed the suitability of using interactive design applications to educate and promote modern Hanfu. The relevant factors include lifestyle preferences, interactive design, educational information, perceived functional value, perceived emotional value, perceived risk, and communication. Lastly, the relationships between these factors were found to establish the theoretical model and guide the development of interactive design applications for modern Hanfu. The study developed a revised theoretical model and designed a digital interactive application integrating modern Hanfu interaction design and cultural dissemination. The study aims to

make feasible recommendations for the sustainable development of modern Hanfu design and to raise public awareness of Hanfu culture.

Keywords: Modern Hanfu design, interactive design application, young generation in China, user behaviour, Hanfu culture

Pembangunan Aplikasi Mobil untuk Reka Bentuk Interaktif Hanfu Moden

ABSTRAK

Masyarakat Han adalah kumpulan etnik terbesar di China, dan pakaian tradisional mereka, Hanfu, mempunyai sejarah yang mencerminkan pembentukan dan perkembangan bangsa Han. Hanfu Moden ialah sejenis Hanfu yang menampilkan reka bentuk inovatif yang sesuai untuk pakaian kontemporari, disamping mengekalkan ciri-ciri tipikal Hanfu tradisional. Dalam beberapa tahun kebelakangan ini, terdapat peningkatan minat dalam reka bentuk Hanfu moden. Walau bagaimanapun, trend peningkatan ini telah memberi beberapa impak negatif di mana sesetengah pereka bentuk menyalahgunakan unsur Hanfu, mengakibatkan kecelaruan pemahaman budaya Hanfu. Sesetengah pereka hanya mereka bentuk Hanfu moden yang kelihatan serupa dan ini dapat mengetengahkan pemahaman yang lebih mendalam tentang budaya Hanfu dalam menggalakkan dan mempromosikan reka bentuk yang lebih asli dan berkualiti tinggi. Kajian ini bertujuan untuk meningkatkan kesedaran reka bentuk Hanfu moden melalui penggunaan aplikasi reka bentuk interaktif dalam kalangan generasi muda di China. Kajian ini menggunakan kaedah kajian campuran, termasuk temu bual separa berstruktur dengan 16 responden dan tinjauan soal selidik dengan 315 responden. Data daripada sumber ini mendedahkan persepsi orang China terhadap reka bentuk Hanfu moden dan mengenalpasti faktor untuk penambahbaikan. Responden bersetuju bahawa Hanfu adalah penting tetapi memerlukan pemahaman yang lebih mendalam bagi pengekalan budayanya. Selain itu, faktor yang paling berpengaruh untuk menembusi batasan reka bentuk Hanfu moden turut dibincangkan dengan terperinci. Faktor yang berkaitan termasuk pilihan gaya hidup, reka bentuk interaktif, maklumat pendidikan, nilai fungsi, nilai emosi, risiko dan komunikasi.

Akhir sekali, hubungan antara faktor-faktor ini didapati dapat mewujudkan model teori dalam pembangunan aplikasi reka bentuk interaktif untuk Hanfu moden. Kajian ini menambahbaik model teori dalam mereka bentuk aplikasi digital yang mengintegrasikan hanfu moden, reka bentuk interaksi dan penyebaran budaya. Kajian ini bertujuan untuk mencadangkan untuk pembangunan mampan reka bentuk Hanfu moden dan untuk meningkatkan kesedaran orang ramai tentang budaya Hanfu.

Kata kunci: *Reka bentuk Hanfu moden, aplikasi reka bentuk interaktif, generasi muda di China, tingkah laku pengguna, budaya Hanfu*

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LIST OF ABBREVIATIONS

AGFI	Adjusted Goodness-of-fit Index
ANOVA	Analysis of variance
AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CITC	Corrected Item-Total Correlation
CMIN	Chi-Square
C.R.	Critical Ratio
CR	Composite Reliability
CYL	Communist Youth League
DF	Degree of Freedom
EKB	Engel Kolat Blackwel
IFI	Incremental Fit Index

KMO	Kaiser-Meyer-Olkin
MI	Model Fit Index
NFI	Normed Fit Index
RMSEA	Root Mean Square Error of Approximation
S.E.	Standard Error
SOR	Stimulus-Organism-Response
TAM	Technology Acceptance Model
TLI	Tucker-Lewis Index
UI	User Interface
VAM	Value-based Adoption Model

CHAPTER 1

INTRODUCTION

1.1 Study Background

From the Qin dynasty to today, clothing has been an essential part of traditional Chinese culture. It is a symbol of material and spiritual civilisation, a result of the long-term development and accumulation of the Chinese nation, and an external symbol of people's lives, reflecting the unique Chinese characteristics in terms of social status, cultural transmission, and folk customs. There are fifty-six ethnic groups in China, of which the Han Chinese are not only the leading ethnic group in China but also the most numerous in the world today. It is one of the few ancient peoples with an unbroken civilisation. Traditional Hanfu is distinctly different from that of other ethnic groups' costumes. It has developed through many dynasties and was influenced by factors such as the environment, politics, and economy, gradually forming an outfit with characteristics of the Han nationality. Traditional Hanfu represents the traditional culture of the Han nationality, reflecting their ideology, ritual system, living habits, and so on, and can objectively reflect the social situation and national style (Liu, 2011). However, as Western culture entered China after the Xinhai Revolution, people's perceptions changed, favouring Western-style clothing, and the traditional Hanfu gradually faded out of style. By now, the typical Hanfu is even disappearing progressively. If this situation is not reversed, it will inevitably lead to a deficiency in Chinese culture (Su, 2005). Therefore, in modern society, we must take the appropriate methods to make the Hanfu effectively passed on and developed in modern times.

China's economy has gradually developed in recent years, and people have become increasingly concerned about traditional culture as their material living standards have improved. The Chinese government has also introduced many policies to promote the development of cultural industries in recent years. For example, in 2017, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council of the People's Republic of China introduced a policy that Opinions on implementing the inheritance and development project of Chinese incredible traditional culture, which is the first time that China has thematically elaborated on the inheritance and development of Chinese excellent traditional culture in the form of a central document. Therefore, the heritage, innovation, and development of Chinese traditional costume culture have once again attracted the attention of people from all walks of life. Against this social backdrop, the Han nationality, as the ethnic group that occupies the most significant number of people in China, its national costume, the Hanfu, soon attracted the attention of many people. A few Hanfu enthusiasts would wear Hanfu daily, and the general public went from not understanding this phenomenon to slowly accepting, paying attention to, and even loving Hanfu culture. People found a sense of cultural belonging and a sense of national identity through Hanfu (Wang, 2013).

As the influence of Hanfu culture has grown, so has the number of studies dedicated to it, social media outlets focusing on it, and physical shops and online shops selling Hanfu products. Scholars have concentrated their efforts on aesthetics, culture, and structure, with little attention given to Hanfu's popularisation, dissemination, and design innovation (Wang, 2014). A substantial amount of information regarding Hanfu culture can be found on social media. However, its reliability varies significantly, primarily because the content is predominantly generated by random customers selling the Hanfu

costumes (Su, 2005). Most Hanfu products sold in physical and online stores are modern Hanfu, but due to commercial issues, the market is not large-scale (Weng & Liang, 2020). This research focused on the behaviour of using interactive design applications for modern Hanfu. It will allow more people to participate in the innovative design of modern Hanfu that meets the habits of modern people, or people even want to buy current Hanfu products designed by themselves in the future. This will help impart and inherit the culture of Hanfu and will be a reference for the revival of Hanfu culture and other traditional cultures.

1.2 Problem Statement

Clothing is one of the most curtail ways of reflecting the culture and carries many connotations such as institutions, aesthetics, and folklore (Ren, 2018). The Han nationality is the leading ethnic group in China, with a history of several thousand years (Wang, 2014). Hanfu, the national costume of the Han nationality, needs to be adequately understood today (Jiao, 2021). Many people lack an understanding of Hanfu; some are unaware of the concept - they think that traditional national dress is an exclusive term for ethnic minorities or foreign countries. This was because the Hanfu system, which had developed over nearly four thousand years since the Xia Dynasty, was changed by the rulers in the Qing Dynasty when they forbade people to wear traditional Hanfu. Immediately afterwards, the war of aggression at the end of the Qing Dynasty brought about social unrest. Since then, China has been heavily influenced by Western civilisation and has gradually neglected its traditional culture, especially the Chinese costume culture. People were changing their dressing habits based on the aesthetic preferences of the West, resulting in a gap in the cultural heritage of Chinese costumes, which has only been brought back to public attention in recent years (Sun & Xiong, 2022). As an essential part of the traditional

Chinese cultural system, modern Hanfu embodies the conventional culture and image of the Han nationality. The development of modern Hanfu design in contemporary society needs help in Hanfu knowledge popularity, correct information dissemination, and innovative design. If this phenomenon continues for too long, it will inevitably become an irreparable loss in Chinese culture, even the world culture.

From the perspective of cultural education, the current spread of Hanfu culture has always been limited to a small group of Hanfu enthusiasts' social circles. This has made it challenging to attract the public who do not have a great interest in Hanfu (Jiao, 2021). Over the last ten years, the Hanfu culture has primarily spread through enthusiasts communicating with each other and organising events. They attract potential enthusiasts and convert them into Hanfu enthusiasts through online communication, ultimately joining the social circle of Hanfu enthusiasts. This situation has led to the development of Hanfu in a small group, and the general public lacks the means to understand the basic information of Hanfu (Lin & Mo, 2020). The Hanfu culture circle needs more authoritative and compelling publicity to avoid misconceptions and prejudices among people. Some may confuse Hanfu culture with ancient costumes or cosplay. Many do not realise the value of Hanfu for their spiritual and cultural life and even resist it (Guo, 2019). Books and museums are two traditional channels for cultural education and dissemination, yet books and literature are frequently highly specialised and difficult to understand by the general audience. The educational function of museums has limitations in the widespread dissemination of Hanfu. The unique nature of the costume exhibits, in particular, places great demands on the exhibition halls, not just in humidity and light but also in the limited number of costumes on display. Therefore, traditional museums are not a suitable channel for the general public to learn about Hanfu culture (Jiao, 2021).

In contrast, in the new media era, communication content is characterised by extensiveness, interactivity and diversity (Wang, 2017). People can access much information, including information on Hanfu culture, on new media such as websites and mobile phones. However, the complexity of further media communication also leads to uncontrollable details, and the knowledge the public can access daily could be more explicit. Many people need a better perception of traditional costumes, especially Hanfu (Huang, 2021).

Modern Hanfu involves preserving and evolving traditional Hanfu attire to meet the demands of contemporary wearers (Tian, 2021). The design of modern Hanfu must capture the essence of traditional Hanfu while providing practical and fashionable options for modern times. Innovation is vital to achieving this goal (Zhang, 2013). More academic research must be done from the interactive design innovation perspective. The current research findings are mainly focused on objective discussions of the shape, style, pattern, and colour of Hanfu, such as “Studies in Ancient Chinese Costume”, “History of Chinese Costume”, “History of Ancient Chinese Costume”, and many more. It is clear from these studies that although the traditional Hanfu has changed throughout history due to environmental, political, and economic factors, some features have been preserved, such as the flat cut, the cross collar, right overlapping, oversized sleeves, and so on. These research findings, which focus on the form and aesthetics of Hanfu, are of great significance in restoring the history of Hanfu. However, they are of limited use in the practical application of modern Hanfu and do not provide direct and practical assistance to the field of art and design. Most modern Hanfu design products are merchant-driven in physical and online shops. Users often have no opportunity to express their design opinions and can only purchase products from merchants, and the production cycle is relatively long. If

personalisation is desired, the design and production cycle is even longer (Chen & Liu, 2020).

Based on the situation mentioned above, the problem statements of this study can be summarised into the following three points.

- i. Currently, many young Chinese people need an understanding of modern Hanfu design.
- ii. There needs to be more new approaches in modern Hanfu design.
- iii. The approach of modern Hanfu design should be suitable for the young generation in China.

1.3 Research Questions

The literature review shows evidence that modern Hanfu design is gradually gaining more and more attention in contemporary society (Sun & Xiong, 2022). However, people need proper access to modern Hanfu designs (Wang, 2014). At the same time, there is a pressing need to innovate traditional Hanfu to meet the individual needs of modern people. Furthermore, the interactive design of modern Hanfu is a crucial issue that should be considered. Thus, regarding these research gaps, the primary research questions are suggested for this research.

- i. What is the current awareness among the young generation in China on modern Hanfu design?
- ii. Why interactive design application is suitable to educate and promote Modern Hanfu for the young generation in China?

- iii. How to develop an interactive design application for educating and promoting modern Hanfu design?

1.4 Research Objectives

As integral components of national culture and the foundation of national identity, each country has its own language and clothing system (Miao, 2021). Due to various historical reasons and changes in the needs of modern social life, traditional Hanfu cannot be popularised in everyday daily life (Jiao, 2021). Hence, people in China must develop innovative designs for modern Hanfu based on their knowledge of Chinese culture. Based on the information about traditional Hanfu, its colour, structure, and form are summarised individually, and the design elements of modern Hanfu are refined. Through technical means such as online interactive design, the public can easily understand traditional Hanfu culture, participate in creating modern Hanfu, and even purchase their own designed modern Hanfu products in the future. In this way, it will explore the dissemination of Hanfu culture and the innovation of modern Hanfu design. The specific research objectives are indicated below:

- i. To identify the current awareness of modern Hanfu design among the young generation in China.
- ii. To analyse the suitability of using interactive design applications in educating and promoting Modern Hanfu for young generation in China.
- iii. To propose interactive design applications in educating and promoting modern Hanfu design.

1.5 Scope of the Research

This study focuses on the Hanfu, encompassing the costume and historical and cultural aspects, such as aesthetics, institutions, and connotations (Liu, 2011). This study required finding many historical facts to argue for the formation process of Hanfu to determine which representative elements of Hanfu to extract. Due to the difficulty of preserving the costumes, the number of Hanfu artefacts is limited, and most are collected in museums around China. The impact of the COVID-19 epidemic in recent years has caused travel difficulties, making field study on Hanfu relatively tricky. There are relatively few ancient writings on the costume. They need to be summarised in the public service records of the various dynasties and even in literature and paintings. Research into historical Hanfu relies only on documentary sources to aid judgement.

This study employs a combination of qualitative and quantitative research methods, and the research samples are people who are interested in Hanfu. For the qualitative research method, semi-structured interviews were used with experts in traditional costume research and Hanfu enthusiasts to investigate the influencing factors. The sample of respondents was drawn from people who have been involved in Hanfu research for many years and Hanfu enthusiasts who have exciting and have some knowledge of Hanfu. However, the sample does not represent all groups interested in Hanfu. In this study, the quantitative research method was a questionnaire survey. According to the literature review, young people in China are most interested in Hanfu, so university students were randomly selected as potential Hanfu enthusiasts for the study. For the research questionnaire, members of Hanfu societies were selected as respondents. It is because they possess a profound comprehension and appreciation of Hanfu.

After analysing and discussing the three research objectives based on quantitative and qualitative studies, the results were used to revise the theoretical models of this study and design interactive applications. The interactive application development phase had three stages: framework design, interface design, and demo mock-up. It needs advanced technical support to pass an audit to run the application. It has to test Android on different brands like Samsung, Huawei, and Xiaomi. For iOS, it needs to test it on various iPhone models to ensure compatibility. Therefore, application development in this study refers only to the general design based on the study's results. It provides support for research objective three.

1.6 Definition of Terms

Hanfu: The history of Hanfu is long, and its stylistic and cultural evolution is very complex. As times have changed, so has the Hanfu. There are two main interpretations of Hanfu in the current literature; one refers to the clothing of the Han dynasty in Chinese history, and the other refers to the national dress of the Han nationality (Xing, 2016). In this study, Hanfu refers to the clothing worn by the Han nationality, who have long lived in China's Central Plains and have common cultural roots in their daily lives and social interactions.

Modern Hanfu: Modern Hanfu is more inclusive and relevant. It refers to current popular clothing designed and imitating the traditional Hanfu system, in line with established Hanfu characteristics while being improved by modern aesthetic influences. The products result from a combination of classic and contemporary culture (Tian, 2021). Modern Hanfu refers to the clothing produced in the present day that is modelled on

traditional Hanfu. It aligns with the typical characteristics of Hanfu and modern people's aesthetics (Zhang, 2013).

Interactive Design: Interaction design defines the interactive behaviour between products, environments and systems and the external elements that effectively communicate this interactive behaviour. It is about planning how things behave and describing and communicating effective forms of this interactive behaviour. According to Bai & Wu (2018), interaction design is the process of analysing, describing, defining, planning, predicting and exploring a product's and its users' interactive behaviour. The designers plan and design viable interactions, where interaction occurs between people, machines and systems, and many possible combinations of interaction forms exist. The interaction design of this study was run on a mobile phone application because mobile phone applications are one of the most widely used tools by the Chinese.

Young Generation in China: There is currently no policy definition of the young generation in China. The Communist Youth League (CYL) presently defines the age of its members as 14-28 years old, a provision generally considered the age definition of the young generation in China (Ao, 2021). On the one hand, the young generation in China mainly refers to those born between 1994 and 2008 in this study. This time period is highly coincidental with the Generation Z group, which refers to those born between 1995 and 2010 (Ao, 2021). On the other hand, age is not the only measure of generation (Zhang, 2016). This study identifies the young generation in China as those who grew up during the development of the Internet. This population segment has been largely shaped by China's one-child policy and has experienced less financial pressure, resulting in more independent

personalities. Consequently, they tend to be open to new experiences, enjoy adventure, and rely heavily on mobile phone applications and the Internet.

1.7 Significance of the Research

Most of the existing research on Hanfu has focused on the analysis of the formal characteristics of Hanfu and exploring its cultural implications of Hanfu. Most of these studies have been carried out by professionals in related fields. Still, there needs to be more research into the modern Hanfu design and even less research into the interactive design of modern Hanfu. This has led to a need for more understanding of Hanfu among the young generation in China and the world, with some people even needing to be more specific about the basic concepts (Jiao, 2021). The lack of knowledge of the Han nationality about their native costume is also a great regret for the lack of knowledge about their national culture. This study helps to fill the knowledge gap by exploring users' attitudes toward the interactive design of modern Hanfu, which provides a theoretical basis for the popularisation of Hanfu knowledge, the direction of modern Hanfu product development, and even the commercialisation of modern Hanfu.

This research presents a study of the interactive design of modern Hanfu based on the typical elements of traditional Hanfu. It enables the dissemination of information about traditional Hanfu, helps the general public to understand the characteristics of conventional Hanfu accurately, and contributes to the popularisation of Hanfu culture. At the same time, users can use refined design elements through interactive design to match modern Hanfu styles, colours, and patterns one by one to create their modern Hanfu designs. This combination of historical and cultural perspectives and design aesthetics allows the integration of Hanfu into the lives of the general public, giving traditional culture a new

lease of life with the help of the latest technological tools. The interactive design increases user involvement, making the modern Hanfu conform to traditional Hanfu characteristics and consumer aesthetics, meeting the needs of customer preferences while making the monotonous theoretical research manifest in the design. From a clothing design perspective, it can improve the efficiency and innovativeness of modern Hanfu design, realise rapid, personalised digital customisation of modern Hanfu, and is also of great significance for innovative research into the design of modern Hanfu and its commercialisation.

The costume is both material and spiritual, and as one of the primary bearers of Chinese culture, Hanfu can symbolise the national spirit of the Han people (Xia, 2021). By promoting modern Hanfu design and overcoming the challenges of sustainable development faced by traditional Hanfu in contemporary society, people can increase the awareness of Hanfu culture. Involving the public in modern Hanfu design can deepen their understanding of Hanfu culture and inspire them to reflect on traditional culture, fostering a sense of national cohesion and pride. This approach effectively promotes national culture and establishes a new aesthetic with Chinese characteristics, cultural connotations, and a national spirit system.

1.8 Thesis Structure

Chapter 1 INTRODUCTION: Introduces basic information about the study, including background, problem statement, research questions, research objectives, research content, scope of research, definition of terms and significance.

Chapter 2 LITERATURE REVIEW: The literature review chapter contains the definition, development, and characteristic elements of Hanfu and modern Hanfu. This

chapter also introduces academic research on the development of traditional costumes in other countries, the interactive design and the applications of Hanfu. Moreover, the Howard-Sheth Model, theories of Perceived Value and Perceived Risk, and the Influencing Factors of the Online Purchase Intention Model are studied to set the conceptual framework of this study.

Chapter 3 RESEARCH METHODOLOGY: This study used a mixed research approach. Research objective one is accomplished through literature and interview methods, research objective two is accomplished through interview and questionnaire methods, and research objective three is achieved mainly through questionnaire research. The process of using the above methods is described in this chapter.

Chapter 4 DATA ANALYSIS: This chapter provides the analysis of the research. For qualitative research, the data analysis uses inductive and thematic analysis methods. The NVivo software is used to extract the critical factors. For the quantitative research, data analysis uses SPSS and AMOS software to illustrate the findings.

Chapter 5 FINDINGS AND DISCUSSION: Discuss the relevant results based on the three objectives, and explain the problems found in the study.

Chapter 6 INTERACTIVE DESIGN APPLICATION OF MODERN HANFU: Design an interactive design application for educating and promoting modern Hanfu design.

Chapter 7 CONCLUSION AND RECOMMENDATION: Presentation of the findings related to this research and planning for further study.

1.9 Chapter Summary

This chapter explored the background of this study. As the most populous ethnic group in China, the national representative dress, known as Hanfu, reflects the spirit, culture, and aesthetics. Recently, there has been a growing interest among young Chinese people in Hanfu, particularly modern Hanfu design. However, the general public lacks a proper understanding of Hanfu and modern Hanfu design, with many not even aware of the concept of Hanfu, let alone its modern design. Based on the situation, three research questions were presented in this chapter to focus on the current awareness among young generation in China on modern Hanfu design, the suitability of using interactive design applications in educating and promoting modern Hanfu, and the suggestions for application development. To address these issues, this study proposed three research objectives to identify the current awareness of modern Hanfu design in China, to analyse the suitability of using interactive design applications in educating and promoting Modern Hanfu for young generation in China, and to propose interactive design applications in educating and promoting modern Hanfu design. It also provided information on the scope of this study, definition of terms, the significance of the study, and outline of the structure of the thesis.

CHAPTER 2

LITERATURE REVIEW

2.1 Overview

Although research on modern Hanfu design has gradually increased in recent years, there still needs to be more research compared to other types of innovation (Xia, 2021). Research on traditional costume culture in China began in the early 20th century and has focused on two main areas: the history of costume and the relationship between costume and other subjects (Zeng, 2022). There needs to be more research on using mobile applications for the interactive design of modern Hanfu.

Specifically, the history and characteristics of Hanfu are summarised from the compilation of the public service system called Yufuzhi and the ancient literature. Yu of the name of Yufuzhi refers to transportation, and the Fu of Yufuzhi refers to the crown and costume. The compilation of the public service system records the hierarchy established by the rulers of the Chinese dynasties. For example, the Book of the Later Han Dynasty, the Book of Sui, the History of the Song Dynasty, and the History of the Ming Dynasty record many of the dress systems of the upper ruling classes, describing the characteristics of the costume and explaining the interconnected methods. The books such as The Essentials of the Eastern Han Association (Xu, 2006) and The Essentials of the Tang Association (Wang, 2006) are all ancient sources that record changes in rules and regulations and contain costume content. There are other ancient books which do not focus on costumes but refer

to the styles, colours and patterns of traditional Hanfu, such as *The Interpretation of Words* (Liu, 2016).

There have been more studies on costume in modern China, but before 1970, the study of costume culture in China was in its infancy. Some representative texts on ancient Chinese costumes include *A Study of the Coronation Dress Code* (Wang, 1966). Although these texts do not focus on Hanfu, there are some accounts of it which provide a theoretical basis for sorting out its development and characteristics. The study of costumes in China developed rapidly after 1980. *Studies in Ancient Chinese Costume* (Shen, 1981) was the first monograph to study ancient Chinese costume after the founding of the People's Republic of China; *History of Ancient Chinese Costume* (Zhou, 1984) introduced the development of Chinese costume from the Shang and Zhou periods to the Republic of China era; *Costume in Chinese Dynasties* (Zhou & Gao, 1984) was a systematic record of the history of Chinese costume. In addition, *A History of Chinese Costume* (Hua, 1989) and *A Brief History of the Development of Ancient Chinese Costume* (Fan, 1989) describes the changes in traditional costumes throughout Chinese history in graphic and textual form. From 1990 to the present, there have been many more research studies on conventional costumes and *Five Thousand Years of Chinese Clothing* (Zhao, 1990) documented Chinese costume systems and colours. *The Ancient Kingdom of Clothes - Chinese Costume Culture* (Wang, 1991) focused on costume culture. *The Ancient Chinese Public Opinion Costume Series* (Sun, 1993) discussed the evolution of the costumes' details, such as gowns. *The Dictionary of Chinese Clothing* (Zhou, 1996) was the first toolkit on ancient Chinese costumes. *The Dictionary of Chinese Patterns* (Guo & Zhuge, 1998) studied costume patterns. *The Five Colours of China* (Peng, 2008) examined the knowledge of ancient Chinese colours.

As seen in the sources above, scholars have systematically searched through information linked to ancient Chinese costumes, which also contains some fragmented information concerning Hanfu, as part of their in-depth study of costume culture. However, more research must be done on modern Hanfu and modern Hanfu interactive design. Only partial information can be found in the literature on the costume.

Applications are an essential component for the development of modern Hanfu design in the Internet age. Due to their accessibility and usability, mobile or web applications have emerged as one of the primary means of learning in modern culture (Du & Du, 2021). However, the role of applications had yet to be entirely played in the interactive design of traditional costume innovation. It is found from the literature research that although some design applications could meet the needs of the public nowadays, there needs to be more research about traditional culture applications, especially traditional culture design applications. Therefore, there is an urgent need for its design and analysis. Studies prove that applications can effectively help the development of conventional culture by enriching the connotation and form of culture (Xu, 2019). For example, the application's function module classification for the needs of different people can realise the redesign of traditional culture (Du & Gao, 2019). For Hanfu most of the current applications related to Hanfu are shopping platforms or social media (Yang, 2022), which could be more targeted for interactive design of modern Hanfu. Suppose there is an application that can provide a good user experience, traditional culture education, and the innovative design of Hanfu. In that case, it can enhance the contemporary value connotation of Hanfu culture and modern Hanfu design. Therefore, this chapter covers research related to Hanfu, the interactive design of modern Hanfu, especially by new

media, and the theoretical framework for users' willingness. This literature can help this study to develop a mobile application for modern Hanfu interactive design.

2.2 The Development of Modern Hanfu

There is some controversy among scholars regarding the definition of Hanfu. Some believe that Hanfu is the costume of the Han Dynasty in Chinese history. Others believe that Hanfu refers to the national costume of the Han people (Lu, 2015). The definition of Hanfu in this study is the second one, which means the clothing of the Han people, who can represent the largest population in China. It refers to a clothing system carried down from generation to generation from the time of the Yellow Emperor and developed to the present day by the Han people, who share cultural roots (Tian, 2021). There needs to be a clear academic definition of modern Hanfu. Still, scholars generally agree that modern Hanfu refers to clothing that can be accepted by contemporary people while retaining the characteristics of traditional Hanfu (Zhang, 2013). It results from the evolution of modern clothing culture, a legacy of conventional culture, and a reflection of contemporary aesthetics (Liu, 2021). Modern Hanfu, according to this study, is clothing containing characteristics of traditional Hanfu that have been worn by Hanfu enthusiasts since the revival of Hanfu and are in line with current preferences.

2.2.1 The History of Hanfu and Modern Hanfu

A nation is an imaginary political community (Anderson, 1999), a systematic concept (Wu, 2015), a collective of people who share an ordinary cultural consciousness and psychological qualities. The Han nation is the dominant ethnic group in China, possessing a population size that accounts for 91.5% of the total population (Xu & Xu,

2022). The Han nation has a long history of development. Researchers called the people who first lived in the Yellow River basin the Huaxia. Later the Qin achieved unification, and other countries referred to the Huaxia as the Qin. Only after the Han Dynasty did the concept of the Han nation come into being. After 400 years of development from the Western Han to the Eastern Han, the term Han replaced the earliest Huaxia as the collective term for the dominant ethnic group in the Han realm. Most people recognise that the Han people became known after Liu Bang became emperor. Hanfu is the collective name for the costumes of the entire Han nation, which came into being with the emergence of the Han nation and constantly changed following its development. The people of the Han nation had long been engaged in agricultural production and had developed characteristics in their clothing that were adapted to their way of life (Lu, 2015).

The Shang Dynasty: Formal Hanfu began to appear in the Shang Dynasty. The garment consists of two main parts: the upper and lower skirts. The upper garment has narrow cuffs and no buttons and is designed with a waistband (Jia, 2019) on either side of the waist. The lower skirt covers the knees. The noblest colours are red, yellow, blue, white, and black. The jade sculpture from the tomb of Wenhao at Yinxu in Anyang, Henan, is wearing a typical costume of the Shang Dynasty. The lower abdomen of the statue is adorned with a narrow upper and lower strip shaped like an axe, similar to the apron. It is called the Fei, or the Bixi (Xu, 2018). It was used by the ancient to cover the genitals and slowly became an integral part of the ceremonial clothing of the emperors and ruling classes (Figure 2.1). People wore it as a sign of not forgetting the ancient, reflecting the most primitive clothing system (Jiang et al., 2008).



Figure 2.1: The Shang Dynasty Jade Sculpture (Xu, 2018)

The Zhou Dynasty: During the Western Zhou period, with the establishment of the patriarchal system, the clothing system was gradually refined, and Hanfu was basically set in stone during this period. Depending on the ceremonial occasion, a costume corresponds to it (Zhou, 2014). The style was inherited from the Shang Dynasty, with the same crossed collar, right overlap, and no clasp. However, the form of the sleeves became both large and small cuffs, much looser and more flowing than in the Shang Dynasty. The everyday clothes include the Xuanduan, Paofu, and Ru. In terms of colour, yellow and black are the primary colours. Vermilion was a colour used only by the powerful and noble, not by the commoners (Fan, 2012).

The Spring and Autumn Period and Warring States Period: As slavery fell, social changes were taking place, affecting costume culture. At this time, Shenyi emerged

as a style of clothing where the top and bottom are sewn together at the waist. The Shenyi retains the characteristics of a cross collar, right overlap, and no clasp, but there is a difference between Quju and Zhiju, which means that the shape of the skirt is produced differently (Dai, 2015). This style was widely popular at all levels of society and was the most popular style of Hanfu at the time, and it had a profound impact on the Hanfu system (Jiang et al., 2008).

The Qin and Han Dynasties: The dressing rulers of the Qin Dynasty adopted a unification policy. The ruling class promoted unification reforms in politics, economics, and ideology, and this reform also affected the costume system. The development of textile technology and the construction of the Silk Road during the Qin and Han dynasties provided a reasonable basis for the development of costumes. Hanfu was still mainly robed during this period, with Quju (Figure 2.2) and Zhiju (Figure 2.3). Two styles of sleeves were long and short. The larger the sleeves, the more respectable the wearer's status. The women's regular clothing crowd emerged in the Ru and skirt, with the Ru being a short upper garment of waist-length with a dress underneath (Xu, 2018), creating a completely different construction from the Shenyi. During the Qin and Han dynasties, the Ru skirt was characterised by narrow sleeves, right overlap, and a little dress at the top and broad at the bottom with a belt around the waist. Commoner women had slim sleeves and skirts that reached above the ankle, with an apron over the dress for easy work. The theory of Five Elements influenced the clothing colour during this period, with senior officials wearing black, officials of the third rank and above wearing green robes and commoners wearing white robes (He, 2016).



Figure 2.2: The Han Dynasty Quju (Zhang, 2016)



Figure 2.3: The Han Dynasty Zhiju (Cai, 2020)

The Wei Jin Southern and Northern Dynasties: This period was marked by warfare and the entry of northern ethnic minorities into the Central Plains of China, which

triggered a trend of individual liberation and mutual integration in clothing. Women's clothing mainly inherited the old traditions, but men's clothing underwent significant changes. The nomads in the north introduced the most popular clothing of this period which became the everyday clothing of the Han nationality (Liu, 2016). The Liangdang was a garment with two pieces to protect the chest and back (Xu, 2013), similar to the vest. During the Western Han Dynasty, Liangdang were usually worn by women and mainly used as undergarments. Still, after the Wei and Jin Dynasties, they were gradually worn on the outside and became a form of casual clothing. Influenced by the lifestyle of the ethnic minorities in the north, men preferred to wear trousers, so this was a time when trousers flourished. The trousers were made in a looser style, with two obese trouser legs, called Large opening trousers (Cui, 2012). As the trousers were open and bulky, they were not easy to move around, so some people used to tie up the fat trouser legs with a brocade belt and wrap a cloth belt around their knees to avoid loosening the legs of the trousers (Figure 2.4), so that they would be more convenient when walking or riding horses (Li et al., 2011). Men's clothing in the Wei Jin Southern and Northern Dynasties was mainly loose and comfortable. Shenyi wrapped the body up and was no longer popular, replaced by wide, flowing Shan. The Shan had open cuffs and were mostly made of silk, yarn, and other materials, which were light and dashing. White was particularly favoured and was even used for important occasions such as weddings and funerals (Cui, 2012).

The Sui and Tang Dynasties: China flourished during the Sui and Tang Dynasties, with a high standard of living for its people and more exchanges with other countries and regions. As a result, clothing also developed significantly during this period. There were four main types of clothing: the Chest-length Ru skirt (Figure 2.4), the Waist-length Ru skirt, the Banbi Tanling, and the Pao with round-necked. The Chest length Ru skirt was a

unique item of clothing for women during the Sui and Tang periods, with the waist of the skirt raised to the bust line and tied with a silk belt. The Waist-length Ru skirt can be worn by both men and women and is a type of Ru skirt. The top of the dress is usually fitted with a cross collar or a double-breasted so that it can be subdivided into a cross-collar Ru skirt and a double-breasted Ru skirt. The Banbi in the Banbi Tanling refers to half-armed, an outer covering with short-sleeved.

The Tanling means flat collar, which has a similar U-shaped ultra-low collar. It is a rare clothing style in Chinese history and was popular with women. The Tanling is a bold, sensual design that reflects the openness of the social climate of the Tang Dynasty (Gao, 1989). It reflects the physical and mental freedom, spiritual liberation, and aggressive pursuit of the beauty of Tang women. The Pao with round-necked is also very popular, and it is a kind of Shen yi with round-necked and right overlap. It is divided into two types: wide and narrow cuffs and the style is simple and comfortable. In the Tang Dynasty, from emperors to commoners, Pao could be worn for everyday clothing, distinguishing rank by colour, pattern, and material. The Pao with round-necked was mainly worn by men, but due to the open-mindedness of the time, there were also many women wearing it. During this time period, the emperor's fondness for the colour yellow was evident in the style of dress. In fact, it was even prohibited for anyone else to wear it (Wang, 1987). This tradition continued for over a thousand years until the end of the Qing Dynasty (Cui, 2012).



Figure 2.4: The Sui Dynasty Sculpture in the Chest-length Ru Skirt (Anyang Museum, 2022)

The Song Dynasty: The Song Dynasty saw the budding of a commercial economy and the rapid development of handicrafts, textile printing, and dyeing techniques. People were influenced by Neo-Confucianism ideology, which led to a preference for a simple, minimalist style of clothing (He, 2016).

The Song Dynasty emphasised the concept of ‘Keeps the natural justice, give up the human desire’, inhibiting human individuality and pushing the limits of women’s restraint to the extreme. Women’s clothing in the Song Dynasty was restrained and conservative, with light and elegant colours. At this time, the basic style of the previous Hanfu was retained, and the combination of the Ru skirt was still prevalent in the Song Dynasty. The Ru was often Banbi with an oversized lapel, and the dress was popular as a thousand pleats skirt or a hundred plates skirt. The waist of the dress was lowered compared to the Tang Dynasty, generally above the waistline. The dress was slender, long,

and made of lighter fabrics such as gauze and silk (Figure 2.5). The waist was tied with a silk belt, and a jade ring was often hung from the middle of the skirt to hold down the skirt. When the body was in motion, it avoided the dress fluttering in the wind, which could look less elegant and dignified (Yang, 2013). In addition, Beizi and Lanshan were quite popular. The Bezi is a smock, a sleeveless vest with a straight collar and open armpits. It can be worn by both men and women (Huang, 2019). The Lanshan is a long shirt with a round or cross collar, and men wore it as their regular clothing. Most manual labourers had short clothes and tight-legged trousers to facilitate their work. Due to the economic development of the towns in the Song Dynasty, specific costumes were formed for various trades (Tuotuo & Alutu, 1985). In Zhang Zeduan's Riverside Scene at Qingming Festival, hundreds of people from all walks of life are depicted with vivid costumes.



Figure 2.5: The Song Dynasty Hanfu (China Silk Museum, 2022)

The Yuan and Ming Dynasties: During the Yuan Dynasty, Hanfu cultural system developed slowly because it was not taken seriously (He, 2016). After the Ming Dynasty,

Hanfu gradually regained its historical status, with a strict dress system such as clear regulations on style and colour. During the Ming Dynasty, men's clothing was dominated by Pao, Shan, Zhizhui, Zhaojia, etc., and women's clothing followed the Tang and Song dynasties, with the main styles still being shirts, coats, Beizi, Shan, etc. The Ao skirt was mainstream clothing. The Ao was an official clothing regulation given to ordinary common women, with various shapes and forms, such as cross collars, stand-up collars and round collars. It became the basic prototype for later Hanfu for females (Zhang, 2015). The newly developed style was Bijia, a top with symmetrical lapels without sleeves and collars (Figure 2.6). It has slits on the left and right sides and is knee-length. In terms of colour it was stipulated that civilians could not use black, bright yellow, purple, green etc. The dragon pattern became a pattern that only the emperor could use (Liang & Gao, 2011).



Figure 2.6: The Ming Dynasty Bijia (Confucius Museum, 2022)

The Qing Dynasty: The Manchus ruled China during the Qing Dynasty. The rulers demanded that all ethnic groups in the country, especially men, must unify their Manchu hairstyles and wear Manchu clothing, breaking the history of Hanfu culture. Some scholars believe that this period was the root cause of the situation that the Han nationality today lost the national costume tradition (Jia, 2019).

In the Modern Era: From the Opium War (1840) to the founding of the People's Republic of China (1949), China underwent significant change. The inflow of Western culture made it more challenging to inherit the Hanfu culture, which had been broken during the Qing Dynasty. In the 21st century, with the development of China's productive forces and the effectiveness of economic construction, people gradually realised the importance of traditional national culture (He, 2016). In 2003, Mr Wang Letian, an electrician in Zhengzhou, wore Hanfu on the streets, which attracted widespread attention, and marked the official return of Hanfu in modern society (Yin, 2021).

2.2.2 The Characteristics of Hanfu

After collating the literature, it can be concluded that there are three main types of Hanfu. One is the solemn and exquisite dress type of Hanfu, usually worn on important occasions such as rituals, and the style is mostly a top with a skirt or a Shenyi (Shen, 1981). The second one is everyday wear, such as Ru with narrow sleeves. The last one is the casual dress often worn during work, usually with a top and trousers underneath, which has less distinguished characteristics than other costumes. Modern Hanfu must respect the typical characteristics of traditional Hanfu. Therefore, this study will summarise the characteristics of the first two typical types.

2.2.2.1 Characteristics of Hanfu Style

The following table shows the characteristics of the common styles of Hanfu (Table 2.1).

Table 2.1: Characteristics of Hanfu

Types	Name	Collar types	Gender of wearer
Long coat	Quju	Cross collar and right overlap	Male and Female
	Zhiju	Cross collar and right overlap	Male and Female
	Shenyi	Cross collar and right overlap	Male
	Pao	Round collar	Male
	Lanshan	Round collar	Male
	Beizi	Straight collar	Female
Top without sleeves	Banbi	Various collar types	Male and Female
	Bijia	Straight collar	Female
Top	Ru	Straight collar	Female
	Short Ao	Various collar types	Female
	Long Ao	Various collar types	Female
Bottom	Ru skirt	-	Female
	Bixi	-	Male and Female

The upper garment and lower garment: The upper garment and lower garment are the oldest and most basic styles of the Hanfu system (Figure 2.7). The upper garment is shorter, and the lower garment is longer. This style can be seen in both the whole dress and the regular garment (Yang, 2014).



Figure 2.7: The Warring States Period Sculpture (Zou & Tan, 2015)

Shenyi: Although Shenyi is also one piece, the upper and lower garments are cut separately and joined by sewing to make them one part (Figure 2.8). There is a distinction between a Shenyi with Quju and a Shenyi with Zhiju (Huang, 2022).



Figure 2.8: The Warring States period Pao (Jingzhou Museum, 2022)

Cross collar and right overlap: According to the previous article on the development of Hanfu, it can be seen that cross collar and right overlap are typical features of Hanfu. The features refer to how the collar is made by flat cutting (Figure 2.9). The front lapel is divided into two pieces (the right lapel on the outside and upper, it presses the left lapel, forming a crossed shape on the chest, and the collar presents two layers (Ma, 2015).



Figure 2.9: The Ming Dynasty Hanfu With Cross Collar and Right Overlap (Yang, 2016)

Other collar types: Straight collars and round collars are also common collar types in Hanfu. A straight collar means that the collar comes down vertically parallel to the chest and can be worn open as a jacket or tied with a strap at the chest. Banbi and Beizi usually use this collar type (Figure 2.10). A round collar (Figure 2.11) is a collar shape with semi-circular corners and is used primarily in men's clothing (Hao & Lu, 2015).



Figure 2.10: The Tang Dynasty Banbi (Famen Temple Museum, 2022)



Figure 2.11: The Ming Dynasty Pao With Round Collar (Yangzhou Museum, 2022)

Sleeve characteristics: Regarding stylistic features, Hanfu usually comes in two sleeve types: small and wide. The tiny sleeves are narrow, which is more common in regular clothes (Figure 2.12). The wide sleeves are one of the main features of Hanfu

(Figure 2.13), which are more common in dresses (Zhao & Zhu, 2018). In terms of shape, they are divided into straight, square, broad, Chuihu, Pipa, and narrow sleeves. The straight sleeve is a sleeve shape the same width from the repair root to the cuff and is the most common sleeve shape. The square sleeve, also known as the rectangular sleeve, is similar to the kimono (Cai et al., 2017). The wide sleeve is identical to the square sleeve but is cut curved from the armpit to the cuff (Zhao & Zhu, 2018). The Chuihu sleeve gets its name because it is shaped like a fold of flesh hanging down a cow's throat. The Pipa sleeve has a large body with a small cuff, and the whole sleeve resembles the shape of a Pipa. The arrow sleeve is characterised by a wide cuff at the root of the sleeve and a narrow cuff originating from northern peoples.



Figure 2.12: The Tang Dynasty Pao with Small Sleeves (China Silk Museum, 2022)



Figure 2.13: The Ming Dynasty Wide-sleeves Robe (China Silk Museum, 2022)

The knotting of the rope: In traditional Hanfu, the string has a vital function, as the knotting of the string on the different pieces of the garment replaces the buttons (Figure 2.14) that hold the garment in place and has a decorative effect at the same time (Zhao & Zhu, 2018).



Figure 2.14: The Ming Dynasty Hanfu with the Knotting of the Rope (Jiangxi Provincial Museum, 2022)

2.2.2.2 Characteristics of Hanfu Pattern

As an essential part of Hanfu, the pattern has its unique visual meaning and demonstrates the artistic charm and value of Hanfu. The patterns of Hanfu have a standard structural layout, vivid images, harmonious colour matching, exquisite craftsmanship, and a profound allegorical connotation (Xu, 2012). Yellow River Culture Series - Costume Volume summarises the pattern characteristics of Hanfu from different dynasties in the Han, Tang, Song, Ming, and Qing (Yang, 2001). Feng et al. provide an intuitive interpretation of the patterns of Hanfu (Feng et al., 2007). The symbolic element of the pattern is introduced in Modern Han Chinese Folk Dress Culture in Qilu and Jiangnan by Cui (Cui, 2012). Pattern Collection of Fu Lu Shou Xi is a complete collection of traditional auspicious patterns (Tang, 2004). Chinese Auspicious Art - Fu, Chinese Auspicious Art - Lu, Chinese Auspicious Art - Shou, Chinese Auspicious Art - Xi, Chinese Auspicious Art - Cai, Chinese Auspicious Art - Ji provide a detailed reference for the study of Hanfu patterns (Lan, 2004).

According to the layout, the patterns of Hanfu can be divided into the following categories:

Theme-based pattern: This refers to the complete practices used on the front and back of the Hanfu, emphasising the whole decorative nature (Figure 2.15). The features are prominent, and the theme is distinct (Shen, 2013).



Figure 2.15: The Qing Dynasty Hanfu With Theme-based Pattern (Ethnic Costume Museum, 2022)

Marginal pattern: The patterns are usually found in a two sides continual style on the collar, lapels, cuffs, hem, and other parts of the garment (Figure 2.16). It emphasised the garment's outline, a decorative edging technique (Shen, 2013).



Figure 2.16: The Qing Dynasty Hanfu With Marginal Pattern (Ethnic Costume Museum, 2022)

Embellished pattern: The patterns of different sizes are interspersed and arranged, embellished with vines, plants, and other designs (Figure 2.17). Usually found on tops or dresses to highlight the wearer's status (Wang, 2018).



Figure 2.17: The Republic of China era Hanfu With Embellished Pattern (Ethnic Costume Museum, 2022)

Classified according to the content of the pattern of Hanfu, they can be divided into the following categories:

Natural themes: For example, the cloud pattern, with lines symbolising everything is lucky, expresses the worship of nature and the gods (Wang, 2018). There are also thunder patterns, water waves etc.

Animal themes: There are real animals like birds and tigers, but also mythical animals that symbolise status and power, such as the dragon, the emperor's symbol (Wang, 2018).

Botanical themes: These patterns are divided into floral, fruit and vegetable, and branch categories. The floral category contains Baoxianghua, a combination of peonies and lotus flowers, with auxiliary pomegranate and Ruyi, which are popular with the public (Min & Duan, 2019).

Symbol themes: These include geometric figures, vessels, and characters (Shen, 2013).

Characters themes: It is divided into graphic expressions of life scenes, historical allusions, and myths or legends (Liu, 2021).

2.2.2.3 Characteristics of Hanfu Colour

The Han people attached importance to the rule of etiquette, and the Public Opinion Costume System of each Dynasty had regulations on the colour of clothing (Wen, 2020). For example, in the Western Zhou and Eastern Zhou periods the emperor wore blue-green clothes as they thought the emperor was the Son of Heaven. The use of colour in clothing was to conform to the requirements of ritual rule. The colour system of clothing evolved from the traditional Chinese concept of the Five Elements. As Table 2.2 showed, the Five Elements group everything into five primary attributes: gold, wood, water, fire, and earth. Each has its symbolic meaning, with gold representing astringency, wood representing growth, water representing nourishment, fire representing heat, and earth representing peace (Liu, 2021). During the Spring and Autumn period and Warring States period, a

colour system was formed based on the concept of the Five Elements, stipulating that blue-green, red, white, black, and yellow were the primary colours and that every two main colours were mixed to obtain the inter-colours. Because the primary colours were superior to the inter-colours, the rulers with honourable status could use the primary colours, while the poor people were of humble quality and could only use the inter-colours (Dai, 2015).

Table 2.2: The Five Colours

The Five Colours	The Five Elements	Connotation
White	Metal	Death, Purity
Blue-green	Wood	Simplicity and Prosperity
Black	Water	Mysterious and Solemn
Red	Fire	Evil repelling and Auspicious
Yellow	Earth	Royalty, Wealth and Power

2.2.3 The Cultural Connotations of Modern Hanfu

Cai defines culture as a complex whole (Cai, 2019). It includes knowledge, beliefs, arts, laws, customs, ethics, and any other abilities and habits that people, as members of society acquire through learning.

Clothing culture is a collection of material and immaterial created by various ethnic groups in history (Liu, 2021). Zeng points out that costume is an essential carrier of culture, containing folk, institutional, and aesthetic cultures (Zeng, 2013). Hanfu has the Hanfu culture in the past thousands of years. Modern Hanfu is a part of Hanfu, which is

incumbent upon the modern Hanfu to carry the cultural significance of the traditional Hanfu.

2.2.3.1 Hanfu and Etiquette

China is known as a nation of manners and a country that values its clothing (He, 2016). Etiquette is a Chinese tradition, both as a way of distinguishing between different classes and regulating social order and as a reflection of enriching people's spiritual life. From the smallest of manners in everyday life to the largest of national rules and regulations, all fall into the category of etiquette (Liu, 2020). The system of etiquette first arose during the Western Zhou period and was interrupted during the Spring and Autumn period and Warring States period. Then it regained importance during the Qin and Han periods and continued for thousands of years (Bi et al., 2018). The etiquette system is among the most significant differences between Hanfu and other national costumes. In addition to its practical and aesthetic functions, it also served a position of distinction and discipline. The dress code was used to divide people into different classes and achieve a political order and social environment in which there was a distinction between the upper and lower classes.

The colours, fabrics, patterns, and so on of the Hanfu were all closely related to the etiquette system. For example, the Shen yi was a casual everyday garment for the nobility and could also be used as a dress, while the general public could only wear short clothes. In the Tang Dynasty, the royal family only used dragon and deer motifs. If the clothing was worn following the etiquette, it was accepted by the ruling class and society. If not, they were discriminated against, even criminalised, and in severe cases, sentenced to death (Liu & Zhang, 2015). One of the ninety-two charges against Nian Gengyao, a Qing

Dynasty minister sentenced to death by the Yongzheng Emperor, was that he did not dress under the dress code (Zhao, 1990).

2.2.3.2 Hanfu and Aesthetics

Traditional Chinese costume art's most prominent aesthetic features are the theory that man is an integral part of nature and order as beauty (Sun, 2014). A typical example is the official costume for the emperors and officials, the clothing worn for rituals that correspond to the laws of nature. The Da Qiu Mian coronet panels are rounded in the front and square in the back, signifying that the sky is round and the earth is square. There are twelve tassels at the front and back of the coronet, each twelve inches long and embellished with twelve jade stones. There were twelve hours in a day in ancient China, and twelve represent a connection with nature, signifying good fortune (Wang, 2020). In addition, the upper garment and lower garment reflects the theory that man is an integral part of nature. The crossed collar and proper overlap embody the traditional Chinese idea that the right side is the most important. The wide sleeves of the garment are in keeping with the need to be as comfortable as possible when dressing and moving around and reflect people's desire to be relaxed, generous and unrestrained (Du & Lin, 2015). The design of modern Hanfu must follow the aesthetics of the traditional Hanfu. Otherwise, it cannot be called a continuation of Hanfu.

2.2.4 Traditional Costumes of Other Countries

Adjustments of modern Hanfu design must suit current times to keep Hanfu up-to-date. Studying how traditional costume has evolved in other countries is crucial for achieving this goal. This section will focus on the Japanese kimono and the Scottish kilt as

examples to analyse how they have successfully integrated traditional elements into modern fashion. Through this analysis, it aims to develop effective ways to modernise Hanfu design while preserving its traditional characteristics from the experiences of other countries.

2.2.4.1 Japanese Kimono

Japan and China are Asian countries with similar civilisations and histories (Du, 2017). Japan has passed on their traditional costumes well. The study of the development of Japanese traditional costumes has excellent significance to Hanfu.

The word kimono in Japanese means clothing. It typically refers to Japan's traditional costume, which is Japan's national dress (Valk, 2021). According to the records in Japan's Ancient Matters, Japanese and Chinese costumes were fused in the Nara period to form Wufu, renamed kimono in the Edo period. After the Meiji Restoration in Japan, fewer people wore kimonos daily, and Westernised clothing replaced them (Fan, 2013). This is very similar to the development process of Hanfu. However, the difference is that in today's society, Japanese people still have a high degree of acceptance of kimonos and will also wear them on essential occasions (Shi, 2012). The kimono is more than just a costume. It is a symbol that conveys an individual's attitude towards societal conventions and national identity (Assmann, 2015).

This is due to the development of commerce directly promoting the innovation of kimonos. In the past, it took a long time for the Japanese people to own a kimono. From purchasing fabrics to finding a tailor to make them, they had to do it by themselves. By contrast, kimonos' design, production, and trading have a very mature process today. Both mass-produced kimonos and exclusive custom-made kimonos are readily available to

consumers (Fan, 2013). Assmann (2015) pointed out that the kimono is being preserved through consumption in Japan. This involves purchasing the costume and investing in education and experience to learn how to wear it properly. While traditional approaches to the kimono emphasise manners and etiquette, there are also newer, innovative approaches that challenge age and gender boundaries.

Secondly, continuous design innovation is also one of the reasons for the enduring prosperity of kimono culture (Song & Zhang, 2021). Japanese fashion designers pay great attention to the combination of classical and modern. They constantly innovated in the kimono design to adapt to everyday people's aesthetics (Shi, 2012). For example, the famous Japanese designers Kenzo Takada and Issey Miyake have designed excellent clothing works inspired by kimono-related elements, indirectly promoting contemporary people's understanding and love of kimono culture. According to Slade (2009), Japanese fashion in modern times has had its unique style globally. It is also clear that they did not follow international fashion trends unthinkingly. Japanese style based on the kimono has even influenced world fashion (Franks, 2015).

2.2.4.2 Scottish Kilt

As one of the representatives of Scotland's national culture, the Scottish kilt has been endowed with different meanings in different historical backgrounds (Lu, 2014). Similar to the history of Hanfu, it went through a period of interrupted development. Research on the Scottish kilt can help to understand how traditional costumes can be redeveloped.

At first, it was a kind of tribal men's clothing and later developed into military clothing. The Scottish kilts and the checkered stripes have always been a sign of partisan

dress. After the Battle of Culloden, Highland clothing was banned. After the ban was lifted, the Scottish kilt was famous again. Then, with the royal family's admiration, it symbolised aristocratic status (Lu, 2014). It has become a mass consumer product in modern times, and both men and women have widely loved it. When people see kilts, they will feel the Scottish style.

Many designers and brands have also transformed its representative plaid feature into design inspiration. From Vivienne Westwood to Alexander McQueen, Scottish plaid elements have been used for design. The well-known clothing brand Burberry has built a unique brand identity with the Scottish grid as a symbol (Chen, 2015). These innovative designs have also made kilts more popular among contemporary people and have achieved sustainable development in modern society.

2.2.4.3 Comparison of the Development of Hanfu and Other Traditional Costumes

According to the development of the kimono and kilt, it can be known that the flexible use of national cultural resources and transforming them into market advantages can promote the sustainable development of traditional culture (Chen & Tong, 2015). In today's society, all things that can be transformed into commodities are commercialised. Making traditional costumes develop in the direction of commercialisation and marketisation is an effective way for conventional ethnic costumes to adapt to modern society (Song, 2021).

Compared to the kimono and Scottish kilt, the development and heritage of Hanfu should be enhanced. Hanfu can accomplish sustainable development by combining contemporary clothing with traditional national clothing. Additionally, more significant

effort should be put into designing new and modern Hanfu costumes for everyday use and clothing that fits current trends and has cultural significance.

2.3 Interactive Design Application for Modern Hanfu

Interaction refers to the interaction between a person and a product. The purpose of the exchange is to serve the user and elicit emotional resonance and, ultimately, experience. The concept of interactive design is introduced (Moggridge, 2006). He pointed out that digital technology had changed how people and products interact, and the interactive effects design in the information age was no longer a styling-based activity. Still, design should be more concerned with the process of people using the product. With the development of technology and the update of smartphones, mobile applications cover many areas of life, including culture and fashion (Han & Zhang, 2022). Especially in recent years, there has been a greater focus on digital channels due to COVID-19 (Zhang, 2021).

Applications may also be required to improve the design of contemporary Hanfu. According to scholars, creating a database of Hanfu design elements would help in the advancement of Hanfu design (Lu et al., 2021). Digital technology has previously been employed by scholars to preserve the intangible cultural heritage of costumes or to replicate historical costumes (Bo, 2012). For instance, Jiang et al. (2017) used 3D virtual reality technology in an interactive multimedia system for traditional cheongsam to assist students in learning cutting, stitching, and designing. The mobile interactive design application for modern Hanfu, however, requires more study.

2.3.1 Interactive Design

With the development of the economy, people's living standard is increasing. After the material life is satisfied, people become more concerned about their spiritual needs and the expression of self-personality. This is expressed in clothing as more preference for personalised design (Ma & Chen, 2018). However, the current clothing market has a severe homogenisation problem, and clothing customisation is undoubtedly the most direct and effective way to solve the problem of homogenisation. With the development of network technology, clothing customisation on the Internet has become possible. Clothing customisation through the network can improve the homogenisation of the clothing market and reduce the cost of customisation (Li et al., 2020).

In response to consumer demand, many brands have begun experimenting with developing apparel customisation applications to show the public the difference and convenience of the brand (Gao, 2020). For example, the American brand J. Hilburn can customise men's shirts. The Japanese UNIQLO-UTme provides customers with the service of designing their clothing patterns. It is an application for customising T-shirts online. Apparel customisation application combines customisation, which belongs to a niche group, and mass production, which belongs to the masses. It can satisfy users' design requirements (Gao, 2020). Consumers can enjoy both independent design and mature processing technology to ensure the quality of clothing (Xu & Sun, 2020). At the same time, the feelings generated by users' participation in the customisation process can also enhance the buying experience. This is why the gradual and widespread use of apparel personalisation applications in recent years (Gao, 2020).

However, many current clothing customisation applications must be more innovative and allow users to participate fully in the design. The customisation process

needs to be simplified and more manageable (Li, 2017). Only by analysing the user's usage behaviour and psychological expectations for application development can we improve the experience of using custom clothing applications (Bai & Wu, 2018). Moreover, ethnic costumes have become cultural symbols in modern society and are challenging to wear in everyday life except for special occasions (Li, 2013); customers creating clothing more suitable for their daily life through interactive design could make ethnic costumes more up-to-date.

2.3.2 Application for Hanfu

Nowadays, the rapid development of both social science and economy has accentuated the lack of traditional culture and the de-seeking of national identity, all of which have contributed to the development of the Hanfu cultural movement. With the advent of electronic media such as radio and television, especially the internet, the distance in time and space between all people has been shortened, as if they were living in the same village (McLuhan, 1964), which has provided favourable conditions for the development of modern Hanfu design.

With the accelerated development of new media, all kinds of information have a more convenient way of dissemination (Jia & Zhou, 2019), and the modern Hanfu should also adapt to contemporary society. The application provides an excellent opportunity for modern Hanfu development and keeps the traditional culture current. New Hanfu development models must be developed effectively with new technology (Gao & Wang, 2011). The revival of Hanfu has also spread from online platforms, with the applications like QQ WeChat becoming the primary channel for Hanfu enthusiasts. Take the short-video application Douyin, for example. It was launched in the second half of 2016 and has

been downloaded 2 billion times within a few years, illustrating the sheer volume of its users. In this short video media application, many Hanfu enthusiasts share their Hanfu outfits or popularise their knowledge of Hanfu-related history (Dong, 2021). As of 11 September 2020, according to the release of works on the Douyin application, the number of plays on Hanfu in the Douyin topic list reached 40 billion, with a total of 156,000 videos (Sun, 2021). However, at the same time, due to the anonymity of the internet, there can be some wrong information (Dong, 2021).

2.3.3 The Young Generation in China

Although the young generation's definition in China is unclear, the public generally agrees with the Chinese Communist Youth League's definition of youth: people aged 14-28. It refers to those born between around 1994 and 2008 (Ao, 2021). Meanwhile, in this study, the young generation in China also refers to the generation with similar characteristics that grew up along with the development of the Internet.

The young generation in China pays more attention to the demand for individuality, disliking mass and sameness (Zhang, 2016). This is because they were born when China's economy was developing rapidly, and they had a vibrant material life while growing up, so they pursued spirituality more. They are also more egoistic compared to those older people.

Regarding lifestyle preferences, the young generation in China is very diverse, interested in and willing to experiment with many things (Hong & Liu, 2022). In terms of design needs, they usually purchase fashion products independently. Regarding attitudes towards Hanfu culture, the young generation shows positive attitudes. The contemporary spread of Hanfu culture is dominated by young people (Chen & Xu, 2019), with the highly educated Han Chinese female youth group paying more attention to Hanfu (Wang, 2021).

According to research data from the last five years of the Overview Chapter of the Hanfu Union Questionnaire Report, the average age of Hanfu enthusiasts in China is now less than 25 years old. In fact, according to the expressions of Hanfu enthusiasts, most of the Hanfu clubs are filled with younger groups. Although they do exchange information about Hanfu with older people, such as their parents, they seem not as interested as the younger people.

2.4 Relevant Theories

This study focuses on creating awareness of modern Hanfu design through the mobile interactive application. According to what has been mentioned before, innovative design in a contemporary way is the critical factor in the sustainable development of traditional costumes. Specifically, using the result of an application for the innovation of Hanfu design needs to consider the user's needs and willingness to accept. The application can only work if the users receive and recognise it.

Research on behaviour is now relatively mature, and various theoretical models have been developed in academia to explain users' willingness to use them. In previous studies, scholars have proposed many behavioural models, such as the Stimulus-Organism-Response model (SOR model), the 5A model, the Nicosai model and the Engel-Kolat-Blackwell model (EKB model), the Howard-Sheath model etc. Each model has some general applicability, but different consumption areas have different unique points. For example, there are specific differences between clothing consumption and other consumption. The Howard-Sheath model emphasises the influence of external stimuli on internal psychology, while the Influencing Factors of the Online Purchase Intention Model focus on Hanfu online purchases. Bauer (1960) extended the theory of perceived risk from

psychology, and Zeithaml (1988) proposed the idea of perceived value, both of which directly affect internet users' willingness to use (Pan et al., 2010). Therefore, the above statements are combined in this research to study users' desire to use. These theories have a higher reference value for this study.

The theoretical model in this research is based on the Howard-Sheath model combined with the Influencing Factors of the Online Purchase Intention Model while drawing on the theories of perceived value and perceived risk to investigate the factors that influence users' use and future purchase intentions.

2.4.1 The Howard-Sheth Model

In 1969, John Howard and Jagadish Sheth jointly proposed the Howard-Sheth model (Figure 2.18). This model explains user behaviour in terms of cognitive functioning and provides an empirically testable description of the behaviour and outcomes (Howard, 1969). There are three levels of decision-making in this model. The first level is extensive problem solving, meaning there is no information or preference about the product. The second level is limited problem solving, representing users having some knowledge. The third level is routinised response behaviour, which means that the consumer knows a lot about the product and has a decision.

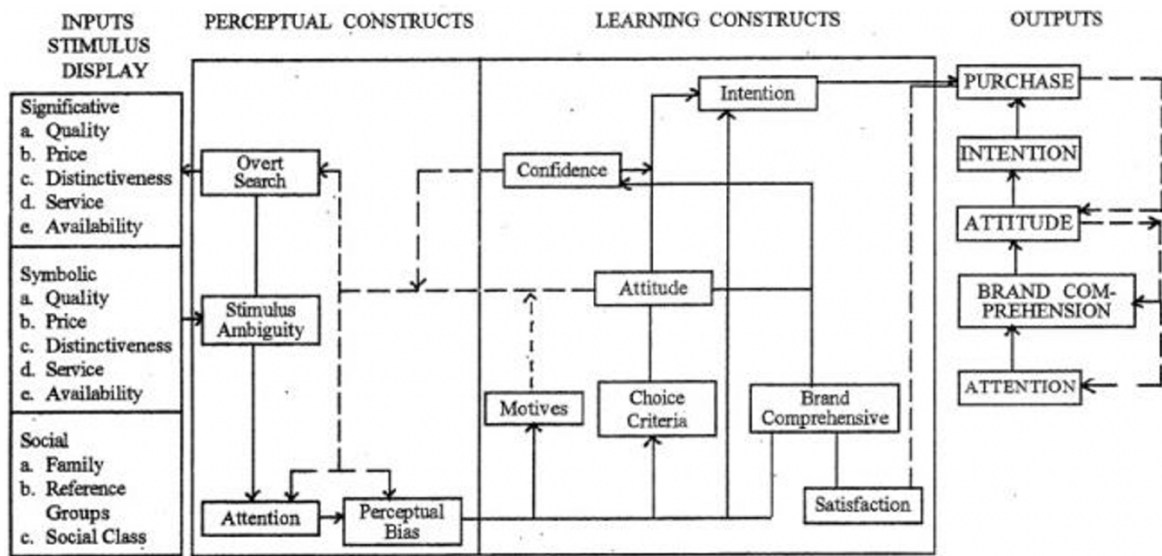


Figure 2.18: Howard-Sheth Model (Howard & Sheth, 1969)

The Howard Sheth model has four main variables: Input Variables, Hypothetical Constructs, Output, and Exogenous Variables. Stimulus Input Variables refer to ideas or information cues about the product in terms of quality, uniqueness, price, service, and availability. These variables can be further categorised as follows: Significant Stimuli refer to several physical characteristics, including price, quality, availability, uniqueness and service of the product. Symbolic Stimuli refer to marketing strategies such as advertising and publicity that can psychologically impact the buyer. Social Stimuli include various environmental factors considered sources of information for buyers. It provides family, social class and reference groups. Hypothetical Constructs refer to the psychological variables that play a role in decision-making, including perceptual and learning constructs. Among them, the perceptual constructs are related to how information is received and understood from the input stimuli and other parts of the model. The learning constructs contain motivation, selection criteria, brand understanding, attitude, confidence, intention

and satisfaction. The interactions between the different variables in the perceptual constructs, learning constructs and the other sets give the model unique strengths. The Output Variables are the results of the perceptual and learning variables and the responses that are ultimately generated. These responses include attention, brand comprehension, attitudes, intentions and purchase behaviour. Exogenous Variables are external factors that are not directly involved in the decision-making process but influence the decision, which includes consumer personality traits, religious beliefs and time pressure.

2.4.2 Perceived Value

Scholars have a long history of research on perceived value, with Zeithaml suggesting that the cost to consumers of acquiring products and services, compared with their perceived benefits, can lead to a subjective evaluation of the product or service (Zeithaml, 1988). This evaluation is perceived value and is characterised by subjectivity. According to the study, perceived value compares the two transaction characteristics that buyers view as beneficial and harmful. According to Cheng, the users' perception of how well a product or service matches themselves is perceived value (Cheng, 2007). Deng et al. defined perceived value as the user's evaluation of the usefulness of goods for them, and the product manufacturer will improve the product based on these evaluations (Deng, 2010). Based on Zeithaml's perceived value theory and Davis' TAM model, Kim et al. developed the Value-based Adoption Model (VAM) based on a value maximisation perspective to address users' attitudes towards Internet acceptance. Based on the VAM model, Ko et al. verified the mediating role of perceived value in the influence of perceived usefulness and ease of use on users' intention to use (Wei & Su, 2021).

Generally, a unified academic definition of perceived value must be unified. However, perceived value is recognised as an essential aspect of marketing and strategic management (Mizik & Jacobson, 2003). Most studies have concluded that perceived value refers to all the evaluations users make about a product based on what they feel they have gained and given. The influence of perceived value on the intention to use or purchase is generally recognised in academia. For example, a positive relationship exists between perceived value and users' intention to continue using (Zhao & Zhou, 2017). Also, perceived value is closely related to user satisfaction (Zhang et al., 2020). Specifically, the social, personal and functional values included in perceived value can all impact consumers' purchase intentions (Salehzadeh & Pool, 2016).

2.4.3 Perceived Risk

The concept of perceived risk was coined by Bauer who suggested that perceived risk influences consumer purchase decisions. Murray and Schlacter (1990) considered a perceived risk as a psychological expectation of consumers and their dissatisfaction with uncertainties in the behavioural process. Perceived risk can hurt the user's intention to use or purchase.

With the Internet's development, scholars have researched perceived risk in recent years. Based on previous research by Nena, perceived risk in online shopping is categorised as economic, quality, social, health, psychological, time, and personal (Nena, 2003). Nena argued that risks arising from inadequate technology are currently the main deterrent for consumers to buy online. I applied the concept of risk perception and a shopping decision theory based on consumer risk perception to explain online shopping behaviour (Li, 2007). The perceived risk significantly negatively impacts consumers'

online shopping behaviour (Hu, 2021), with functional risk having the most significant effect (Han & Zhang, 2022).

2.4.4 Influencing Factors of Online Purchase Intention Model

Chinese scholars designed the Influencing Factors of the Online Purchase Intention model for Hanfu based on the Howard-Sheth model (Li, 2018). Li summarised the external factors and stimuli as individual and external stimuli, where the individual factors include cultural life and demographic variables, and the external stimuli include product, environmental, and social aspects. The organism variables in the SOR model were divided into perceived emotional value, perceived functional value, and perceived risk. The responses in this model were summarised as purchase intention (Figure 2.19).

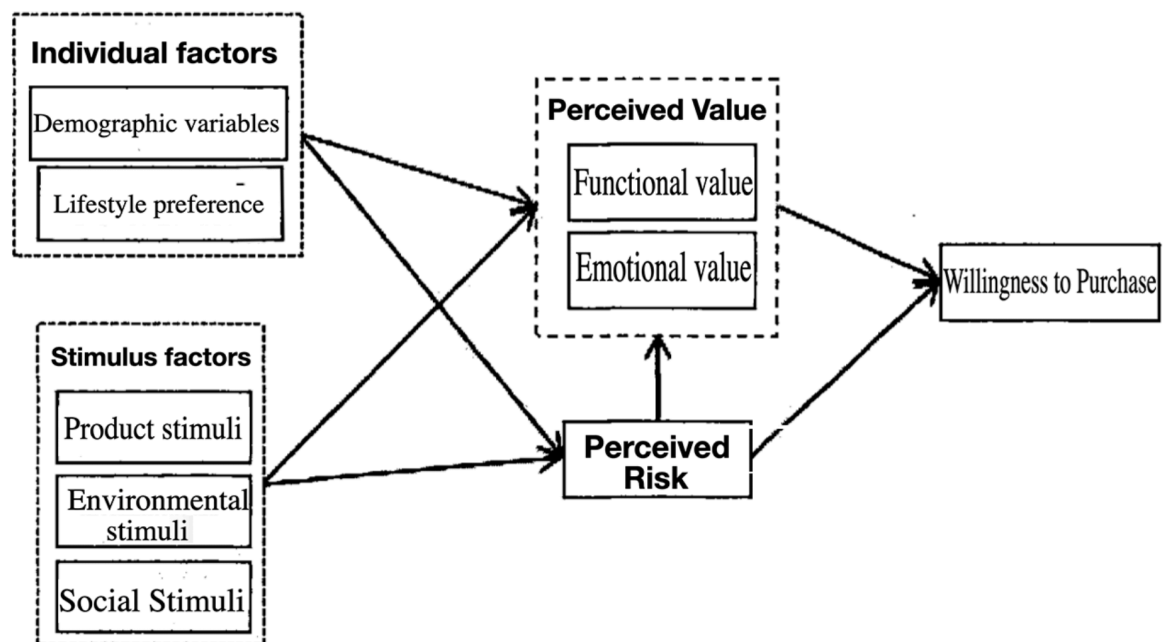


Figure 2.19: Influencing Factors of Online Purchase Intention Model (Li, 2018)

2.5 Theoretical Framework

Based on the critical concepts selected for this study, several theories exist for studying the young generation's awareness of modern Hanfu design (Figure 2.20). The subject of this study is modern Hanfu design, which is a continuation of Hanfu. Therefore, focusing on theories related to Hanfu and modern Hanfu is essential. Since the main focus is on China's young generation, who are well-versed in using mobile applications, it can use this trait to enhance their knowledge of modern Hanfu design. People can use interactive design applications to create new modern Hanfu designs while accessing Hanfu information and purchasing modern Hanfu. To achieve this goal, it needs to incorporate theories related to online purchase intention (Li, 2018) and consumer behaviour (Howard & Sheth, 1969). Additionally, the theories of perceived functional value, perceived emotional value (Li, 2018) and perceived risk (Murray & Schlacter, 1990) will also significantly impact users and cannot be ignored.

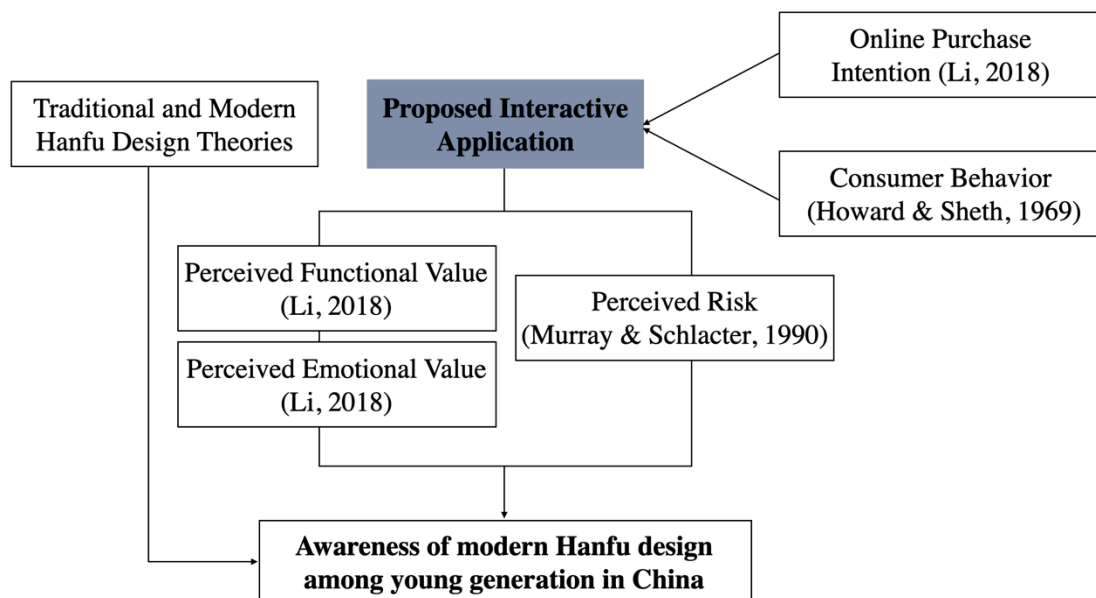


Figure 2.20: The Theoretical Framework of This Study

2.6 Conceptual Framework

This section reviews and summarises the theories and theoretical models relevant to this study and maps out a conceptual framework for this study (Figure 2.21). Specifically, this study aims to investigate the possibility of using interactive design applications to enhance the awareness of modern Hanfu design, which requires a focus on willingness to use.

The Howard-Sheth model is a sophisticated integration of the various social, psychological, and marketing influences on people's choices into a coherent sequence of information processing. The main strength and advantage of the model is the precise linking of many variables in a working relationship that covers most aspects of decision-making and is suitable for this study.

However, it is a relatively old model and does not explicitly target modern Hanfu design. Therefore, this study adopted the Influencing Factors of the Online Purchase Intention model derived from the Howard-Sheth model. It is dedicated to the study of online purchasing of Hanfu, which fits well with this study. Because it has a lot in common with this study, such as focusing on Hanfu and relying on the Internet. However, the input stimulus in this model is not exactly suited for this study, and some need to be adjusted.

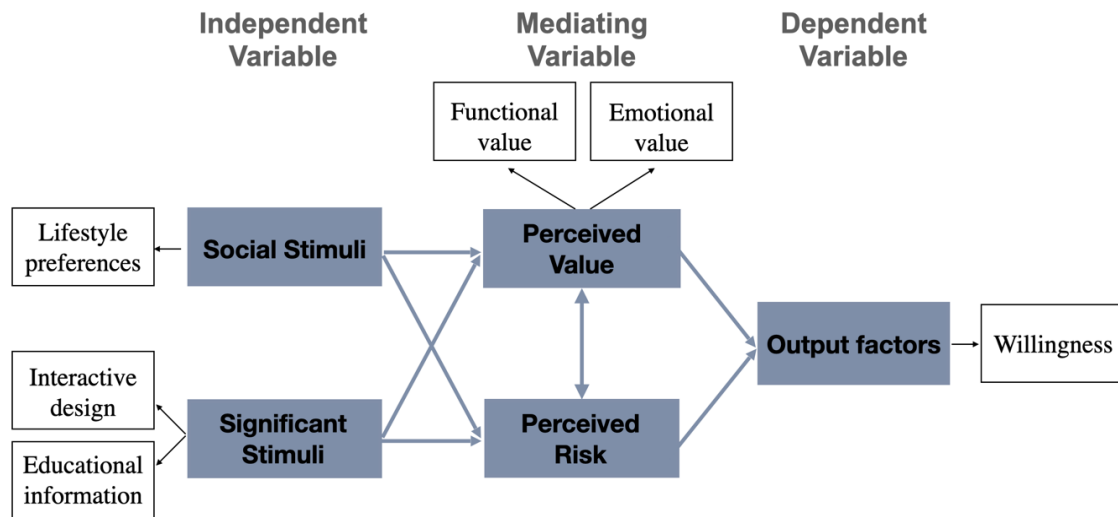


Figure 2.21: The Conceptual Framework of This Study

2.4.5.1 Independent Variable

Social Stimuli: The stimulus factors in the Howard-Sheth model include social stimuli, which refers to family, reference groups social class. Scholars believe that the audience groups of Hanfu products usually have similar lifestyle preferences (Chen & Xu, 2019). The attitudes of those who wear modern Hanfu are related to their life, including liking traditional Chinese culture, watching costume films and ancient songs, and enjoying old-style cosplay. Sui & Zhao (2021) proposed that consumers' lifestyles significantly influence clothing consumption attitudes. He (2015) argued that personal lifestyle affects the perception of traditional clothing. Therefore, lifestyle preferences are defined as social stimuli in this study.

Significant Stimuli: The input stimulus in the Howard-Sheth model contains significative inspirations, which refer to the product itself. The development in this study relates to the modern Hanfu. Li (2013) says interactive design in ethnic costumes can stimulate users' interest. Moreover, only by analysing the user's behaviour and expectations can improve the development of the interactive design application (Bai & Wu,

2018). Therefore, the interactive design of modern Hanfu is included as one of the stimulus factors. The culture and basic knowledge of Hanfu are essential for modern Hanfu (Zeng, 2013), so educational information is also used as one of the stimulus factors.

The symbolic stimuli in the Howard-Sheth model refer to marketing strategies, and it was not included in this study as it does not involve marketing-related components.

2.4.5.2 Mediating Variable

Many scholars have tested behavioural intentions using perceived value and perceived risk as intermediate variables (Hu, 2021). Wu (2008) used the SEM model as the basis and listed perceived risk and perceived value as the mediating variables to study the influence of online usage tendency. This study adapted the Influencing Factors of Online Purchase Intention Model, using perceived value and perceived risk as the mediating variables.

Perceived Value: Perceived value is a trade-off between the cost paid and the perception made by the consumer to obtain the benefits of a good or service, thus creating an overall evaluation of the good or service (Hu, 2021). In this study, both perceived functional value and perceived emotional value are examined. It is because the function is vital for interactive design applications of modern Hanfu. Furthermore, the cultural attributes of Hanfu give modern Hanfu emotional value, which should also be shown through the application.

Perceived Risk: The independent variables above could influence decision-making through mediating variables. Many scholars took perceived risk and perceived value as mediating variables for research and analysis (Wei & Su, 2021). Combined with the Influencing Factors of the Online Purchase Intention model, the mediating variables in this

study were also categorised as perceived emotional value, perceived functional value and perceived risk. Finally, responses to these factors were summarised as willingness.

2.4.5.3 Dependent Variable

Willingness: Li (2018) defines the definition of willingness as the positive attitude of consumers to engage in purchasing behaviours or recommending behaviours through the Internet. This study defines willingness as the willingness to use interactive design applications to design modern Hanfu or purchase modern Hanfu through the application platform.

2.7 Chapter Summary

The history, characteristics, and cultural connotations of Hanfu were studied in this chapter. The documents related to Hanfu from ancient times to the present and the most important historical relic are summarised. This is followed by a study of the relationship between the Han nation and Hanfu through literature, the relationship between Hanfu and modern Hanfu, and the history of the development of Hanfu. In the process, the style, pattern, and colour features of Hanfu are summarised. As Hanfu is not developing well now, this chapter reviews the development of other countries' costumes, drawing on their ideas of commercialising traditional costumes and valuing the innovative design of traditional costumes.

This research also reviewed the current application state for interactive design and Hanfu. There have been some studies on mobile phone applications for interactive design and some reflections on mobile phone applications for Hanfu culture. However, there needs to be more research on the interactive design of modern Hanfu using mobile phone applications. Nowadays, Chinese people pursue individuality and are good at accepting

new things, and they are used to using mobile phone applications. All of these are favourable to this study.

The theories and models used in the study are present in this chapter as well, including the Howard-Sheth model, perceived value and perceived risk theory, and the Influencing Factors of Online Purchase Intention model. Also, academic research and literature using these models are collated to understand how these models can be used to research related areas. The analysis is used to identify how further research in this study can be conducted using these models and theories. It will be discussed in more depth in the next chapter.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Overview

This chapter will outline the research methods used to answer the research questions in this study. It covers the research design, as well as the qualitative and quantitative research methods used. The research design explains why it used mixed research methods and how to use them for the research objectives. The qualitative research method is semi-structured interviews in this study, which involves sampling method, ensuring validity and reliability, and conducting the interviews process design. The quantitative research method is the questionnaire survey, which includes building hypotheses, designing the questionnaire, sampling method, conducting preliminary and formal questionnaires, and other research processes.

3.2 Research Design

This study adopts a mixed methods approach to research, which is a study that uses a mixture of quantitative research methods and qualitative research methods (Johnson & Onwuegbuzie, 2004). This is due to the Hanfu culture's complexity, making it difficult to understand the issue from a single source of information (Creswell & Plano, 2011). Mixed methods research can be applied to any research project, but they are particularly applicable to artistic research themes (Tu, 2020). The study employs a convergent parallel design, in which qualitative and quantitative research are carried out concurrently, and the findings are compared and evaluated (Creswell, 2013). Quantitative research methods are

required to validate the relationship between the influencing factors. While qualitative research methods can further explain and complement these relationships and explore the reasons for the emergence of results. Therefore, although mixed research methods are more complex and time-consuming (Molina-Azorin & Cameron, 2010), they were chosen for this study.

To achieve research objective one, a combination of literature review and a semi-structured interview survey will be employed. Objective two will be accomplished through the use of qualitative and quantitative research methods. Objective three will primarily use the quantitative research method. The flow chart for this study is displayed in Figure 3.1.

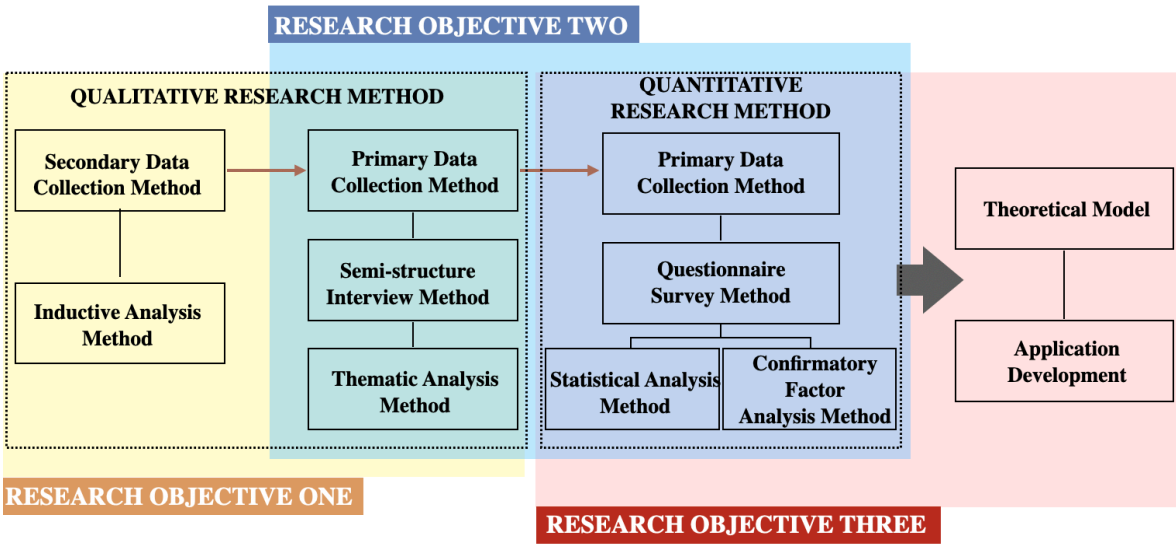


Figure 3.1: The Flow Chart of This Study

3.2.1 Research Objective One

The first research objective is to identify the current awareness of modern Hanfu design among the young generation in China. A literature review and interview survey will

be used to accomplish this goal. Firstly, the opinions of other scholars on the awareness of modern Hanfu design will be studied and summarised. Secondly, through interviews with experts and Hanfu enthusiasts, the current awareness among the young generation in China will be analysed, and essential reasons for this situation will be explored. The current awareness of modern Hanfu design will be determined through the cross-analysis of the literature review and interview survey data.

3.2.2 Research Objective Two

The questionnaire and interview surveys will be combined for research objective two. This stage will analyse the suitability of using interactive design applications in educating and promoting Modern Hanfu. The factors related to this goal will be investigated through mixed research methods.

3.2.3 Research Objective Three

The third research objective is to propose an application that integrates Hanfu popularisation, interactive design and cultural communication for a sustainable modern Hanfu design. To achieve this objective, the reliability of the hypotheses is verified through the quantitative research method. Furthermore, the confirmatory factor analysis method will be used to test the relationships between the factors. Based on the results of the questionnaire research, reasonable analyses and suggestions will be made for the application design.

3.3 Qualitative Approach

This section will discuss the qualitative research method employed in the study, as well as the processes of sampling, data collection, and data analysis. The semi-structured interviews were conducted for objectives one and two of this study. The data collected from the semi-structured interviews provided insights into the current awareness of the young generation in China on modern Hanfu design, as well as the possibility of using interactive design applications in educating and promoting modern Hanfu design. Specifically, the studies were conducted as follows.

3.3.1 Semi-Structured Interview

An interview is a conversation between two people in which one person (the interviewer) seeks a response from another person (the interviewee) for a specific purpose (Xu, 2019). Semi-structured interviews are highly structured to ensure that topics are covered, and adequate information is obtained (Cao, 2017). Therefore, according to the research objectives of this study, an outline of the interviews was drawn up and asked the interviewees to answer freely. The time of each interview was controlled to 10-30 minutes. The interview data was collated and analysed in detail for this study. Ultimately a summary of the critical, influential elements of Hanfu education and the interactive design of modern Hanfu was made.

Standard qualitative analysis methods contain grounded theory, content analysis, conversation analysis, and thematic analysis (Wang et al., 2006). Among these, thematic investigation is built based on tables, which can ensure that the process of data collation and analysis is rigorous and fair and is considered a more mature qualitative analysis

method widely used nowadays (Laura et al., 2005). So thematic analysis method is used in this study.

3.3.2 Sampling Technique for Semi-Structured Interview

There needs to be more research on the interactive design and communication of modern Hanfu in China, and only some scholars have researched this area. Hence, this study decided to adopt a snowball sampling method. A random selection of scholars and association leaders who have examined the development of Hanfu in modern society were first interviewed. Then they were asked to introduce additional volunteers who knew about Hanfu, and subsequent interviewees were selected based on the clues obtained. The advantage of this method is that individuals with similarities in society usually know each other. Therefore, after a target individual is found, they can then recommend other target individuals, which helps to increase the efficiency of the survey (Mi & Nie, 2016). The interviews were conducted with 16 pertinent individuals. Specifically, the interviewees were divided into eight traditional Hanfu culture research experts and 8 Hanfu enthusiasts. The experts included university lecturers, museum employees, and Hanfu's intangible cultural heritage heirs. On the other hand, the enthusiasts were selected from the school and social Hanfu community organisations. (Table 3.1).

Table 3.1: Interviewee Information

	Date	No.	Gender	Age	Education	Note
Experts	2021.1.10	1-01	Female	33	PhD	Interested in traditional Culture

Table 3.1 continued

	2021.1.10	1-02	Male	42	M.A.	Interested in Chinese history
	2021.2.3	1-03	Female	47	Junior college	Interested in traditional Culture
	2023.6.17	1-04	Female	30	PhD	Designer of Modern Hanfu
	2023.6.17	1-05	Male	50	PhD	Interested in traditional Hanfu
	2023.6.25	1-06	Female	41	M.A.	Intangible Cultural Heritage Inheritor
	2023.6.29	1-07	Female	37	M.A.	Intangible Cultural Heritage Inheritor
	2023.6.29	1-08	Female	32	PhD	Interested in Chinese history
Hanfu Enthusiasts	2021.1.4	2-01	Female	20	Bachelor	Interested in traditional Culture and history of Chinese costume
	2021.1.7	2-02	Female	24	Bachelor	Interested in painting, calligraphy and crafts

Table 3.1 continued

2.21.1.13	2-03	Female	19	Bachelor	Interested in animation and movie
2021.1.25	2-04	Female	20	Bachelor	Interested in crafts and video games
2021.2.1	2-05	Female	21	Bachelor	Interested in Chinese painting, calligraphy and travel
2021.2.1	2-06	Male	20	Bachelor	Interested in dance, photography
2021.2.5	2-07	Female	20	Junior college	Interested in animation, calligraphy, writing
2021.2.5	2-08	30	30	Bachelor	Interested in photography

3.3.3 Validity and Reliability

The validity of findings, such as the representation and understanding, is traditionally thought to be related to the correctness or precision of the research reading (Zhang, 2020). Before conducting the semi-structured interviews, 32 Hanfu enthusiasts were contacted through the heads of different Hanfu groups. An online meeting with the respondents was held to discuss the interview's context, purpose and significance. After

that, we had a simple and efficient exchange, and from the 32 people, 8 Hanfu enthusiasts were selected to participate in this interview who met the requirements of the study. Three experts in Chinese costume, history, and Chinese traditional culture precisely fit the theme of this study and were therefore identified as expert interviewees. After that, five additional expert respondents were added to make the interview data more rigorous and reliable.

Collaboration with the experts on the independent coding exercise for each interview was done in order to maintain transparency in the data analysis process. In the controversial parts, we finally reached an agreement after careful discussion. The dependability of the coding categories was addressed, and the involvement of multiple researchers in the coding phase helped to increase decision-making transparency.

3.3.4 Semi-Structured Interview Procedures

The semi-structured interview was used as one of the research methods in this study. It was a requirement for respondents to be familiar with Hanfu culture, and they were divided into two groups based on how much they knew about it. Hanfu enthusiasts were respondents who expressed interest in Hanfu, followed Hanfu information in everyday life, and actively engaged in Hanfu-related activities. Respondents concerned about Hanfu or traditional culture and had conducted academic research on the subject were defined as experts. Respondents were selected by snowball sampling.

3.3.4.1 Semi-Structured Interview Guide

The primary purpose of the questions in the semi-structured interview guide was to give participants essential knowledge and understanding of the Hanfu development. This enabled me to make recommendations on the approach to application development.

To learn more about the interviewees, the interview began with a more informal conversation. This gathers the necessary data and helps the interviewee feel at ease for the rest of the interview. New questions were added during the discussions in response to the interviewees' answers. However, the education, design, and development of Hanfu and modern Hanfu will remain the main topics of all questions.

3.3.4.2 Invitations and the Interview Process

Participants were invited via email, phone, and the WeChat phone app. Initial communication with the interviewees helped to determine the interview time and method. Due to the impact of COVID-19, the interviews were conducted using WeChat. Questions were asked according to the outline, and follow-up questions were asked in response to the interviewees' answers so that the interviewees could provide in-depth answers to the relevant questions. The responses were recorded promptly.

3.3.4.3 Content of the Interviews

Interviews with experts: This study focused on four primary areas when conducting interviews with experts. Firstly, views on the current state of development of Hanfu and suggestions for modern Hanfu design. This is because the current academic research needs more information on the development of modern Hanfu design in recent years. Secondly, views on the audience of modern Hanfu design. Some studies contain basic information about Hanfu enthusiasts but need in-depth research and group descriptions. Thirdly, opinions on the current Hanfu knowledge websites and modern Hanfu products. As Hanfu has gained in popularity in recent years, numerous new websites and brands have emerged, yet the audience needs more criteria to distinguish them.

Fourthly, recommendations for the application development of this study. More specific guidance is required since there is a gap in the academic field.

Interviews with Hanfu enthusiasts: This study addressed three main questions when interviewing people interested in Hanfu. Firstly, how much do potential users know about modern Hanfu design? It examines whether Hanfu enthusiasts have sufficient knowledge of Hanfu and modern Hanfu. Secondly, the aesthetic requirements and cultural resonance of modern Hanfu were discussed to understand what kind of potential application users need to help them realise their needs for current Hanfu products. Thirdly, what are the needs and expectations for this field's future development to understand the future direction of application development?

3.4 Quantitative Approach

The quantitative research method employed in this study will be discussed in this section, along with the research methodology and analysis techniques. The pre-test is used to determine the questionnaire's reliability and validity. The questionnaires were then distributed, collected, and compiled to validate the theoretical model.

The research design emphasises the study of variable relationships and the feasibility of the theoretical model to guide the next step of application development.

3.4.1 Hypothesis Building

According to the theoretical framework in Chapter 2, Social Stimuli refer to Lifestyle preferences; Significant Stimuli refer to interactive design and educational information; perceived value consists of functional and emotional value, and output factors

refer to willingness. Therefore, lifestyle preference, interactive design, educational information, practical value, emotional value, perceived risk and desire will be used as the variables to be tested in the quantitative study. Combined with the theories of previous scholars in Chapter 2, the following hypotheses were obtained.

H₁: Life preferences have a positive impact on functional value.

H₂: Life preferences have a positive impact on emotional value.

H₃: Life preferences hurt perceived risk.

H₄: The interactive design has a positive impact on functional value.

H₅: The interactive design has a positive impact on emotional value.

H₆: The interactive design hurts perceived risk.

H₇: The educational information has a positive effect on functional value.

H₈: The educational information has a positive effect on emotional value.

H₉: The educational information hurts perceived risk.

H₁₀: The functional value has a positive impact on willingness.

H₁₁: The functional value hurts perceived risk.

H₁₂: The emotional value has a positive impact on willingness.

H₁₃: Perceived risk hurts willingness.

H₁₄: Perceived risk hurts functional value.

H₁₅: Perceived risk hurts affective value.

3.4.2 Questionnaire

The quantitative research method utilising a questionnaire is an essential research approach in which the researcher employs a uniformly constructed questionnaire to gather information or obtain respondent feedback (Sun & Chen, 2016). The most significant advantage of questionnaire research is that it is not limited by time and space and has a broad scope, making it suitable for surveying many targets. Its findings are ideal for quantitative analysis (Zhao, 2009).

Firstly, the questionnaire for this study was designed. Then a pre-survey was carried out with a small group of people, and the standards were corrected according to the results of the data analysis of the pre-survey. Finally, a formal questionnaire was administered to the target group.

3.4.3 Sampling Technique for Survey Questionnaire

Generally, a structural equation model requires a sample size of 200–500, and the number of questionnaires must be at least 5–10 times the number of scale items, with a minimum of 100 (Wu, 2009). For this study, the questionnaire on “Attitudes towards the application of Hanfu education and modern Hanfu innovative design” had 28 items, so according to the scholars mentioned above, the number of questionnaires needed to be at least 280 to test the model well. The study ended up with 315 respondents who were surveyed and met the requirements.

A random sampling method was used for this study. Still, it was specified that the respondents had to be members of the Hanfu community to safeguard the effectiveness of the content of this study.

3.4.4 Preliminary Questionnaire

Before the formal distribution of the questionnaire, a campaign was undertaken among the university student community and the Hanfu enthusiast community between 5 January 2021 and 15 January 2021, using a voluntary registration form to solicit interviewed volunteers. As of 1st January 2021, 102 people had signed up. Through an online meeting, respondents were informed of the purpose and requirements of this research. Of the 102 registered people, eight did not meet the criteria and did not participate in this survey. Therefore, a total of 94 people participated in the online pre-survey. The data was then analysed for reliability and validity. Based on the reliability and validity analysis results, the questionnaire items were revised, and the official questionnaire was finalised.

3.4.4.1 Definition of Variables

The design of dimensional scales for the various influencing factors of the model made the subjective hypotheses quantifiable for the study. Data analysis and model validation was carried out employing questionnaire research, and the relationships between the antecedent, mediating, and dependent variables were analysed based on the results obtained from the guarantee. The variables in the theoretical model of this study were defined by referring to the concept of variables in the relevant literature, with some adjustments and modifications based on the purpose of this study and the results of the in-depth interviews.

3.4.4.2 Reliability Analysis

The 94 valid data from the preliminary questionnaire were analysed for reliability using SPSS. The results of the reliability tests for each variable of the questionnaire were obtained, as shown in the table (Table 3.2). From the Cronbach's alpha values of the variables in the table, it can be seen that the reliability of the preliminary questionnaire was excellent.

Table 3.2: The Reliability Tests for Each Variable

Cronbach				
Individual Factor- Life Preference	Question Name	CITC	Item deleted α coefficient	Cronbach α
	Lifestyle Preferences 1	0.67	0.779	0.828
	Lifestyle Preferences 2	0.711	0.736	
	Lifestyle Preferences 3	0.678	0.77	
	Standardised Cronbach α coefficient : 0.828			
Stimulus Factors- Interactive Design	Question Name	CITC	Item deleted α coefficient	Cronbach α
	Interactive Design1	0.789	0.912	9.26
	Interactive Design 2	0.734	0.922	
	Interactive Design 3	0.762	0.917	

Table 3.2 continued

	Interactive Design 4	0.821	0.909	
	Interactive Design 5	0.829	0.909	
	Interactive Design 6	0.858	0.905	
	Standardised Cronbach α coefficient : 0.933			
Stimulus Factors- Educational Information	Question Name	CITC	Item deleted α coefficient	Cronbach α
	Educational Information 1	0.725	0.839	0.869
	Educational Information 2	0.819	0.756	
	Educational Information 3	0.713	0.853	
	Standardised Cronbach α coefficient : 0.871			
Perceived Value- Functional Value	Question Name	CITC	Item deleted α coefficient	Cronbach α
	Functional Value 1	0.799	0.896	0.917
	Functional Value 2	0.721	0.913	
	Functional Value 3	0.838	0.888	
	Functional Value 4	0.864	0.884	

Table 3.2 continued

	Functional Value 5	0.728	0.91	
	Standardised Cronbach α coefficient : 0.918			
Functional Value-Emotional Value	Question Name	CITC	Item deleted α coefficient	Cronbach α
	Emotional Value 1	0.741	0.729	0.836
	Emotional Value 2	0.693	0.776	
	Emotional Value 3	0.659	0.81	
	Standardised Cronbach α coefficient : 0.836			
Perceived Risk	Question Name	CITC	Item deleted α coefficient	Cronbach α
	Perceived Risk 1	0.777	0.904	0.919
	Perceived Risk 2	0.849	0.889	
	Perceived Risk 3	0.759	0.907	
	Perceived Risk 4	0.833	0.895	
	Perceived Risk 5	0.753	0.908	
	Standardised Cronbach α coefficient : 0.920			

Table 3.2 continued

Willingness	Question Name	CITC	Item deleted α coefficient	Cronbach α
	Willingness 1	0.742	0.85	0.879
	Willingness 2	0.79	0.806	
	Willingness 3	0.765	0.829	
	Standardised Cronbach α coefficient : 0.879			

The reliability coefficient of Individual Factor-Lifestyle Preferences was 0.828, which was greater than 0.8, indicating that the reliability quality of the research data is high.

Stimulus Factors-Interactive Design: the Cronbach's alpha value was 0.926, which was greater than 0.9, indicating that the research data's reliability was high quality. Regarding Cronbach's alpha value after the item was deleted, when Question 14 was deleted, the Cronbach's alpha values increased significantly. Still, the deal was already higher than 0.9; this item was retained.

External Factors-Educational Information: Cronbach's alpha value was 0.869. Perceived Value-Functional Value: Cronbach's alpha value was 0.917. Therefore, these two parts of the research data were of high reliability. Regarding the 'Cronbach's alpha value after deleted items', after an item is deleted, the reliability coefficient did not increase significantly, so it means that any of these items should not be deleted.

Functional Value-Emotional Value: Cronbach's alpha value was 0.836, indicating that the research data's reliability was high quality. Regarding Cronbach's alpha value after the item was deleted, when the Question 30 was deleted, Cronbach's alpha values increased significantly since the deal is already higher than 0.8, this item was retained.

From Table 3.2, the Perceived Risk part shows that the Cronbach's alpha value was 0.919, which was greater than 0.9, indicating that the reliability of the research data was of high quality. Regarding the Cronbach's alpha value after the item was deleted, when Question 34 was deleted, Cronbach's alpha values increased significantly. However, since the value was already higher than 0.9, this item is retained.

The reliability coefficient for the Willingness to Use or By component was 0.879, indicating a high quality of data reliability.

For the CITC value, the CITC values of each part of the analysis items were all greater than 0.4, indicating a good correlation between the analysis items, and it also suggested that the reliability level was good.

3.4.4.3 Validity Analysis

In this study, SPSS data analysis software was chosen to analyse the validity of the questionnaires returned during the preliminary questionnaire, as shown in the table (Table 3.3).

Table 3.3: The Validity of the Questionnaires

Individual Factor- Life Preference	Question Name	Factor loading coefficients	Commonality (common factor variance)
		Factor 1	
	Lifestyle Preferences 1	0.853	0.728
	Lifestyle Preferences 2	0.878	0.77
	Lifestyle Preferences 3	0.858	0.736
	Eigenroot values (before rotation)	2.234	-
	Explanation of variance % (before rotation)	74.461%	-
	Cumulative variance explained % (before rotation)	74.461%	-
	Eigenroot value (after rotation)	2.234	-
	Explanation of variance % (after rotation)	74.461%	-
	Cumulative variance explained % (after rotation)	74.461%	-
	KMO value	0.72	-

Table 3.3 continued

	Barth spherical value	102.345	-
	df	3	-
	p-value	0	-
Stimulus Factors- Educational information	Question Name	Factor loading coefficients	Commonality (common factor variance)
		Factor 1	
	Educational Information 1	0.879	0.772
	Educational Information 2	0.926	0.858
	Educational Information 3	0.87	0.756
	Eigenroot values (before rotation)	2.386	-
	Explanation of variance % (before rotation)	79.539%	-
	Cumulative variance explained % (before rotation)	79.539%	-
	Eigenroot value (after rotation)	2.386	-
	Explanation of variance % (after rotation)	79.539%	-

Table 3.3 continued

	Cumulative variance explained % (after rotation)	79.539%	-
	KMO value	0.709	-
	Barth spherical value	143.469	-
	df	3	-
	p-value	0	-
Perceived Value- Functional Value	Question Name	Factor loading coefficients	Commonality (common factor variance)
		Factor 1	
	Functional Value 1	0.876	0.767
	Functional Value 2	0.817	0.667
	Functional Value 3	0.903	0.815
	Functional Value 4	0.92	0.847
	Functional Value 5	0.826	0.683
	Eigenroot values (before rotation)	3.778	-
	Explanation of variance % (before rotation)	75.558%	-

Table 3.3 continued

	Cumulative variance explained % (before rotation)	75.558%	-
	Eigenroot value (after rotation)	3.778	-
	Explanation of variance % (after rotation)	75.558%	-
	Cumulative variance explained % (after rotation)	75.558%	-
	KMO value	0.874	-
	Barth spherical value	334.258	-
	df	10	-
	p-value	0	-
Functional Value- Emotional Value	Question Name	Factor loading coefficients	Commonality (common factor variance)
		Factor 1	
	Emotional Value 1	0.893	0.798
	Emotional Value 2	0.867	0.751
	Emotional Value 3	0.844	0.713

Table 3.3 continued

	Eigenroot values (before rotation)	2.262	-
	Explanation of variance % (before rotation)	75.388%	-
	Cumulative variance explained % (before rotation)	75.388%	-
	Eigenroot value (after rotation)	2.262	-
	Explanation of variance % (after rotation)	75.388%	-
	Cumulative variance explained % (after rotation)	75.388%	-
	KMO value	0.714	-
	Barth spherical value	109.888	-
	df	3	-
	p-value	0	-
Perceived Risk	Question Name	Factor loading coefficients Factor 1	Commonality (common factor variance)

Table 3.3 continued

Perceived Risk 1	0.862	0.742
Perceived Risk 2	0.909	0.826
Perceived Risk 3	0.845	0.714
Perceived Risk 4	0.898	0.806
Perceived Risk 5	0.841	0.706
Eigenroot values (before rotation)	3.795	-
Explanation of variance % (before rotation)	75.907%	-
Cumulative variance explained % (before rotation)	75.907%	-
Eigenroot value (after rotation)	3.795	-
Explanation of variance % (after rotation)	75.907%	-
Cumulative variance explained % (after rotation)	75.907%	-
KMO value	0.885	-
Barth spherical value	329.81	-
df	10	-

Table 3.3 continued

	p-value	0	-
Willingness	Question Name	Factor loading coefficients	Commonality (common factor variance)
		Factor 1	
	Willingness 1	0.884	0.781
	Willingness 2	0.91	0.829
	Willingness 3	0.897	0.805
	Eigenroot values (before rotation)	2.415	-
	Explanation of variance % (after rotation)	80.501%	-
	Cumulative variance explained % (after rotation)	80.501%	-
	KMO value	0.74	-
	Barth spherical value	145.177	-
	df	3	-
	p-value	0	-

The validity of each factor was verified using KMO and Bartlett's test, as seen in the table above (Table 3.3). Individual Factor-Lifestyle Preferences KMO value was 0.720. Stimulus Factors-Interactive Design section KMO value was 0.889, Stimulus Factors-educational information section KMO value was 0.709. Perceived Value-Functional Value section KMO value was 0.874. Functional Value-Emotional Value section KMO value was 0.714. perceived risk section KMO value was 0.885. intention to use or purchase section KMO value was 0.885. When the KMO value was between 0.7 and 0.8, the data was suitable for information extraction (a side effect of good validity). When the KMO value was more significant than 0.8, the study data was ideal for extracting information (good side-effect validity). Therefore, the fact of the factors in this questionnaire was suitable for information extraction.

3.4.5 Generation of the Formal Questionnaire

The pre-study of quantitative research was analysed for reliability and validity during the preliminary process. The problems that arose during the analysis were revised to ensure the credibility and rigour of the questionnaire, which resulted in the official questionnaire for this study. The formal questionnaire consisted of 39 questions, and compared to the preliminary questionnaire, question 39 was added: "What other suggestions do you have for the application of Hanfu education and modern Hanfu interactive design?" The question was designed to allow respondents to provide detailed answers to supplement the previous questions.

3.4.5.1 Content of the Questionnaire

The study explores what factors influence the user's willingness to use or purchase when using Hanfu education and modern Hanfu interactive design application. To facilitate

the development and promotion of the application, the research for this study is targeted at people who express support and understanding of Hanfu. Specifically, there are two categories: one refers to the potential Hanfu enthusiasts, such as those who have a positive attitude towards Hanfu but do not understand it, and, the other refers to Hanfu enthusiasts. According to the research in the literature review, the youth generation shows more interest in Hanfu. Thus, the questionnaire was distributed among the university students or the Hanfu societies. Based on the previous study's description of the measurement scales, a preliminary questionnaire was developed on "Attitudes towards the application of Hanfu education and modern Hanfu interactive design". The questionnaire set a selection criterion to screen the sample. It was emphasised in the introduction that if people have no interest in, or even an aversion to, Hanfu, they cannot answer this questionnaire. In addition, a detailed description of this study was given to the respondent group before distribution. In this way, it was ensured that all respondents who completed this questionnaire had a positive attitude towards Hanfu and were likely to become potential application users.

The questionnaire for this study consisted of three main sections.

The first part consisted of ten questions, which focused on the basic information of the respondents (Table 3.4).

-Questions 1-4 were all essential information about the respondents.

-Questions 5-7 were used to distinguish the respondents as potential Hanfu enthusiasts or Hanfu lovers. I tried to determine how much the research respondents followed Hanfu's information.

-The respondents' attitudes towards modern Hanfu products were studied by questions 8-10.

Table 3.4: The First Part of the Questionnaire

Classification	Number	Question
Essential Information	1	What is your gender?
	2	What is your age?
	3	What is your education level?
	4	What is your monthly income? (if you are a student, choose your monthly living expenses)
Segmentation	5	Have you ever browsed Hanfu information online or bought Hanfu products before?
	6	How often do you view information about Hanfu?
	7	How do you like to browse information about Hanfu?
Attitude	8	How long have you been following (or wearing) Hanfu products?
	9	If you were considering purchasing Hanfu products, what would be your preferred source of purchase?
	10	Would you like to participate in the interactive design process (e.g., colour selection, detail selection, etc.) when choosing a Hanfu product?

Before the second part, the basic information was shown again to remind respondents. “Suppose there is an application that could support users to choose and combine styles, colours, patterns, fabrics, etc., to design a modern Hanfu through online interaction, and in the process, could show the traditional Hanfu information about the elements of the module has been chosen (information from various academic works, library materials, museums, etc.). Please answer the following questions based on this setting and make a sensible choice based on how you feel about the description. One means Strongly Disagree, two means Disagree, three refers to Indicates neutrality, four means Agree, 5 means Strongly Agree.”

The second part was all Likert scale five questions, with twelve queries on individual factors and external stimuli (Table 3.5).

- Questions 11, 12, and 13 investigated individual factors, i.e., consumer preferences.

- Questions 14 to 19 were six questions that tested the role of interaction design factors in external stimuli.

- Questions 20, 21, and 22 were used to test the part of educational factors in external stimuli.

Table 3.5: The second part of the questionnaire

Classification	Question Number	Question	Question Name
Individual Factor-Life Preference	11	I prefer quite leisure such as reading and painting to going out for sports or shopping.	Lifestyle Preferences 1
	12	What is your age?I like a costume drama, classical music, or cosplay of the ancients.	Lifestyle Preferences 2
	13	I like traditional Chinese cultures such as calligraphy, embroidery, Chinese painting, and tea.	Lifestyle Preferences 3
Stimulus Factors - Interactive Design	14	When considering to use an application of modern Hanfu interactive design, I value whether there are some design samples to show.	Interactive Design 1
	15	If participating in interactive self-design of modern Hanfu products online, I would like to participate in an interactive design that is not too complicated to operate.	Interactive Design 2
	16	If participating in interactive self-design of modern Hanfu products online, I value whether the interface is well designed.	Interactive Design 3

Table 3.5 continued

	17	If participating in interactive self-design of modern Hanfu products online, I value the variety of style options.	Interactive Design 4
	18	If participating in interactive self-design of modern Hanfu products online, I value the variety of fabric options.	Interactive Design 5
	19	If participating in interactive self-design of modern Hanfu products online, I value the variety of pattern and colour options.	Interactive Design 6
Stimulus Factors - Educational Information	20	Interactive design application that incorporates information about traditional Hanfu information can help me to learn more about Hanfu culture.	Educational Information 1
	21	When browsing information about Hanfu from any source, I value the reliability and authenticity.	Educational Information 2
	22	When browsing information about Hanfu from any source, I value how logical and interesting the information is presented.	Educational Information 3

The third section consisted of twelve questions, again on a five-point Likert scale, testing perceived value, perceived risk, and the factors influencing intention to use or buy (Table 3.6).

-Five of the questions, 23 to 27, tested the functional value of the collective variable. -Questions 28, 29, and 30 tested the emotional value of the organismic variables.

-Questions 31 to 35 were used to test perceived risk.

-Questions 36, 37, and 38 tested user's willingness to use or purchase.

Table 3.6: The Third Part of the Questionnaire

Classification	Question Number	Question	Question Name
Perceived Value-Functional Value	23	I need to combine theoretical knowledge with practical design.	Functional Value 1
	24	I think it is more convenient and informative to learn about traditional Hanfu culture online than libraries and museums.	Functional Value 2
	25	Get a unique modern Hanfu that I designed could meet my needs.	Functional Value 3
	26	Gaining knowledge of Hanfu is an important function for me.	Functional Value 4

Table 3.6 continued

	27	I think that the creatively designed details of the modern Hanfu elements can satisfy my need for uniqueness.	Functional Value 5
Perceived Value-Emotional Value	28	I get emotional satisfaction if my Hanfu designs are recognized by others.	Emotional Value 1
	29	Wearing modern Hanfu products can reflect that I am a cultured person.	Emotional Value 2
	30	Wearing modern Hanfu products will show that I am a traditional Chinese person.	Emotional Value 3
Perceived Risk	31	If I were to do an interactive design of a modern Hanfu online, I would be worried that I would not be able to capture the cultural connotations of the design elements.	Perceived Risk 1
	32	If I do an interactive design of a modern Hanfu online, I am worried that I can not do it well.	Perceived Risk 2
	33	If I were to do an interactive design of a modern Hanfu online and purchase this product, I would be concerned that the actual product would not match my design.	Perceived Risk 3

Table 3.6 continued

	34	I worried that if I buy a modern Hanfu product that I have designed interactively, I cannot return it or exchange it if it does not fit.	Perceived Risk 4
	35	I worried that it may take a longer period if I produce a modern Hanfu product that I have participated in an interactive design as a product.	Perceived Risk 5
Willingness	36	I would like to try out the application that combines information about Hanfu with the interactive design of modern Hanfu.	Willingness 1
	37	If the experience is good, I would be willing to recommend the app that combines knowledge of Hanfu with interactive design to my friends.	Willingness 2
	38	I would consider buying the costume if people around me approve of the modern Hanfu piece I designed interactively.	Willingness 3

3.4.5.2 Formal Questionnaire Distribution

To ensure the reliability of the research sample, the respondents were carefully selected. Volunteers were first openly recruited from university students at five Chinese universities and members of three Hanfu societies. Introductions were distributed through school forums and WeChat groups, requiring the endorsement of Hanfu culture to apply. An online meeting was then held in groups to explain the concept of Hanfu and modern Hanfu in this study, explaining the purpose and requirements of the research. Then repeat the process of confirming that all respondents had a positive attitude towards Hanfu, and if so, move on to the next section to complete the questionnaire, and if not, politely decline the respondent's participation in the study. Based on the screening, the final respondents were identified. Due to the impact of COVID-19, this study took over six months from the call for volunteers to the end of the questionnaire to ensure that the test group was as representative as possible.

3.4.5.3 Formal Questionnaire Collection

The questionnaires were distributed between 22 March 2021 and 9 October 2021. Three hundred thirty-nine people signed up to participate in the survey. After the online group meeting to explain the notes and response requirements, 315 people met the response criteria. Finally, there were 315 valid questionnaires returned.

3.5 Chapter Summary

This chapter explains the research method used in this study, which is a mixed research method that combines qualitative and quantitative research. The semi-structured interviews were used to conduct qualitative research. Sixteen interviewees were identified

through a snowball sampling method. They were divided into two groups based on their level of knowledge about Hanfu. Both groups' interviews focused on Hanfu education, interactive design, and modern Hanfu products, but the interview outlines were slightly different.

The questionnaire research method was used to conduct the quantitative study. Firstly, recruitment was initiated for the Hanfu enthusiast community, a pre-survey was completed, and the data was analysed for reliability and validity. Then the questionnaire's content was adjusted based on the pre-survey to generate a formal questionnaire. The sample was selected by random sampling method, and finally, 315 respondents participated in this study.

CHAPTER 4

DATA ANALYSIS

4.1 Overview

The data from qualitative and quantitative research were obtained based on the results of the semi-structured interviews analysed using NVivo and the questionnaire analysis using SPSS and AMOS. The data analysis for three research objectives was collected through the 16 interviews and 315 questionnaire respondents. This chapter discusses in-depth analysed data collected from qualitative research and quantitative research. The transcription process, data coding and analysis are included in the qualitative data analysis section. The descriptive statistical analysis and path testing are included in the quantitative data analysis.

4.2 Qualitative Data Analysis

The qualitative research will be done through secondary and primary data collation. A literature review has been mentioned in chapter two, and this chapter focuses on the interview method, comparing the literature findings. Specifically, at this stage, it is focused on collecting the opinions of Hanfu experts and enthusiasts on Hanfu culture through semi-structured interviews. The interviews with experts aim to understand the young Chinese attitudes towards modern Hanfu design, identify pressing issues in the development of modern Hanfu, and explore the feasibility and rationality of this study from a professional perspective. Interviews with Hanfu enthusiasts aim to understand the understanding of modern Hanfu, as well as their needs and expectations for modern Hanfu design.

The data will be analysed using thematic analysis to obtain first-hand information. After preliminary sorting, the interviewees' content will be classified. Then import the info into NVivo software to create free coding and tree nodes based on the structure of the content. After that, the themes will be analysed, and the data will be transformed into descriptions.

4.2.1 The Transcription Process of Semi-structured Interview

The data were transcribed several times, including converting audio files to text and translating respondents' answers from Chinese to English. The transcription process is an essential but necessary task in the research process (Hepburn & Bolden, 2017), and it is crucial for qualitative research Kvale (2007).

The entire conversation with each interviewee was recorded using the mobile phone's recording function. The recordings are then transferred to a computer to be transcribed and analysed. Since the recording began before the interview, the interviewees were less anxious when responding to questions as they did not hear a tone to start the recording.

All the recordings were processed and converted into a text-based file. During this process, some language corrections and additions were made to ensure that the interviewees' answers were not altered. This will make the results of the interviews logical and less colloquial.

Due to the significant content of the interviews, the translation software YOUDAO was used for the initial translation in the translation stage. And then, all the results were

manually corrected twice to ensure that the content could accurately express the intended meaning of the interviewees.

4.2.2 Semi-structured Interview Data Coding and Analysis

The data analysis at this stage used the thematic analysis method. After semi-structured interviews with 16 interviewees, data were subjected to transcription processes prior. Then they analysed the raw data, one by one, importing them into the NVivo software and grouping them into free nodes according to their contents. Find the relationship between free nodes and generate tree nodes. Eventually, the tree nodes are grouped into themes as shown in Figure 4.1.

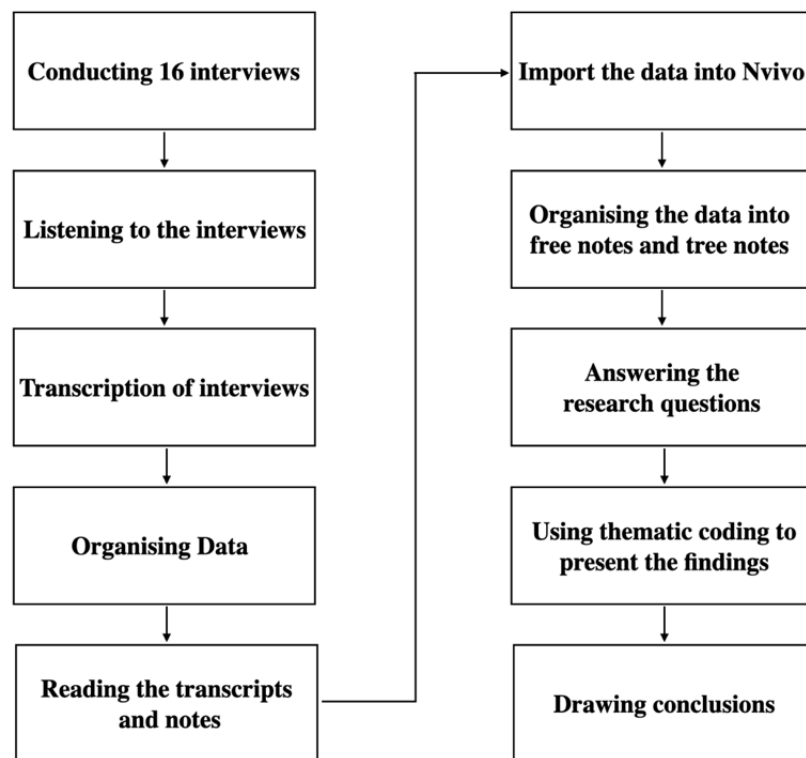


Figure 4.1: The Semi-structured Interview Flow

4.2.1.1 The Coding Process of Semi-Structured Interview

The analysis of semi-structured interviews has been divided into three main phases, and the transition to each new stage was led by insights gleaned from the data (Figure 4.2).

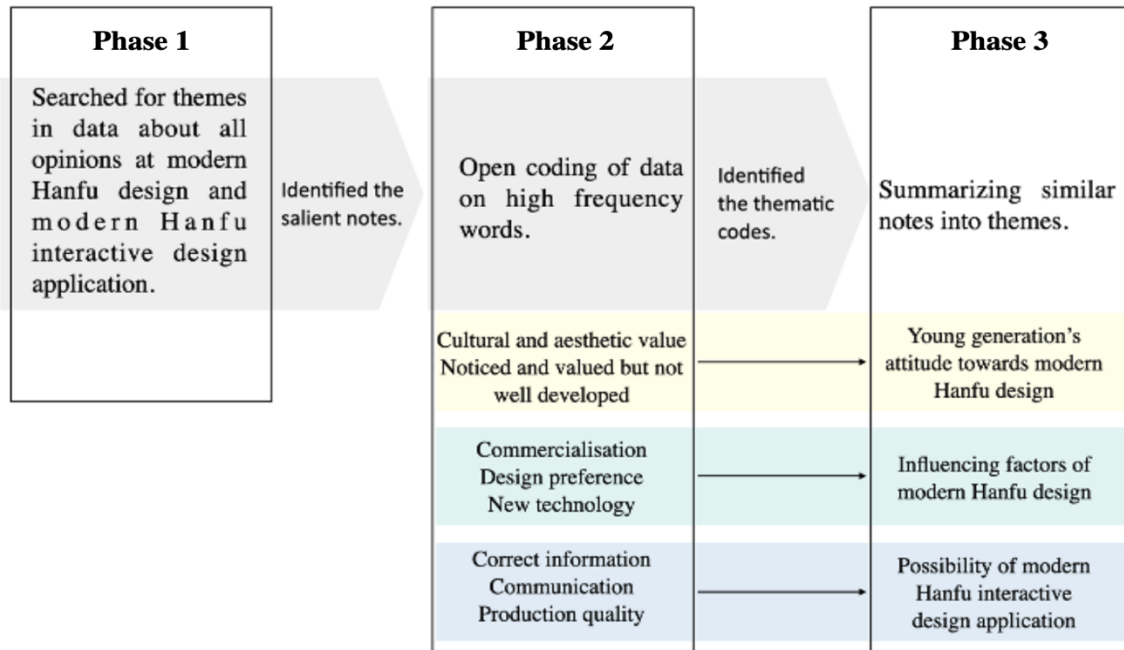


Figure 4.2: The Coding Process of Semi-structured Interview

Phase 1: The semi-structured interviews aimed to study the views and requirements on modern Hanfu design in China; all analyses were first centred on modern Hanfu design. As the data shows, all the Hanfu experts and most Hanfu enthusiasts could point out the difference between Hanfu and modern Hanfu, which also means that their opinions on modern Hanfu design are credible. Moreover, as most Hanfu enthusiasts are young Chinese, their views can reflect the commonality of this study. These analyses helped to fulfil research objective one of this study. Cultural education, communication, modern technology, and unique design are all high-frequency mentioned in this process.

The second phase of the analysis was developed to gain insight into how respondents viewed modern technology to accomplish unique designs.

Phase 2: In the second phase, quotes referring to this topic were categorised to understand what participants perceived as the suitability for interactive design applications for modern Hanfu. Using an open coding approach, the citations were organised into first-order codes by grouping statements with similar keywords and themes about how interaction design could influence modern Hanfu design. After several iterations, a set of free nodes was identified.

Phase 3: Iterations were performed between the data and the existing theory. The free nodes were then grouped into tree notes, which are broader categories. These categories include (1) Attitudes towards modern Hanfu design. (2) Influencing factors of modern Hanfu interactive design. (3) The feasibility of adopting modern Hanfu interactive design applications. These analyses will be used as data supplements to assist in completing research objectives one and two of this study.

Finally, the documentation of the original interviews was revisited to ensure no relevant data had been omitted. To ensure the accuracy of the data, a researcher was invited to independently code the data for the presence or absence of the final theme, with an agreement rate of 89%, and discrepancies were resolved after discussion.

4.2.2.2 Data Analysis

Three themes can be summarised in this section. First of all, the views on the current status of modern Hanfu design. Secondly, the opinions on the influencing factors of

modern Hanfu design. Thirdly, the possibility of modern Hanfu interactive design applications (Table 4.1).

Table 4.1: NVivo Analysis

Theme	Nodes	Number of Respondents	Quantity
Views on the young generation's attitude towards modern Hanfu design	Cultural and aesthetic value	14	17
	Noticed and valued but not well developed	9	11
Views on the influencing factors of modern Hanfu design	Commercialization	11	13
	Design preference	10	10
	New technology	5	5
Possibility of modern Hanfu interactive design application	Correct information	15	18
	Communication	10	10
	Design quality	7	9

i. Views on the current status of modern Hanfu design

Culture and aesthetic value: The development of Hanfu synchronises with the development of China in the past thousand years. Each element of it is a reflection of the Chinese national spirit, ethics, and aesthetic concepts. It symbolises national cultural image

recognition (Gao & Wang, 2011). Previous scholars have studied the importance of Hanfu from different perspectives, summarising these ideas in chapter two. The results of the interviews were consistent with the literature review. Hanfu experts and Hanfu enthusiasts agree that modern Hanfu is very important for Hanfu development, especially at the cultural and aesthetic levels. “Hanfu, with its unique aesthetic value and artistic characteristics, is a precious heritage of ancient Chinese culture.” Said Expert 1-06. Experts 1-02 thought Hanfu culture is an enrichment of cultural life, an enhancement of aesthetic quality and a strengthening of spiritual taste. Because it contains a vibrant ancient Chinese culture and is a collection of Chinese elements that have been gradually accumulated over a long development period (Expert 1-05). Modern Hanfu is a part of Hanfu, which is an integral part of traditional Chinese culture, representing the spirit and pride of the Chinese nation. Through the inheritance and development of Hanfu, we can protect and pass on the unique culture of the Chinese government and maintain the continuity and self-confidence of the national culture (Expert 1-06).

Although modern Hanfu has been modified to be different from traditional Hanfu, it still has the typical characteristics of Hanfu. It contains the beauty of conventional cultural connotations that can be emotionally resonant for the user. According to the in-depth interviews, users who have experience wearing modern Hanfu feel that they are more classically Chinese whenever they wear them. It even promotes people’s learning of Chinese culture. For example, Hanfu Enthusiast 2-01 said, “When it comes to culture, Hanfu can be used as a carrier of traditional culture, and I wear Hanfu largely out of my identification with traditional dress culture.” Hanfu Enthusiast 2-03 holds a similar attitude, arguing that the culture is a unique attribute of Hanfu. It is not just a piece of clothing but

also a source of emotion for our nation. People wearing it could increase patriotism, and it also carries a sense of etiquette and culture.

Noticed and valued but needed to be better developed: From around 2000, Chinese people gradually realised the importance of Hanfu. In 2003, a citizen in Zhengzhou wore a Hanfu in public, which became the starting point of large-scale interest in Hanfu (Su, 2005). More and more Chinese people, especially young people, are interested in Hanfu. Expert 1-01 believed that the development of Hanfu in China is currently on a rapid rise. Moreover, four other experts have the same point of view.

However, most of the population must be made aware of Hanfu. Experts 1-06 pointed out several misconceptions regarding Hanfu in today's society. Many people regard Hanfu as merely old-fashioned dress or entertainment, ignoring the historical, cultural and artistic connotations behind it. This misunderstanding often stems from the unfamiliarity with traditional culture. For example, the lack of guidance in costume design of many costumes film and television dramas will cause the public's misperception (Expert 1-04). Even some interested in Hanfu need help accurately tell the difference between Hanfu and modern Hanfu. One of the eight Hanfu enthusiasts made it clear that he relies on his intuition to distinguish between modern Hanfu and Hanfu. Another one, although able to distinguish between Hanfu and modern Hanfu, needed help to tell the characteristics of traditional Hanfu in various eras, which could not be called an understanding of it.

i. Views on the influencing factors of modern Hanfu design

Commercialisation: The development of Hanfu, at the current stage, needs to be integrated with the commoditised market (Wang, 2014) and combined with people's everyday lifestyles. Reducing the complexity of the garment to make it more wearable,

increasing public participation and enhancing public interest are all expected avenues for the development of Hanfu. Expert 1-04 said, “It is important to enhance the trend of commercialisation of Hanfu so that the public receives the correct cultural connotations and effective design improvements. Consideration should also be given to enhancing the convenience of Hanfu design, focusing on the wearability of the design, as well as its compatibility with modern life.”

The path of commercialisation is very important for Hanfu’s sustainable development in modern society. As mentioned before, the innovative design of modern Hanfu design is inevitable. To study the reasons affecting the modern Hanfu design, it is necessary to understand people’s life preferences, personal characteristics and others. Kim classifies consumer image into two attributes, one consisting mainly of demographic factors and the other of psychological factors (Kim, 2010). Depending on demographic factors such as age, education, and gender, people may perceive and make decisions about the same thing differently.

Similarly, the perception of Hanfu and modern Hanfu can be influenced by demographic factors. The psychological factors consist mainly of abstract elements such as lifestyle and values. For example, lifestyle can affect one’s perception of traditional culture, significantly impacting clothing consumption (Sui & Zhao, 2021). The results of the in-depth interviews also confirm this. More than half of the respondents were interested in traditional culture or objects related to traditional culture.

The young generation in China would like to wear modern Hanfu, as there are many types of modern Hanfu. People with a gentle and introverted personality may prefer a more delicate style, such as the Ru skirt. The Wei and Jin dynasties may be more popular

with girls with brighter personalities. Those who are very into traditional culture prefer the Ming Dynasty style of Hanfu as it is very ornate (Expert 1-01). “I believe that buying and wearing Hanfu is based on a psychological need. Some people have consumer behaviour because they have a strong hobby. They are loyal consumers who know more about Hanfu culture and are more demanding of the product. When they wear Hanfu, always with the whole styling, which could show the original style of Hanfu.” Said Expert 1-03.

Design preference : Modern Hanfu is an inheritance and development of traditional Hanfu, representing a fusion of traditional culture and modern society. “It is possible to develop Hanfu styles that can be worn daily and adapted to the needs of different occasions. People need to wear easily.” Said Expert 1-07. Innovated modern Hanfu is more prevalent in everyday life because they are simple in structure, easy to wear and do not attract particular attention from passers-by. Therefore, the critical point is how to make improved designs for enthusiasts. “I prefer to wear innovative designs in my daily life. I think the restored style Hanfu is gorgeous, but it is not very convenient in everyday life, unlike the innovative designs more suited to everyday dressing needs.” Said Hanfu Enthusiast 2-02. The restored style of modern Hanfu is inconvenient in life, the dressing process is complicated, and people also need to consider accessories and hairstyles. The innovative Hanfu is more convenient and comfortable, and how people wear it is more casual (Hanfu Enthusiast 2-03). Two respondents also mentioned that people could mix and match and that in the modern world, people can wear Hanfu more freely and compare it with individual items to meet unique daily needs. There are many styles in restored style Hanfu that are suitable for everyday mix and match with, for example, a modern shirt on top and a Hanfu skirt underneath. Or a Song-style short shirt on top and contemporary trousers underneath (Hanfu Enthusiast 2-06).

Moreover, compared to the restored style of Hanfu, modern Hanfu draws little attention when people wear it. Most of the attention from passers-by when I travel in Hanfu, is out of curiosity rather than rejection or disgust. However, I feel more comfortable when no one looks at me, so I do not like wearing overly grand restored Hanfu.” Said Hanfu Enthusiast 2-03.

As people’s perceptions have changed in recent years, more people are demanding personalised products. Several interviewees in the in-depth interviews suggested that the industrial mass-produced modern Hanfu no longer meets people’s expectations. Therefore, by changing the product factors of modern Hanfu, including style, pattern, and colour, through interactive design, the user’s organism perception can be stimulated and given an exclusive and innovative design. The richness of the design elements of the application is the critical point the most talked about. Hanfu Enthusiast 2-03 emphasised that it offers many design elements for users to select, such as fabrics or patterns, even including details such as strings and pockets. Other respondents also have such needs. “I am very excited about this. It would be nice if it could have enough elements to inspire me and offer me choices as much as possible.”

Said Hanfu Enthusiast 2-02. “I would like to have many options to choose from. For example, if I were designing this dress, I would like it to have many shapes and styles, not just one or two.” Said Hanfu Enthusiast 2-04. When users create a unique modern Hanfu through interactive design, the product takes on a particular value and meaning. Most respondents look forward to participating in creating their modern Hanfu so that it can more fully reflect their personality. “I am very willing to participate in the interactive design.” Said Hanfu Enthusiast 2-07.

New technology: The use of new technology was also a topic of great interest to respondents. Expert 1-01 mentioned once that he saw an interactive machine at an ethnic minority museum. People could pick ethnic minority costumes to match in the device and see the instant effects. The device was exciting and impressed him, so he believed that if there were a similar convenient use of the interactive design of modern Hanfu, users would be attracted to it. Expert 1-05 emphasised the need for the interactive design of modern Hanfu to focus on the expression of Hanfu culture. Even if the plan is innovative, it should be consistent with the essential characteristics of traditional Hanfu. Otherwise, the significance of innovative modern Hanfu will be lost. Using traditional culture to empower modern design caters to young people's habits and learning styles and will have a substantial development value. There should be more emphasis on storytelling and life scenarios to increase the resonance of the user. A single garment maybe just a symbol that must be integrated into life, events, and rituals to be meaningful (Expert 1-03).

ii. Possibility of modern Hanfu interactive design applications

Correct information: Experts in the study of Hanfu culture believe that currently, the general public needs more knowledge of Hanfu culture. "Most people are not particularly clear about the concept of Hanfu." Said Expert 1-01. There are few channels for people to receive correct information about Hanfu culture. Modern Hanfu is a double-edged sword that could promote interest in Hanfu culture but could also lead to the transmission of misinformation. Many of the young generation's perception of modern Hanfu nowadays is influenced by films and TV shows. They do not know what the real Hanfu looks like and how to classify it (Hanfu Enthusiast 2-06). "No one can claim to know all about Hanfu, and even if they did, they would not be 100% sure that the

information is correct. That is why most people still need to learn the right knowledge about Hanfu.” Said Hanfu Enthusiast 2-03. People can only design better Hanfu if they understand the culture behind it (Hanfu Enthusiast 2-05).

Academic books, as one of the sources of access to Hanfu information, ensure that the data is accurate and systematic. The knowledge in books and literature is complete and detailed, which helps people to do in-depth research (Hanfu Enthusiast 2-02). “I think the sources from books and academic essays are more logical, based on some cultural relics or history; they are more objective and trustworthy.” Said Hanfu Enthusiast 2-03. However, it is more tedious and inconvenient for the public. “It (the knowledge in books and literature) takes much time and effort to access. It is unfriendly to some people just interested in Hanfu.” Said Hanfu Enthusiast 2-02. “Information from book sources is more reliable, but many books on the study of Hanfu are costly, and the text is more specialised than suitable for the public to understand Hanfu. Even though I am very interested in Hanfu, I rarely buy books on the subject. However, I read book reviews or essays, which are easier to understand than books.” Said Hanfu Enthusiast 2-06.

There are also two sides to the online information channel. The advantages are apparent, but the problems must be addressed. For example, social media also have a positive effect, and most Hanfu bloggers are working to promote the Hanfu culture. They encourage the excellent traditional culture and go out of their way to make more people aware of Hanfu, accept it and not treat it as a strange costume (Hanfu Enthusiast 2-03). However, Hanfu Enthusiast 2-03 thought that whether Douyin, Xiaohongshu or exchanges between friends, it is inevitable that personal opinions are mixed in, and there is no way to be sure of the accuracy of the information. Anywhere that allows free speech will have a

variety of views. Therefore, the most important thing is to maintain your independent judgement among the many ideas and not to be easily influenced by other people's opinions or dismiss them. Even if you encounter a controversial issue, find out more about it and research it yourself to get the answer. Where you get your information is secondary to learning and the ability to think independently (Hanfu Enthusiast 2-08).

Communication: There are many definitions of communication by scholars, and they can be classified into five categories: shared, process, image, interaction, and reflected. Many scholars agree that communication is the everyday act of sharing information (Zhang, 2021) and audiences communicating and starting discussions (Yao, 2009). Ethnic costumes have become cultural symbols in modern society and are challenging to wear except for special occasions (Li, 2013). Nowadays, the rapid development of both social science and economy has accentuated the lack of traditional culture and the de-seeking of national identity. It shows the necessity for the development of Hanfu communication. With the advent of electronic media such as radio and television, especially the internet, the distance in time and space between all people has been shortened, as if they were living in the same village (McLuhan, 1964), which has provided favourable conditions for the development of modern Hanfu communication.

People have a herd mentality, and when there is a higher degree of group consistency, more robust purchase behaviour may result (Yan, 2018). Experts 1-07 said that it is essential to focus on communication by lending mobile phone applications to complete the interactive design of modern Hanfu. The relationship between mobile phone applications and the Internet determines that it carries the attribute of communication. If the communication role of the application is given full play, more people will be interested

in the interactive design of modern Hanfu. Whether they are interested in Hanfu or feel interested in the function of interactive design, they can be transformed into users of modern Hanfu design.

Experts 1-04 shared a similar view, mentioning that using mobile phone applications to complete the modern Hanfu interactive design is an excellent idea, and it would be even better if social media could be added. Every day young people pay much attention to the role of social media, and enhancing the communication of modern Hanfu can promote the interactive design of modern Hanfu. Because the person who participates in the interactive format, the attitude of the people around him will also affect the user to a certain extent. “I care about the public's perception of the product because I feel that when you wear Hanfu, you not only need to feel good about yourself, but you also want the people around you to feel good about yourself.” Hanfu Enthusiast 2-03 said.

Design Quality: Common to all online interactive designs is that users do not have direct access to the actual product, especially in the case of apparel products, where the fabric and colour of the interactive design displayed online may be different from the actual product. Previous research has shown that the quality of the product itself has an impact on consumers’ perceived risk factors. That interaction significantly influences perceived value and risk (Pan et al., 2010). Regarding modern Hanfu interactive design quality, some respondents showed their worries. They worried about whether the contemporary Hanfu of their interactive design will be produced precisely followed (Hanfu Enthusiast 2-05). “I worried about the quality and fit. You cannot feel the texture of the fabric through the Internet, and you cannot be sure whether the style is right for you. These

will make me more hesitant. Even if I have an excellent interactive design idea, I cannot sure it will be produced.” Said Hanfu Enthusiast 2-02.

4.3 Quantitative Data Analysis

Quantitative research was done through a questionnaire survey. Statistical analysis of the data and structural equation testing was required after the data had been collected from the formal questionnaire. SPSS software analysed all respondents’ demographic variables and descriptive statistics for the observed variables. Validation factor analysis was then conducted using AMOS software to fit a modified structural equation model for this study, discuss the modified model and test whether the hypotheses were valid, and explore the correlations between the variables.

4.3.1 Descriptive Statistical Analysis of the Sample

In this study, information on the characteristics of potential users was derived by describing the sample’s frequency, mean and standard deviation. Descriptive analysis was then conducted on the sample variables to show each variable’s mean and standard deviation and to determine whether the sample data conformed to a normal distribution.

4.3.1.1 Demographic Characteristics Statistics

The demographic variables such as age, education, and income of the formal research questionnaire sample were statistically analysed to understand the essential information characteristics of potential users. This was collated into Table 4.2.

Table 4.2: Questionnaire Respondent Information

Content	Features	Sample Size	Percentage
Gender	Male	126	40
	Female	189	60
Age	under 20 age group	161	51.1
	21-30	124	39.4
	31-40	19	6
	41 and older age group	11	3.5
Education Level	High School and below	4	1.3
	College	94	29.8
	Undergraduate	199	63.2
	Master and above	18	5.7
Monthly Income	2000 and under	219	69.5
	2001-4000	44	14
	4001-6000	23	7.3
	6001 and above	29	9.2

As shown in the table above (Table 4.3), regarding gender, the research respondents were mainly female, accounting for 60% of the total sample and being the

leading group of Hanfu enthusiasts. Males, at 40%, were not as big as women, but they were also a group that could not be ignored.

In terms of age, the analysis showed that those interested in Hanfu were mainly concentrated in the groups under 20 and 21-30 period, with 51.1% of the under 20 age group and 39.4% of the 21-30 age group. The 31-40 age group and the 41 and older age group were minority. The data aligns with the situation described in the literature on Hanfu in Chapter 2, where the younger age groups and females are the majority of those interested in Hanfu.

Regarding education, the main focus was on the bachelor's degree, accounting for 63.2%, indicating that people with higher education were more receptive to Hanfu. Regarding monthly income, 69.5% of the respondents had a monthly payment of less than RMB 2,000, proving that this group does not have enough potential consumption power for Hanfu purchasing.

4.3.1.2 Statistical Analysis of General Information

Through the survey on the frequency of browsing Hanfu, browsing methods, and attention time, it can be analysed the Hanfu enthusiasts' knowledge mastery of Hanfu.

The frequency of respondents actively browsing information related to Hanfu was distributed evenly. More than once a week, on average once a month, no more than ten times a year, and less than once a year accounted for 14%, 22%, 32.4%, and 31.4%, respectively. It proves that the need for information on Hanfu is the same.

In terms of the way they were used to browsing information on Hanfu, the most popular choice among respondents was to read it mainly by receiving random

recommendations online, accounting for 46%, followed by a passing interest when browsing other information accounting for 27.6%, proving that although people are clear about the importance of Hanfu knowledge, they lack the motivation to learn it on their own and need guidance and opportunities to get information related to Hanfu. Specialised searches accounted for 19.4% and others for 7%, with answers focused on school classes and sharing by friends.

On how long they have been following or wearing Hanfu products, 51.7% of respondents have answered less than a year. Those who have been following for 1-2 years, 2-3 years, and more than three years accounted for 23.2%, 11.1%, and 14%, respectively, which is a testament to how quickly the number of Hanfu enthusiasts has risen recent years (Figure 4.3).

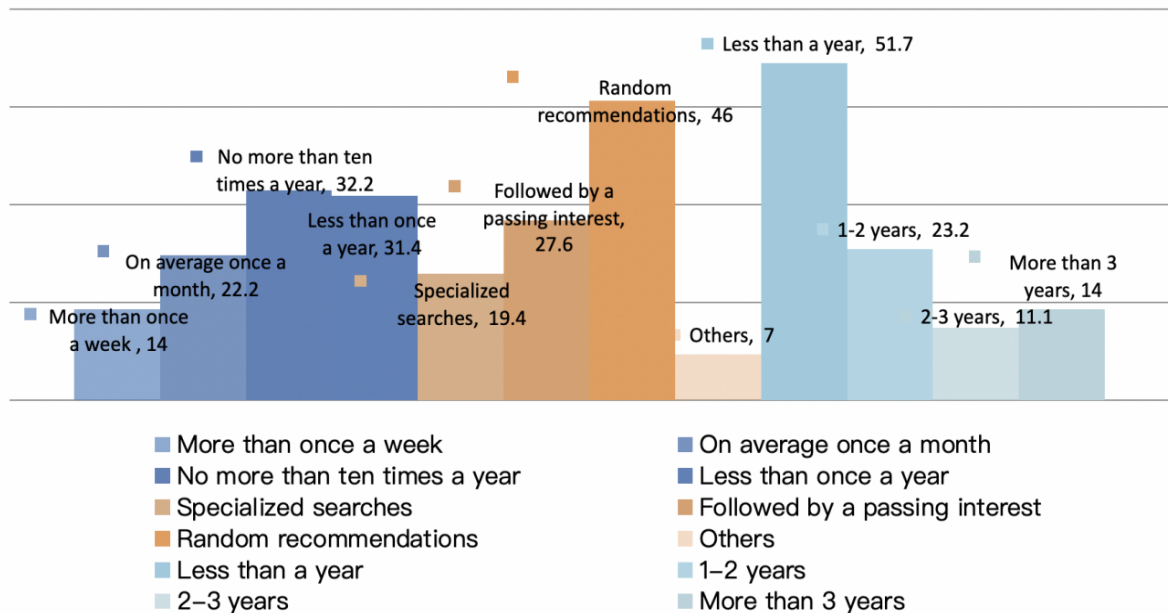


Figure 4.3: The Analysis of Browsing Information Related to Hanfu

4.3.1.3 Descriptive Statistics of the Observed Variables

Descriptive statistics were analysed using SPSS software for the scale part of the questionnaire, including minimal, maximal, mean, and standard deviation values (Table 4.3).

Table 4.3: The Descriptive Statistics

	Question Name	Mean	Standard Deviation	Minimal	Maximal
Life Preference Factors	Life preference 1	4.14	0.856	1	5
	Life preference 2	4.04	1.027	1	5
	Life preference 3	3.97	1.004	1	5
Interactive Design Factors	Interactive Design 1	3.98	1.097	1	5
	Interactive Design 2	3.75	1.11	1	5
	Interactive Design 3	3.86	1.152	1	5
	Interactive Design 4	3.83	0.866	1	5
	Interactive Design 5	3.78	0.87	1	5
	Interactive Design 6	3.89	0.876	1	5
Education Information Factors	Education Information 1	3.99	0.971	1	5
	Education Information 2	4.01	0.938	1	5
	Education Information 3	3.92	1.019	1	5

Table 4.3 continued

Perceived Value	Functional Value 1	4.12	0.884	1	5
	Functional Value 2	3.83	1.004	1	5
	Functional Value 3	4.02	0.924	1	5
	Functional Value 4	4.02	0.843	1	5
	Functional Value 5	3.85	0.82	1	5
	Emotional Value 1	4.03	1	1	5
	Emotional Value 2	3.89	1.019	1	5
	Emotional Value 3	3.93	1.067	1	5
Perceived Risk	Perceived Risk 1	2.45	1.244	1	5
	Perceived Risk 2	2.63	1.273	1	5
	Perceived Risk 3	2.55	1.231	1	5
	Perceived Risk 4	2.54	1.047	1	5
	Perceived Risk 5	2.47	1.047	1	5
Willingness	Willingness 1	3.84	1.147	1	5
	Willingness 2	4.00	1.144	1	5
	Willingness 3	3.89	1.114	1	5

As seen from Table 4.4, the scores on life preference, interactive design factors, educational information factors, functional value factors, emotional value factors and willingness to use or buy elements were all greater than 3, except for perceived risk factors. On perceived risk factors, the scores were lower. The sample data for this study conformed to a normal distribution.

4.3.1.4 Reliability and Validity Tests of the Scales

Reliability Tests: The sample data were analysed using SPSS for reliability tests. The reliability test results indicated that the scale's internal consistency, reliability, and stability were good (Table 4.4).

Table 4.4: The Reliability Test Results

Life Preference Factors	Question Name	CITC	Deleted α factor	Cronbach α
	Life Preference 1	0.661	0.710	0.799
	Life Preference 2	0.632	0.741	
	Life Preference 3	0.652	0.728	
Interactive Design Factors	Question Name	CITC	Deleted α factor	Cronbach α
	Interactive Design 1	0.759	0.901	0.915
	Interactive Design 2	0.735	0.905	
	Interactive Design 3	0.762	0.901	
	Interactive Design 4	0.777	0.899	

Table 4.4 continued

	Interactive Design 5	0.781	0.899	
	Interactive Design 6	0.811	0.895	
Education Information Factors	Question Name	CITC	Deleted α factor	Cronbach α
	Education Information 1	0.722	0.789	0.851
	Education Information2	0.739	0.775	
	Education Information 3	0.702	0.811	
Perceived Value	Question Name	CITC	Deleted α factor	Cronbach α
	Functional Value 1	0.709	0.887	0.9
	Functional Value 2	0.718	0.888	
	Functional Value 3	0.779	0.872	
	Functional Value 5	0.747	0.88	
	Question Name	CITC	Deleted α factor	Cronbach α
	Emotional Value 1	0.742	0.708	0.828
	Emotional Value 2	0.673	0.776	
	Emotional Value 3	0.647	0.803	

Table 4.4 continued

Perceived Risk	Question Name	CITC	Deleted α factor	Cronbach α
	Perceived Risk 1	0.795	0.924	0.933
	Perceived Risk 2	0.853	0.912	
	Perceived Risk 3	0.828	0.917	
	Perceived Risk 4	0.869	0.911	
	Perceived Risk 5	0.79	0.925	
Willingness	Question Name	CITC	Deleted α factor	Cronbach α
	Willingness 1	0.69	0.794	0.841
	Willingness 2	0.668	0.815	
	Willingness 3	0.761	0.726	

As shown in Table 4.5, the Cronbach's alpha coefficient is 0.799 for life preferences factors, 0.915 for interactive design factors, 0.851 for educational information factors, 0.900 for functional value factors, 0.828 for emotional value factors, 0.933 for perceived risk factors, and 0.933 for use or purchase factors. The Cronbach's alpha coefficients for all variables were above 0.7, indicating that the scales had high reliability.

Validity Tests: The validity of the questionnaire can be judged in terms of content and structural validity. In terms of content validity, the questionnaire in this study was created based on the analysis of relevant academic research results and in-depth interviews.

It was also revised after the pre-survey questionnaire, thus having good content reliability. The method of structural reliability analysis was consistent with the pre-research approach. The study of life preferences factors, interactive design factors, educational information factors, functional value factors, emotional value factors, perceived risk factors, and willingness to use or purchase factors formed the entire scale for the KMO and Bartlett's sphericity tests, the results of which are shown in the table below (Table 4.5).

With a KMO coefficient of 0.878 and Bartlett's sphericity test significance coefficient of 0.000, the validity criteria were met, and the sample data were suitable for factor analysis.

Table 4.5: KMO and Bartlett's Test of Sphericity

KMO MSA		0.878
Bartlett sphericity test	Approximate chi-square	5778.509
	Df	378
	Sig.	0.000

The analysis results in the table showed that the scale extracted five common factors, which explained 75.541% of the variables (more than 60%), reflecting the practical design of the scale dimensions. The loadings of each indicator item on its respective factor were more outstanding than 0.6, indicating that the scale has good construct validity (Table 4.6).

Table 4.6: The Orthogonal Rotation Component Matrix of the Scale Nine

Variables	Question Name	Component						
		1	2	3	4	5	6	7
Life Preference Factors	Life Preference 1							0.824
	Life Preference 2							0.810
	Life Preference 3							0.773
Interactive Design Factors	Interactive Design 1	0.791						
	Interactive Design 2	0.787						
	Interactive Design 3	0.811						
	Interactive Design 4	0.808						
	Interactive Design 5	0.811						
	Interactive Design 6	0.859						
Education Information	Education					0.807		
	Information 1							

Table 4.6 continued

Factors	Education Information 2					0.864		
	Education Information 3					0.760		
Perceived Value	Functional Value 1			0.761				
	Functional Value 2			0.737				
	Functional Value 3			0.817				
	Functional Value 4			0.831				
	Functional Value 5			0.814				
Perceived Risk	Perceived Risk 1		0.851					
	Perceived Risk 2		0.897					
	Perceived Risk 3		0.889					
	Perceived Risk 4		0.907					
	Perceived Risk 5		0.848					

Table 4.6 continued

Willingness	Willingness 1				0.837			
	Willingness 2				0.842			
	Willingness 3				0.870			
Eigenvalues		4.39	4.04	3.69	2.35	2.25	2.23	2.20
Variance %		15.69	14.42	13.18	8.41	8.04	7.95	7.85
Cumulative %		15.689	30.11	43.29	51.70	59.74	67.69	75.54

4.3.1.5 Confirmatory Factor Analysis

Based on the exploratory factors, the convergent validity of the scale will be tested next. A Confirmatory Factor Analysis (CFA) was conducted to validate that the model structure proposed in this study was consistent with the data obtained. Validation factor analysis was performed using AMOS 23.0 to test the validity of the variables, correct the fitted model and test the significance of the relationship between each of the two sides, and ultimately obtain the relationship of influence between the variables and the revised model.

4.3.1.6 Model Construction

The distribution of fit indicators for the scale was χ^2/df of 1.941, which was less than 3, RMSEA of 0.055, which was less than 0.08, CFI of 0.945, IFI of 0.945, and TLI of 0.893, all greater than 0.9, indicating a good model fit (Figure 4.4).

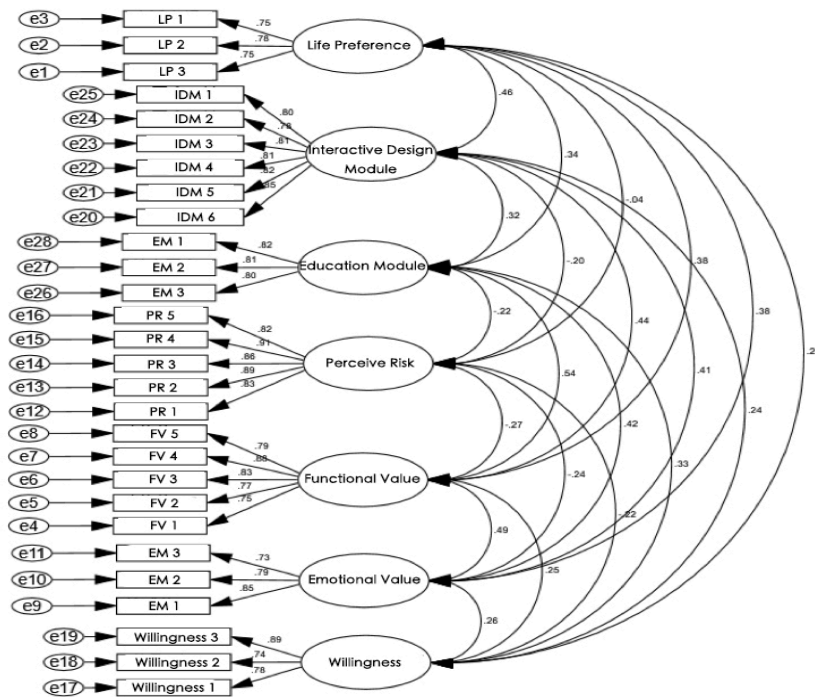


Figure 4.4: The Model Fit

The table below (Table 4.7) shows the output CFA model parameter estimates. The standardised estimated parameters in the last column of the table are the factor loadings, and the critical ratio is the value of the parameter estimates to the standard error. When the required balance is more significant than 1.96, the p-value is indicated by “***”. The CFA model estimation table shows no negative values for the unstandardised parameter estimates and harmful standard errors for each question item at a significant level,

indicating that the model is of good intrinsic quality and does not violate the identification rules.

Table 4.7: Results of the Validation Factor Analysis

Question Name	S.E. Standard Error	C.R. Critical Ratio	Significance P-value	Standardized Factor Loadings
Life preference 1				0.749
Life preference 2	0.106	11.729	***	0.780
Life preference 3	0.102	11.496	***	0.748
Interactive Design1				0.800
Interactive Design2	0.065	15.218	***	0.777
Interactive Design3	0.066	16.080	***	0.810
Interactive Design4	0.050	16.050	***	0.809
Interactive Design5	0.050	16.462	***	0.825

Table 4.7 continued

Interactive Design6	0.050	17.104	***	0.848
Educational Information Factor 1				0.820
Educational Information Factor 2	0.065	14.775	***	0.813
Educational Information Factor 3	0.070	14.554	***	0.798
Functional Value 1				0.748
Functional Value 2	0.085	13.802	***	0.770
Functional Value 3	0.077	15.059	***	0.834
Functional Value 4	0.070	16.030	***	0.885
Functional Value 5	0.069	14.258	***	0.793
Emotional Value 1				0.850
Emotional Value 2	0.068	13.987	***	0.788

Table 4.7 continued

Emotional Value 3	0.070	13.082	***	0.730
Perceived Risk 1				0.831
Perceived Risk 2	0.055	20.042	***	0.890
Perceived Risk 3	0.054	19.069	***	0.863
Perceived Risk 4	0.044	20.611	***	0.905
Perceived Risk 5	0.047	17.687	***	0.823
Willingness 1				0.782
Willingness 2	0.072	13.068	***	0.740
Willingness 3	0.077	14.224	***	0.887

4.3.1.7 Model Design

To further validate model reliability, the initial model regression coefficients output by the AMOS software were analysed in the table below. Calculating the combined reliability and convergent validity of the structural equation models required estimating the model parameters before using the factor loading values to calculate the combined reliability and concurrent validity values. The unrestricted model was used to perform the confirmatory factor analysis.

From the table (Table 4.8), it can be seen that the factor coefficients of life preferences factors, interactive design factors, educational factors, functional value factors, emotional value factors, perceived risk factors, and willingness to use or buy elements

correspond to each question item are all above 0.5, indicating that each latent variable corresponding to the question item to which it belongs is somewhat representative. In addition, the Average Variance Extracted (AVE) of life preferences factors, interactive design factors, Educational Information factors, functional value factors, emotional value factors, perceived risk factors, and willingness to use or buy elements are all greater than 0.5. The Composite Reliability is more significant than 0.7, indicating that the convergent validity of all aspects is satisfactory.

Table 4.8: Results of Convergent Validity Analysis

Variables	Question Name	Factor Loadings	Mean Variance Extraction	Combined Reliability
Life Preference	Life Preference 1	0.749	0.576	0.803
	Life Preference 2	0.780		
	Life Preference 3	0.748		
Interactive Design	Interactive Design 1	0.800	0.659	0.921
	Interactive Design 2	0.777		
	Interactive Design 3	0.810		
	Interactive Design 4	0.809		
	Interactive Design 5	0.825		
	Interactive Design 6	0.848		

Table 4.8 continued

Educational Information	Educational Information 1	0.820	0.657	0.852
	Educational Information 2	0.813		
	Educational Information 3	0.798		
Perceived Value	Functional Value 1	0.748	0.652	0.903
	Functional Value 2	0.770		
	Functional Value 3	0.834		
	Functional Value 4	0.885		
	Functional Value 5	0.793		
	Emotional Value 1	0.850	0.625	0.833
	Emotional Value 2	0.788		
	Emotional Value 3	0.730		
Perceived Risk	Perceived Risk 1	0.831	0.745	0.936
	Perceived Risk 2	0.890		
	Perceived Risk 3	0.863		
	Perceived Risk 4	0.905		

Table 4.8 continued

	Perceived Risk 5	0.823		
Willingness	Willingness 1	0.782	0.649	0.846
	Willingness 2	0.740		
	Willingness 3	0.887		

4.3.1.8 Discriminant Validity

From the table below (Table 4.9), it can be seen that except for no significant correlation between perceived risk factors and life preferences factors, there is a significant correlation between life preferences factors, interactive design factors, educational information factors, functional value factors, emotional value factors, perceived risk factors, and intention to use or purchase elements ($p < 0.01$). In addition, the correlation coefficients between the latent variables are all smaller than the square root of AVE, indicating that each latent variable has a specific correlation with the other and is also distinguishable. Therefore, the latent variables have good discriminant validity.

Table 4.9: Results of Discriminant Validity Analysis

	1	2	3	4	5	6	7
Life Preferences	0.759						

Table 4.9 continued

Interactive Design	0.458**	0.812					
Educational Information	0.343**	0.324**	0.811				
Functional Value	0.381**	0.438**	0.54**	0.807			
Emotional Value	0.382**	0.411**	0.421**	0.493**	0.791		
Perceived Risk	-0.045	- 0.202**	- 0.216**	- 0.266**	- 0.237**	0.863	
Willingness	0.225**	0.237**	0.329**	0.253**	0.264**	-0.218**	0.806

Note: ** represents $p < 0.01$. * represents $p < 0.05$, diagonal line is square root of AVE

4.3.2 Path Testing

The confirmatory factor analysis was conducted in the previous section to ensure that each measured variable of the latent variables met the reliability and validity requirements. After the validation, it was necessary to construct the initial model of the antecedent variable-mediator variable-dependent variable, built by analysing the correlations between each latent variable, fitting the model, plotting the correlations in this paper, and testing the hypotheses.

4.3.2.1 Initial Model

The hypothetical path is the users' life preferences factor, the interactive design factor and the educational information factor of the application directly and positively influence the perceived value factor and the perceived risk factor, respectively; the perceived functional value factor, the perceived emotional value factor and the perceived risk factor directly influence the willingness to use or purchase factor; and the perceived risk factor negatively impacts the perceived value factor and the desire to use or purchase factor.

There are three questions on the user life preferences factors, six questions on the interaction design factors, three questions on the educational information factors, five questions on the functional value factors, three questions on the emotional value factors, five questions on the perceived risk factors and three questions on the dependent variable.

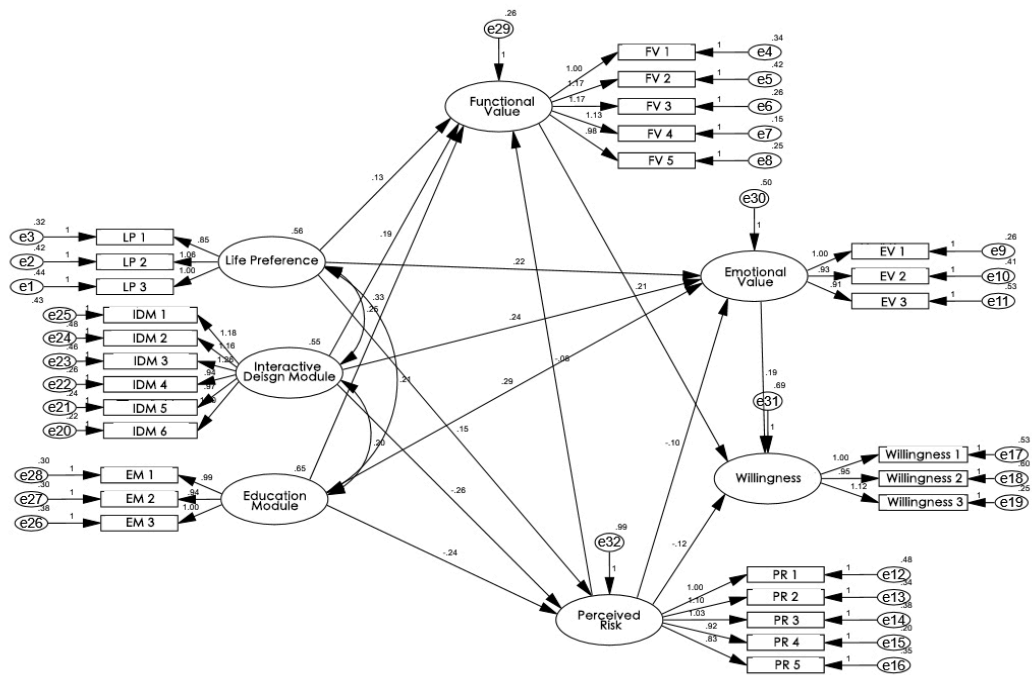


Figure 4.5: The Unstandardized Initial Model

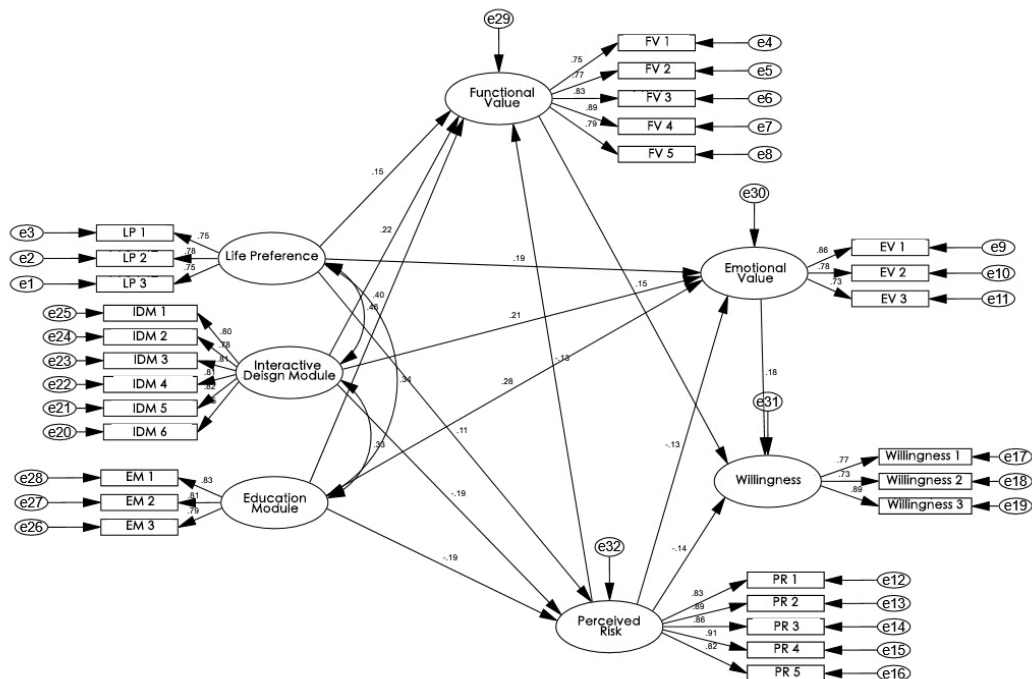


Figure 4.6: The Standardized Initial Model

The AMOS software was used to map the paths of the variables. The initial unstandardised model has the life preferences factor, the interaction design factor, and the educational information factor as antecedent variables, the users' perceived value factor, the perceived risk factor as mediating variables, and the intention to use or buy as dependent variables (Table 4.10).

Table 4.10: Table of Initial Model Fit Coefficients

Fitted Indicators	Acceptable Range	Measured Value
CMIN/DF	<3	1.987
GFI	>0.8	0.872
RMSEA	<0.08	0.056
IFI	>0.9	0.942
NFI	>0.8	0.889
TLI(NNFI)	>0.9	0.933
CFI	>0.9	0.941

As shown in Table 4.11, the χ^2/df value for the initial model is 1.987, less than 3, and the fit is ideal. RMSEA is the root mean squared error of approximation, the acceptance criterion is less than 0.1, and the excellent standard is less than 0.08. The current value of RMSEA is 0.056, which is less than 0.08, which means the fit is ideal. GFI is the goodness of fit index, AGFI is the modified goodness of appropriate index, CFI is

the comparative healthy index, NFI is the standard-fit index, and IFI is the incremental suitable index. The acceptable criteria are 0.7-0.9, with good standards more significant than 0.9. The value of GFI in this study is 0.916, more critical than 0.8, which is an ideal fit; the importance of IFI is 0.948, more significant than 0.9, which is a perfect fit; the importance of CFI is 0.941, more potent than 0.9, which is a perfect fit; the importance of NFI is 0.941, more critical than 0.9, which is a perfect fit; and the importance of CFI is 0.941, more significant than 0.9, which is an ideal fit. The importance of NFI is 0.889, which is more potent than 0.9 and is a perfect fit; the importance of TLI is 0.933, which is more important than 0.9 and is a good fit. All correlation values are within acceptable limits, i.e., the overall model fit is reasonable.

Model correction in AMOS is divided into three steps. The first step is to remove the ways that do not reach the significance level. The second step is to remove paths that do not make sense. If the positive or negative relationship between the way coefficients in the model is opposite to the theoretical literature, then the path coefficients should be removed. The final step is MI correction, which means adding or restricting paths (Table 4.11).

Table 4.11: Results of Path Testing

Path Relationships	Unstandardized Estimate	Standardized Estimate	S.E. Standard Error	C.R. Critical Ratio	P
Life Preferences -Perceived Risk	0.148	0.108	0.105	1.412	0.158

Table 4.11 continued

Life Preferences -Functional Value	0.129	0.147	0.058	2.224	0.026
Life Preferences -Emotional Value	0.222	0.195	0.084	2.651	0.008
Interactive Design Factors -Perceived Risk	-0.265	-0.190	0.099	-2.686	0.007
Interactive Design Factors -Functional Value	0.193	0.217	0.055	3.495	***
Interactive Design Factors -Emotional Value	0.244	0.212	0.079	3.105	0.002
Educational Information Factors -Perceived Risk	-0.244	-0.191	0.088	-2.773	0.006

Table 4.11 continued

Educational Information Factors -Functional Value	0.326	0.400	0.053	6.170	***
Educational Information Factors -Emotional Value	0.292	0.276	0.071	4.115	***
Perceived Risk -Functional Value	-0.083	-0.131	0.034	-2.481	0.013
Perceived Risk -Emotional Value	-0.104	-0.126	0.048	-2.163	0.031

Note: *** represents $p < 0.001$. ** represents $p < 0.01$. * represents $p < 0.05$

Table 4.11 shows no significant positive influence of life preferences factors on perceived risk factors. The correlation coefficient of this path is too low, so the insignificant way, which is life preferences factors - perceived risk factors, is deleted to

obtain the model Figure 4.6. The MI correction is the addition of columns, i.e., the expansion of correlations or the deletion of statements in the model. The corresponding chi-square values will be reduced, and the indicators of model fitness will be increased.

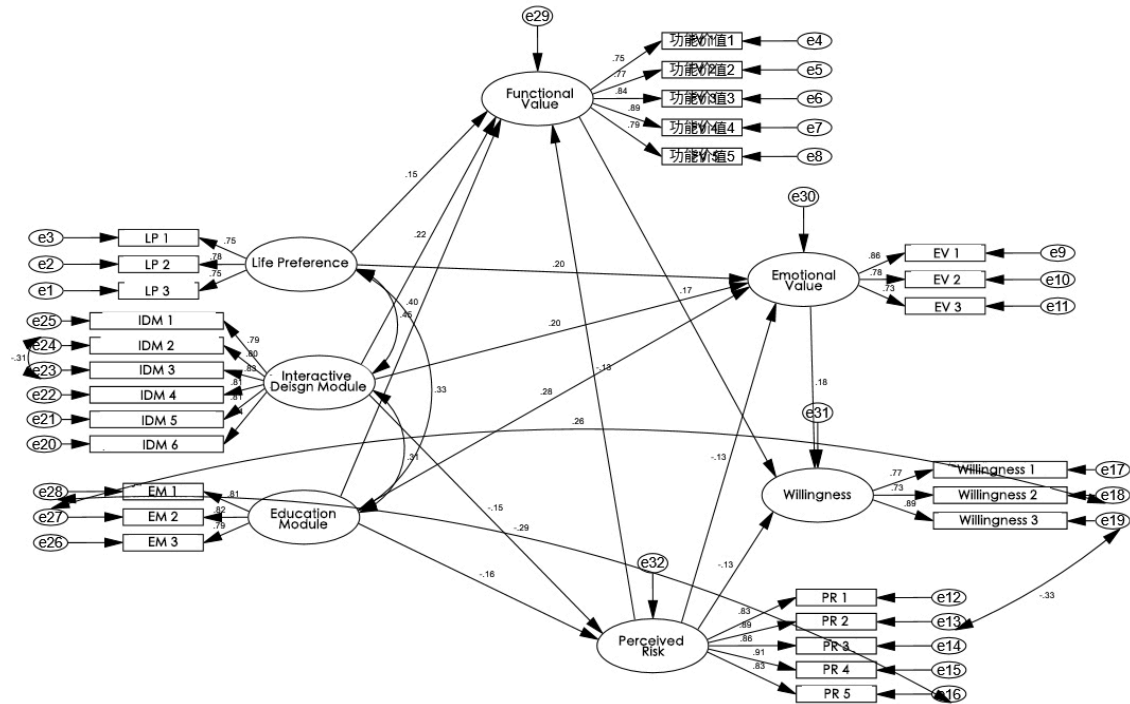


Figure 4.7: The Modified Standardized Model

From Table 4.12, the value of χ^2/pdf for the modified model is 1.818, less than 3, and the fit is ideal. The value of RMSEA is 0.051, which is less than 0.08, and the fit is perfect. The GFI value is 0.883, more significant than 0.8, and the fit is perfect. IFI value is 0.952, more critical than 0.9, an ideal fit. The importance is 0.952 for CFI, more significant than 0.9 and suitable for adaptation. NFI value is 0.900, leading to a good fit. The matter is

0.945 for TLI, which is more important than 0.9, which is a perfect fit. All the correlation values are within the acceptable range, i.e., the overall model is reasonably well-fitted.

Table 4.12: Table of Modified Model Fit Coefficients

Fitted indicators	Acceptable Range	Measured Value
CMIN/DF	<3	1.818
GFI	>0.8	0.883
RMSEA	<0.08	0.051
IFI	>0.9	0.952
NFI	>0.8	0.900
TLI(NNFI)	>0.9	0.945
CFI	>0.9	0.952

From the table below (Table 4.13), the standardised path coefficient of life preferences factors on functional values characteristics is 0.150 and $p < 0.05$, indicating that there is a significant favourable influence of life preferences factors on applicable values factors; the standardised path coefficient of life preferences factors on emotional values factors is 0.201 and $p < 0.05$, indicating that there is a significant favourable influence of life preferences on dynamic values.

Table 4.13: Path Coefficient

Path Relationships	Unstandardized Estimate	Standardized Estimate	S.E. Standard Error	C.R. Critical Ratio	P
Life Preferences - Functional Value	0.132	0.150	0.057	2.317	0.021
Life Preferences - Emotional Value	0.230	0.201	0.083	2.783	0.005
Interactive Design Factors -Perceived Risk	-0.206	-0.147	0.088	-2.339	0.019
Interactive Design Factors -Functional Value	0.199	0.222	0.054	3.656	***
Interactive Design Factors -Emotional Value	0.238	0.204	0.078	3.064	0.002
Educational Information Factors -Perceived Risk	-0.208	-0.162	0.084	-2.465	0.014

Table 4.13 continued

Educational Information Factors -Functional Value	0.331	0.404	0.052	6.357	***
Educational Information Factors -Emotional Value	0.297	0.280	0.070	4.243	***
Perceived Risk - Functional Value	-0.083	-0.130	0.033	-2.505	0.012
Perceived Risk - Emotional Value	-0.104	-0.125	0.047	-2.190	0.029
Functional Value - Willingness	0.226	0.170	0.091	2.496	0.013
Emotional Value - Willingness	0.181	0.176	0.072	2.528	0.011
Perceived Risk - Willingness	-0.108	-0.127	0.054	-2.002	0.045

Therefore, the results of the hypothesis test are as follows.

H₁: Life preferences have a positive impact on functional value. -Valid.

H₂: Life preferences have a positive impact on emotional value. -Valid.

H₃: Life preferences have a negative impact on perceived risk. -Not valid.

The standardised path coefficient of the interactive design factors on the perceived risk factors is -0.147 and $p < 0.05$. This result indicates a significant negative influence of the interactive design factors on the perceived risk factors. The standardised path coefficient of the interactive design factors on the functional value factors is 0.222 and $p < 0.05$. It indicates that there is a significant favourable influence on them. The standardised path coefficient of the interactive design factors on the affective value factors is 0.204 and $p < 0.05$. It illustrates the significant favourable influence of the interactive design factors on the affective value factors.

This leads to the validity of the following hypotheses.

H₄: The interactive design has a positive impact on functional value. -Valid.

H₅: The interactive design has a positive impact on emotional value. -Valid.

H₆: The interactive design has a negative impact on perceived risk. -Valid.

The standardised path coefficient for education information factors on perceived risk factors is -0.162 and $p < 0.05$, indicating a significant negative effect of education information factors on perceived risk factors. The standardised path coefficient for education information factors on functional value factors is 0.404 and $p < 0.05$, indicating a significant positive effect on them. The standardised path coefficient for education information factors on emotional value factors is 0.280 and $p < 0.05$, which showed a powerful favourable influence of education information factors on affective value factors.

Therefore, the hypotheses followed are valid.

H₇: The educational information has a positive effect on functional value. -Valid.

H₈: The educational information has a positive effect on emotional value. -Valid.

H₉: The educational information has a negative effect on perceived risk. -Valid.

The standardised path coefficient of functional value factors on willingness elements is 0.170 and $p < 0.05$. This result indicates that applicable value factors have a significant favourable influence on the willingness factor. The standardised path coefficient of the emotional value factors on the willingness factor is 0.176 and $p < 0.05$, indicating a significant positive effect of the emotional value factors on the willingness factor. In addition, the standardised path coefficient of the perceived risk factors on the willingness factor is -0.127 and $p < 0.05$, indicating a significant negative effect of perceived risk factors on the willingness factor. Based on the results above, it can be judged that the hypotheses are valid.

H₁₀: The functional value has a positive impact on willingness. -Valid.

H₁₁: The functional value has a negative impact on perceived risk. -Valid.

H₁₂: The emotional value has a positive impact on willingness. -Valid.

The standardised path coefficient for perceived risk factors on functional value factors is -0.130 and $p < 0.05$, indicating a significant adverse effect. The standardised path coefficient for perceived risk factors on emotional value factors is -0.125 and $p < 0.05$, showing a significant positive impact on emotional value factors.

H₁₃: Perceived risk has a negative impact on willingness. -Valid.

H₁₄: Perceived risk has a negative impact on functional value. -Valid.

H₁₅: Perceived risk has a negative impact on the emotional value. -Valid.

4.3.2.2 Analysis of Variability

The analysis of variance (ANOVA) was used to examine the difference between gender on the functional and emotional value factors, and the results show that the different gender samples showed significance ($p < 0.05$) for both the practical value factors and emotional value factors.

This result implies differences between the gender samples for functional and emotional value factors. Specifically, gender shows a 0.01 level of significance for the practical value factor ($F=10.780$, $p=0.001$), and the specific difference in comparison shows that the male mean (3.80) was significantly lower than the female mean (4.08). Gender shows a 0.01 level of significance ($F=14.874$, $p=0.000$) for emotional value factors, with the male standard (3.72) being significantly lower than the female mean (Table 4.14).

Table 4.14: ANOVA Results-Results of Gender Variance Analysis

Analysis Item	Item	Sample size	Mean	Standard deviation	F	P
Functional Value A	Male	126	3.8	0.8	10.78	0.001*
	Female	189	4.08	0.71		
	Total	315	3.97	0.76		

Table 4.14 continued

Emotional Value A	Male	126	3.72	1	14.874	0.000* *
	Female	189	4.1	0.77		
	Total	315	3.95	0.89		
* p<0.05 ** p<0.01						

Analysis of variance (ANOVA) was used to investigate the variability of the age factor on functional and affective values.

The table below (Table 4.15) shows that the different age samples showed significance ($p<0.05$) for both the functional value factors and the emotional value factors. Specifically, the age difference for the practical value factors is significant at the 0.01 level ($F=7.814$, $p=0.000$), and the mean scores of the groups with more notable differences are 20 and under age group > 21-30 age group; 20 and under age group > 31-40 age group; 20 and under age group > 41 and older age group; 21-30 age group > 41 and older age group. Age differences for the affective value factors are significant at the 0.01 level ($F=32.159$, $p=0.000$), and the mean scores of the groups with more significant differences are 20 and under age group > 21-30 age group; 20 and under age group > 31-40 age group; 20 and under age group > 41 and older age group; 21-30 age group > 31-40 age group; 21-30 age group > 41 and older age group. This proves that the 20 and under age group has significantly more functional and emotional value factors than the other ages.

Table 4.15: ANOVA Results-Results of Age Variance Analysis

Analysis Item	Item	Sample Size	Mean	Standard Deviation	F	p
Functional Value A	20 and under age group	161	4.13	0.64	7.814	0.000* *
	21-30 age group	124	3.86	0.78		
	31-40 age group	19	3.69	0.95		
	41 and older age group	11	3.27	1.1		
	Total	315	3.97	0.76		
Emotional Value A	20 and under age group	161	4.26	0.58	32.159	0.000**
	21-30 age group	124	3.82	0.85		
	31-40 age group	19	2.89	1.41		
	41 and older age group	11	2.61	1.08		
	Total	315	3.95	0.89		
* p<0.05 ** p<0.01						

4.4 Chapter Summary

In this chapter, the data gathered from both qualitative and quantitative studies, which serve as the foundation for the discussion in the following chapter. The qualitative study involved conducting semi-structured interviews with Hanfu experts and enthusiasts to gather their opinions. The interviews were transcribed and translated into textual data, which was then analysed thematically using NVivo software. Through this analysis, it identified three main themes: attitudes towards modern Hanfu design among young generation in China, factors that influence modern Hanfu interactive design, and the feasibility of applying interactive design application of modern Hanfu. The data showed most young Chinese young people consider modern Hanfu design to be culturally and aesthetically significant. However, many still lack sufficient knowledge about it. Commercialisation, design preferences, and new technology were identified as important factors that influence modern Hanfu design. When it comes to the feasibility of interactive design applications for modern Hanfu, respondents emphasised the importance of having accurate information while not overlooking communication and design quality.

In this study, a questionnaire was used to gather information from 315 participants. The quantitative research aimed to investigate the factors that influence the use of applications for designing modern Hanfu and the relationships between these factors. To analyse the data, SPSS and AMOS software were used. Firstly, the data was analysed descriptively to ensure that it was normally distributed. Then, a reliability test was conducted using SPSS, which showed good internal consistency, reliability, and stability of the scale. AMOS 23.0 was used to conduct a validation factor analysis to test the validity of the variables, revise the model, test the significance of the relationships between the

variables, and finally obtain the influence relationship between the variables and the revised model.

CHAPTER 5

FINDINGS AND DISCUSSION

5.1 Overview

This chapter will discuss the outcomes of the mixed research approach concerning the three research objectives. The findings of research objective one obtained by discussing both primary and secondary data. Achieving research objective two depends on combining the discussion of qualitative and quantitative results. Meanwhile, research objective three is primarily derived from the discussion of quantitative research outcomes, supported by qualitative research findings.

5.2 Research Objective One

The research aims to identify the current awareness of modern Hanfu design in China. A compilation of literature reviews and semi-structured interviews were conducted to examine it. Previous research by scholars on Chinese attitudes towards Hanfu has been summarised in the literature review chapter. It shows that many young Chinese people do not know much about Hanfu culture but think it is essential. The results of the semi-structured interviews and questionnaires will be discussed in conjunction with the literature study to fulfil research objective one.

5.2.1 The Importance of Modern Hanfu Design

This section summarises young Chinese perceptions of modern Hanfu design. As the clothing of the Han Chinese people, the importance of it is well recognised. However,

due to the changes in dynasties and environments in history, Hanfu has been changing. Furthermore, the development of Hanfu encountered a break due to historical reasons. These are the reasons why modern Hanfu design cannot be popularized.

With the in-depth promotion of traditional ethnic cultures in modern society, Hanfu has come back into people's view. Since 2002, more and more media have been reporting on Hanfu, which at first was to discuss the question of what is the traditional national costume of modern Han Chinese (Yang, 2020). As more people addressed this issue, Hanfu became more widely known. Both Experts and Hanfu Enthusiasts mentioned that Hanfu is undoubtedly very important for the young generation in China. Hanfu is an integral part of traditional Chinese culture, and its importance is not only reflected in the culture it contains but also in its aesthetic value (Expert 1-02, Expert 1-05, Expert 1-06).

Even today, most young Chinese people have heard of the term Hanfu, but not everyone knows its exact meaning (Jiao, 2021). Some individuals confuse Hanfu with other traditional clothing such as cheongsam, Tang suit, and film clothing. However, the cheongsam and Tang suit is the traditional costume of the Manchu people; the film clothing is for the stage effect and has no heritage culture (Expert 1-04). This directly leads to the definition of modern Hanfu design is even less understood. They only know that modern Hanfu design is closely related to Hanfu, but they do not know how to distinguish modern Hanfu design (Expert 1-06).

The number of young people who are willing to buy modern Hanfu is also increasing year by year, which represents that modern Hanfu is accepted by more people (Expert 1-01). Usually, young Chinese people wear modern Hanfu for festival events, memorable scenes, and photo shoots (Hanfu Enthusiast 2-05). They think Hanfu can

represent Chinese culture and look very good. Wearing Hanfu at a particular time and place can express their cultural attitude, and it is easy to resonate with people with similar hobbies (Hanfu Enthusiast 2-05). However, if people wear it daily, it will be less convenient (Hanfu Enthusiast 2-02).

Moreover, Hanfu is significant, and it is too easy to draw attention, which is different from what young people want (Hanfu Enthusiast 2-03). There are a small number of people who wear Hanfu in their daily life. Some wear them in sets because they value self-expression more than convenience. At the same time, they do not care about other people's eyes. Another group will mix and match Hanfu with modern clothes, which satisfies daily convenience and reflects their preference for traditional culture and aesthetics (Hanfu Enthusiast 2-06).

5.2.2 The Expectations of Modern Hanfu Design

Due to changes in the social environment at different times, people's aesthetics and dressing habits have changed. Therefore, after two thousand years of development, the Hanfu form has changed (Tian, 2021). The modern Hanfu is an adaptation to modern society that has emerged following the current development of society. It is an inheritance and promotion of traditional customs in historical action (Zhang, 2013). Everyday life is very fast-paced, people need to go to work or school every day, and it is impossible to wear layer after layer as intricately as the ancient people did. Modern Hanfu should keep up with the times and make its design more relevant to current needs. However, as a traditional costume, the basic features and spiritual connotations of the Hanfu need to be preserved because it is not Hanfu anymore if people innovate it arbitrarily (Liu, 2021).

Modern Hanfu design must carry the typical features of traditional Hanfu (Zhang, 2013). And the information about these features must be correct and historically accurate (Expert 1-04). At present, the young generation in China needs a more systematic understanding of Hanfu, even including some designers of modern Hanfu (Expert 1-07). Most of the contemporary Hanfu designs are those who sell current Hanfu products, and very few people know how to design modern Hanfu professionally (Zhang, 2016). Hanfu, as a concept of traditional custom in China, has been far away from people, and it is no longer possible to adapt to the modern, fast-paced life. However, as a kind of Chinese culture, it still has significant value and significance for the present fashion design (Wei et al., 2018). The modern Hanfu design is not to restore the Hanfu of a particular historical period but to make it more suitable for modern society while preserving its characteristics (Liu, 2021). While retaining the attributes of traditional Hanfu, it is closely related to the context and aesthetic features of the times. It is necessary and the only way to develop modern Hanfu to learn and master the cultural elements of Hanfu at a deep level, then selectively retain them, and use innovative thinking to study, borrow and integrate the aspects of Hanfu (Wei et al., 2018).

For modern Hanfu design, fashion designs inspired by Hanfu cultural elements benefit individuality and ethnicity (Expert 1-08). These fashionable designs should be aesthetically pleasing as the first requirement (Enthusiast 2-02), as this is what most modern Hanfu consumers care about. Six of eight respondents showed they would take the visual effect of modern Hanfu design as their primary consideration.

The use of interactive design to accomplish personalised customisation is also expected (Expert 1-01). The young generation expects to make the characteristics of Hanfu

combined with the needs of modern people to create new designs. To reach this expectation, some new technology can be used. The young generation in China understands costume culture, and customised ideas are becoming increasingly diversified. The trend of consumer-centred is becoming increasingly apparent, which means meeting consumers' personalised needs, and the rapid realisation of custom-made will become mainstream (Expert 1-05). This group of people pursue individuality and wants to be different. They understand traditional Hanfu (Hanfu Enthusiast 2-07). The use of interactive design can help them to complete a unique modern Hanfu design.

5.3 Research Objective Two

Research objective two is to analyse the suitability of using interactive design applications in educating and promoting Modern Hanfu for young generation in China. Semi-structured interviews and questionnaires will investigate the factors influencing users to disseminate and develop Hanfu in contemporary society. Through the questionnaire research and analysis, the hypotheses will be verified to confirm the suitability of the interactive applications to complete research objective two.

5.3.1 Lifestyle Preferences

Clothing is one of the manifestations of life, objectively reflecting the conditions and styles of different times and people (Liu, 2011). According to the quantitative study results, 79.1% of the 315 respondents who participated in the questionnaire liked Chinese culture, such as calligraphy, embroidery, Chinese painting, and tea. At the same time, different respondents in the qualitative study also mentioned that they were very fond of traditional culture. This suggests that most groups interested in Hanfu and modern Hanfu

share similar life preferences. They are usually more attracted to lifestyles with Chinese elements. For example, more than one Hanfu enthusiast preferred tea to coffee daily. They are more likely to practice calligraphy or go to a China painting exhibition than to relax by playing poker or hiking. For modern Hanfu design development, it is essential to pinpoint the targeting. Depending on the lifestyle, the potential audience of modern Hanfu design can be found more quickly. The interactive design applications will be more easily accepted if they have the UI design style favoured by this group of people.

5.3.2 Interactive Design

According to the interviews, respondents believed tradition and fashion were inextricably linked. Traditional Hanfu is a valuable material and spiritual asset that has lasted through the ages. It serves as a source of inspiration for contemporary Hanfu designs. According to respondents, while the traditional Hanfu looks nice, it is too grand and only appropriate for special occasions. The complexity of conventional Hanfu also limits the experiences of everyday dressing, leading to lower expectations of practicality, which affects people's acceptance of traditional Hanfu. People agree that modern Hanfu continues conventional Hanfu and can be suitably improved with contemporary features. The results of qualitative research show that modern design needs to incorporate trendy elements actively, focus on aesthetic guidance, maximise user creativity and combine traditional Hanfu elements with modern Hanfu design. From a design perspective, this situation requires a user-centred approach, considering providing a modern Hanfu with uniqueness and practicality to satisfy different users. Specifically, it requires a focus on the practical and functional design of modern Hanfu and the innovative method of traditional

costume features. Most respondents expressed their willingness to participate in the interactive design of contemporary Hanfu.

The interactive design provides personalised matching solutions based on consumers' preferences, guiding users to participate in the design process. Various design outcomes are generated through interactive design that can be tailored to the individual to maximise the user's need for a personalised plan. The study results showed that interactive design has a positive impact on functional and emotional value, as well as on the willingness to use or purchase. In response to question 38 of the questionnaire: "I would consider buying the costume if people around me approve of the modern Hanfu piece I designed interactively." 75.6% of people agreed or strongly agreed. Users combine clothing elements through interactive design according to their aesthetics to produce other final effects. This diversifies the design outcome, enhances the user's perceived functional value, and increases the user's willingness to use the application and the possibility of future consumption.

5.3.3 Educational Information

It is shown that the current academic research on Hanfu is still developing (Jiao, 2021). There is a need to enhance the theoretical research on traditional Hanfu culture (Sun & Xiong, 2022). The in-depth interviews also indicated that only some people deeply understood Hanfu and traditional culture. This is due to the need for a more conventional culture in everyday education. People will only recognise, accept, and disseminate Hanfu if the general public's familiarity and knowledge of traditional culture is improved (Expert 1-01). In the past, people used to rely on books and literature for new knowledge. However, this is not the case for the young generation in China. Born in an era of rapid information

development, they are accustomed to using the Internet and mobile applications to acquire knowledge. Hanfu Enthusiast 2-06 clearly stated that even though they know that books are more reliable, they give up buying Hanfu-related books because they are expensive or have too much content. Hanfu Enthusiast 2-02 also said that getting information about Hanfu through books is inconvenient. They all preferred the simple and direct way.

For this study, one of the essential purposes in developing the application is the dissemination of Hanfu knowledge to meet the user's need for content access. The result of question 20 of the questionnaire: "Interactive design application that incorporates information about traditional Hanfu information can help me to learn more about Hanfu culture." A total of 127 respondents agreed, and 106 strongly agreed. The overwhelming majority of all respondents agreed, demonstrating that the general public is aware of the importance of Hanfu knowledge dissemination. Eleven of the twelve respondents who participated in the in-depth interviews said an excellent need for knowledge dissemination of Hanfu. One of the interviewees suggested that the Educational Information in the application is not necessary. Because the interviewee thought that once people have already started customising Hanfu, they already know something about it.

The vast majority of respondents indicated a positive attitude in question 21: "When browsing information about Hanfu from any source, I value the reliability and authenticity." this shows that the users have a desire to obtain correct Hanfu knowledge from the application. This is why the professionalism of the information is so important, and it needs to collect and organise the Hanfu knowledge very well. So that users feel that the information they are getting is academic and professional, thus increasing the value of using it.

Through the result of the questionnaire, most people valued how logical and exciting the information is when browsing information about Hanfu from any source, so it is clear that in addition to the need for accurate and credible Hanfu knowledge, users also care deeply about the way information is presented. Hanfu Enthusiast 2-04 thought it is easier to be accepted in an animated form, or a simple and clear graphic form. Hanfu Enthusiast 2-05 expresses a similar view.

In the questionnaire research, only 18 out of 315 respondents thought gaining knowledge of Hanfu was less critical. At the same time, 94.3% agreed that the Educational Information in the application was an essential feature. Two hundred fourteen respondents thought it was more convenient and informative to learn about traditional Hanfu culture online than libraries and museums. Therefore, the Educational Information in this application can enable most users to improve the perceived functional value.

5.3.4 Modern Hanfu Communication

Experts have pointed out that to make modern Hanfu sustainable in modern society, it is necessary to let more people know Hanfu, understand modern Hanfu and participate in current Hanfu-related activities. And it is based on cultural identity. The essence of which lies in affirming the fundamental values of the nation or ethnic group. The spiritual bond sustains the commonality of the Han people and the spiritual basis for transmitting cultural life. Unlike ordinary clothing, modern Hanfu is full of cultural connotations. Hanfu enthusiasts universally recognise the value of the Hanfu as a symbol of traditional culture. Those willing to design modern Hanfu interactively or buy modern Hanfu usually love traditional culture. They expect to receive more than just a design piece or a commodity but value the spiritual pursuit.

The Chinese culture has a long and profound history. It is the accumulation of the unique national spirit and cultural traits that the Chinese people have preserved throughout their long history. As part of this, the Hanfu culture is also a part of the historical culture of the Chinese nation, giving Chinese people a sense of belonging and identity. Hanfu enthusiasts call people who also love Hanfu Tong Pao, taken from the poem “Shi Jing - Wu Yi”, originally meaning to share the same robe. For Hanfu enthusiasts the term Tong Pao is used by Hanfu enthusiasts to refer to members of their community, reflecting their identification with each other. It implies recognition of the Hanfu as a war robe in the eyes of Han culture enthusiasts, identification with the Hanfu culture, and an indication of difference from others. It is thus clear that Hanfu enthusiasts have a strong sense of community.

“A community is a social organism based on natural wills, such as emotion, habit, memory, etc., instead of one based on blood, geography, and mentality.” Said Expert 1-07. It is possible to think of a community as an assemblage formed based on some natural will. 77.5% of respondents in question 28 of the questionnaire said that if others recognised their modern Hanfu design, they would receive emotional satisfaction. The Hanfu community stems from a common interest in Hanfu. Its members share a common concern for Hanfu, spontaneously coming together to form a unified whole by sharing their modern Hanfu designs. Through collective activity, fellow members can gain a sense of belonging within the community and deepen their identity with the group. Due to cultural identity, many respondents cited the emotional recognition or approval from others as one of the critical criteria for considering whether they were satisfied with the modern Hanfu design. Previous research has shown that people have a herd mentality and that group conformity affects individuals (Yan, 2018). Expert 1-07 said it is essential to focus on cultural identity

and use new media to communicate so that more people will be interested in modern Hanfu design.

5.4 Research Objective Three

Research objective three proposes using interactive design applications to educate and promote modern Hanfu design. The questionnaire data will be discussed at this stage to complete research objective three. This section will analyse the results of the quantitative study, identify the relationships between the influencing factors and make relevant recommendations for developing more adaptable and commercially viable applications. There is great value in developing an application that integrates Hanfu education and modern Hanfu interactive design, which can popularise the culture while giving Hanfu a new lease on life. All aspects of the application need to be integrated before it is developed to ensure its feasibility.

5.4.1 Effect of Independent Variables on Mediating Variables

All factors of the Independent Variables affected the Mediating Variables except the lifestyle preferences factor, which did not affect perceived risk.

5.4.1.1 Lifestyle preferences

Based on the study's results, the standardised path coefficient of life preference factors on functional value factors is 0.150, and on emotional matters factors is 0.201, which indicates that life preference factors have a positive correlation between applicable value factors and emotional value factors. Therefore, the target users of the application developed in this study are those interested in traditional culture, classical music, quiet

leisure activities, etc. This finding helps to find potential user groups through market segmentation quickly.

5.4.1.2 Interactive Design

The interaction design factor clearly negatively affects the perceived risk factor because of its standardised path coefficient of -0.147, $p < 0.05$. The standardised path coefficients of the interaction design factor on the perceived functional and emotional values are 0.222 and 0.204, $p < 0.05$. It suggests that the interaction design factor positively affects perceived value.

The user's use of the application to create a design innovation based on their preferences creates an emotional experience resulting from the interaction. This enhances the user's recognition of the final design outcome, giving the result more value than itself. As a result, the emotional value perceived by the user using the application is enhanced.

The study results also showed that the interactive design hurts perceived risk. Participating in the design process avoids the dangers caused by products that do not meet expectations.

Compare and contrast what interviewees said about the current state of Hanfu shops; for example, the quality of Hanfu on the market currently varies, and many merchants are plagiarising and recreating it arbitrarily to make money, which is very detrimental to the development of the Hanfu market. This method of obtaining modern Hanfu designs through interactive design would boost consumer loyalty and repurchase rates.

5.4.1.3 Educational Information

According to the data, the educational information factor significantly affects perceived value and risk. The standardised path coefficients of the educational information factor on perceived functional value and perceived emotional value are 0.404 and 0.280, respectively, with $P < 0.05$, proving a significant positive effect on them. The standardised path coefficient of educational information on perceived risk is -0.162, $P < 0.05$, indicating that the educational information factor significantly negatively affects the perceived risk factor.

It means that when using interactive design applications for modern Hanfu, it is essential to pay close attention to all Hanfu-related information in the application. The accuracy of this information can have a significant impact on the users. According to the data, the educational information factor significantly affects both perceived value and perceived risk. The standardised path coefficients of the educational information factor on perceived Hanfu Enthusiast 2-03, 2-05 hold the same attitude that with correct information about Hanfu, the modern Hanfu design can be excellent.

5.4.2 Effect of Mediating Variables on Dependent Variable

The standardised path coefficients for the mediating variables functional value and emotional value on intention to use or purchase were 0.170 and 0.176, respectively, indicating that practical value and emotional value had a significant positive effect on intention to use or buy. The two factors were similar in magnitude. The standardised path coefficient for perceived risk on the choice to use or buy was -0.127, indicating a significant negative effect of perceived risk on the intention to use or purchase. It can be

surmised that the willingness to use the application increases significantly when the user has had a good experience using it and feels emotionally rewarded. The likelihood of using the application, or even shopping in the app in the future, is also increased if concerns in the user's mind can be avoided simultaneously.

5.4.2.1 Functional value

In an era of digitisation and information, the Hanfu's function is reflected in the clothing and the culture it carries. Through the functions of interactive design and the educational information, users can perceive the functional value of the application. In other words, using the application could get a uniquely designed, culturally relevant modern Hanfu design. The results of question 23 of the questionnaire research show that 254 of the 315 respondents thought it was important to combine theoretical knowledge with practical design. Based on the results of this study, it is clear that both the interactive design and Educational Information positively impact increasing functional value. Functional value pairs can reduce perceived risk and positively affect the intention to use or purchase.

Everyone's definition of beauty is different, and the previous one-way model of merchants or designers providing designs and consumers passively accepting them no longer meets market demand. In question 27 of the questionnaire, 288 respondents indicated that the creative design details of modern Hanfu elements could meet their requirements for uniqueness. Therefore, this application allows users to participate in the interactive design and get work that meets their aesthetic needs.

5.4.2.2 Emotional Value

Besides providing the functional value mentioned in the above discussion, the application also offers emotional value to the young generation. Emotional value is the subjective psychological feeling of the user when using the application. If the users get a satisfactory emotional experience, they are more likely to use the application. Question 37 in the questionnaire confirms this idea. 76.8% of people said they would recommend this application that combines knowledge of Hanfu with interactive design to a friend if they had a good experience. Based on the research, it is clear that both the interactive design and educational factors positively impact increasing emotional value. Emotional value positively influences the willingness to use or purchase.

In traditional Chinese culture, clothing has many meanings beyond its use. It is linked to the long tradition of Chinese philosophy, the splendid folk culture, the aesthetic appeal of the oriental flavour, the elaborate etiquette, and the strict hierarchy. It is also closely related to the spiritual connotations of Chinese philosophy. When a person wears a Hanfu, these qualities of the costume become associated with that person. 65.4% of people who responded to the questionnaire said in question 29 that wearing modern Hanfu products would reflect their cultural qualities. 73.9% of respondents answered question 30 and indicated that wearing current Hanfu products would remember that they are traditional Chinese people.

5.4.2.3 Perceived Risk

According to the theoretical model presented in the previous section, it is clear that perceived risk hurts functional value, emotional value, and willingness to use or purchase. Therefore, it is crucial to avoid factors that cause users to worry. On a design level, 67 people in question 31 of the questionnaire said they were worried about being unable to

capture the cultural connotations of the design elements if they were to do an interactive design of a modern Chinese costume online. In question 32, 78 people showed they were worried they could not do a good interactive design. Although users have concerns about the invention, it is not the most critical factor.

When analysed at the product level, there are three main user concerns. The first is whether the product conforms to the design. The second is the issue of production lead time. The third is the issue of after-sales service. Specifically, whether the product can restore the design idea is the primary concern. From the answer to question 33: “If I make an interactive design for a modern Hanfu online and buy this product, I am worried that the actual product will not match my design”, 76 people showed agreed. Two interviewees shared their shopping experiences of purchasing Hanfu products with quality problems. Secondly, the production cycle should not be overlooked. According to the in-depth interviews, enthusiasts with experience buying Hanfu noted that the waiting process is very anxious. Of the fifty-four people in the questionnaire, 35 had the same concern. Finally, there is the need for after-sales issues to be well addressed. Sixty-two people in the questionnaire expressed worry about returns and exchanges.

5.5 The Proposed Model

Combining the results of the semi-structured interviews and the questionnaire survey, the model was revised, and the final model was obtained (Figure 5.1). After testing, the results showed that the effect of life preferences on perceived risk was insignificant, so this path was removed—the effects among the other factors held. In addition, according to the qualitative study results, it is clear that emotional recognition or approval from others has an essential role in perceived emotional value. It differs from the emotional value of

modern Hanfu or interactive design, which comes from an uncontrolled third party, so this factor was listed separately to complement the modelling.

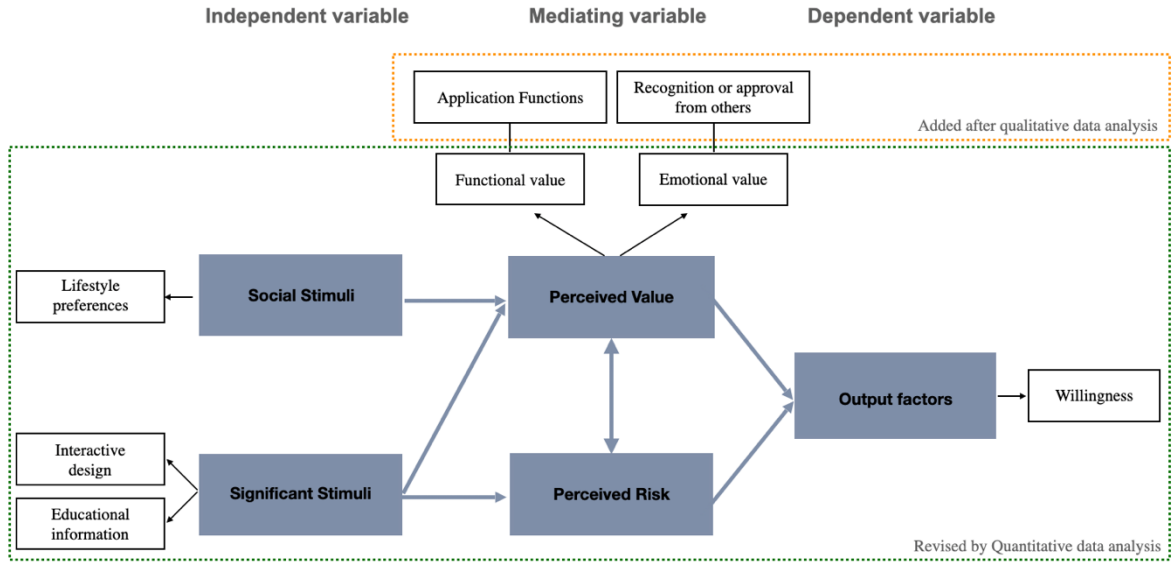


Figure 5. 1: The Proposed Model

5.6 Chapter Summary

This chapter discusses the findings from both qualitative and quantitative research on modern Hanfu design among the Chinese young generation. The first research objective highlights that while there is an increasing awareness of modern Hanfu, there is still a need to improve the understanding of Hanfu culture. Failure to correct any misconceptions about Hanfu could negatively impact both the design of modern Hanfu and the preservation of Hanfu culture. The young generation in China is open to trying on modern Hanfu, but they prefer it to be convenient and not overly attention-grabbing. The second research objective examines various factors that influence the development of modern Hanfu design, including lifestyle preferences, interactive design, educational information, and communication. The relationships between factors were discussed for research

objective three, and the model was completed. The standardised path coefficients for life preferences on functional and emotional values were 0.150 and 0.201, respectively. The interactive design factor on practical and emotional matters were 0.222 and 0.204. The educational information factor on functional and emotional values were 0.404 and 0.280, respectively. The standardised path coefficients for the interactive design factor and the Educational Information factor on perceived risk were -0.147 and -0.162. Among the antecedent variables, the educational information factor has the most significant influence, followed by the interactive design factor, and the life preference factor has a minor impact. To enhance users' perceived value and reduce the perceived risk, the application development should focus on developing and designing the educational information to provide users with a good experience of using the application.

CHAPTER 6

INTERACTIVE DESIGN APPLICATION OF MODERN HANFU

6.1 Overview

The third research objective of this study is to propose using interactive design applications in educating and promoting modern Hanfu design. This chapter will focus on the design of interactive application for modern Hanfu design, including the design plan, module design, and UI design to support the results of the third research objective. While designing and developing the application, relevant factors will need to be taken into consideration. As a result, the findings of research objective one and two will serve as important guidelines and will be fully considered during the application design process.

6.1.1 Design Plan

Based on the preliminary research, a demand analysis of the users was carried out. A framework plan for the application was developed, reflected in the design of the functional scope of the application and the planning of the primary and secondary tasks. In today's society, people live fast, and the time spent using applications is relatively fragmented. The user's attention is scattered and easily distracted by the environment. Therefore, the application is required to be framed and easy to operate. The core content of the application is divided into three modules: Hanfu Interactive Design, Hanfu Education, and Hanfu Communication. The three categories ensure that users with different interests and needs can find the right content. To make the operation more accessible and transparent, the depth is divided into 2-3 layers of sub-modules under each module ranging

from the previous level to a more refined classification, facilitating a more in-depth and specific understanding and operation by users (Figure 6.1).

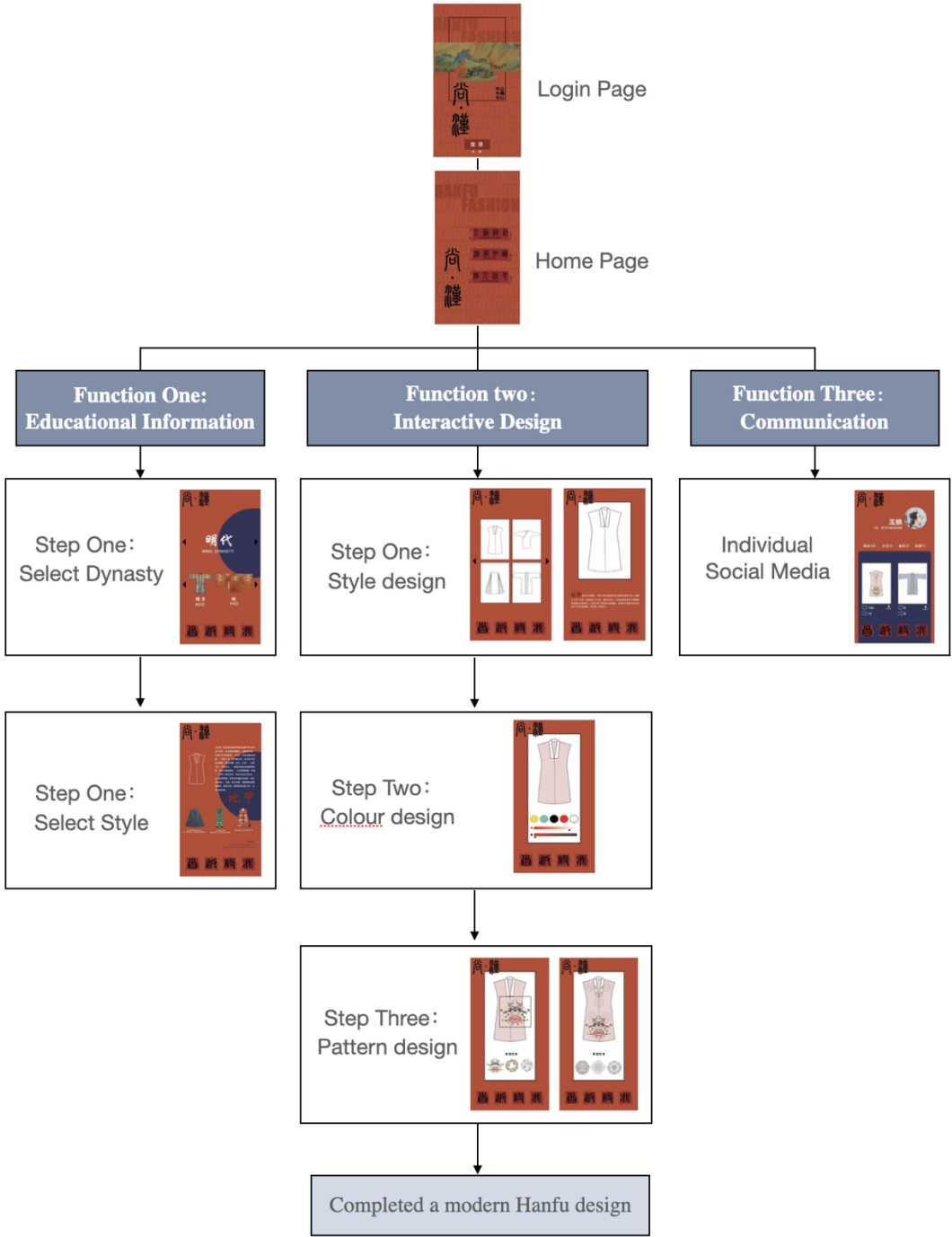


Figure 6.1: The Information Architecture

6.1.2 Module Descriptions

According to the Hanfu Enthusiast 2-05, people prefer mobile applications with clear and straightforward features that are easy to use. The application therefore is designed to be simple and convenient for the users. The users could use the application after registering or logging in from the login page. The home page displays buttons for the three functions of the interactive design module, the educational information and the Hanfu communication module, which can guide the user for the three main functions of the application.

6.1.2.1 Login Page

The login page has two functions. One purpose is to guide the user through the application, especially for new users. This page can help the user understand the application's functions quickly. The first impression of users will significantly affect the subsequent experience of using the product. Therefore, the guide page must highlight the application's theme while keeping it eye-catching, design the elements according to the article and observe the introductory page and other interfaces uniformly. Another function allows users to register or log in to the application. The login and registration buttons were red to attract the user's attention.

The design of this application login page uses Photoshop software to redesign the silhouette of the traditional Hanfu and the famous Chinese painting A Thousand Miles of Rivers and Mountains to imply the style rules and cultural connotations contained in the Chinese costume. The name of the application is SHANG HAN, which means stylish Hanfu. It appears prominently on the left side of the screen in an ancient Chinese font, signifying the combination of traditional and modern. The slogan refers to Professional,

Innovative, and Unique, presented on the page to enhance the user's impression of the application's functions and to guide new users in the process of using the application in the future, inspiring unlimited creativity, choosing styles in the will, and passing on the traditional culture and the desire to create beauty (Figure 6.2).

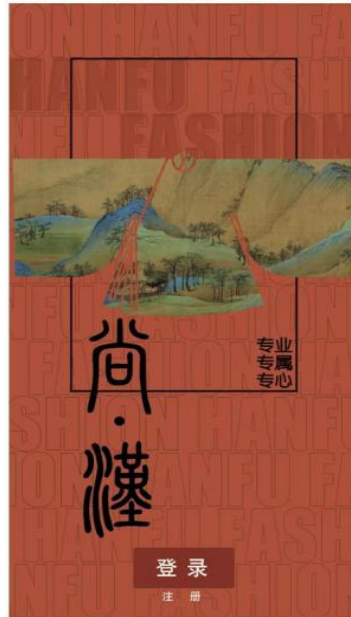


Figure 6.2: The Login Page Design

6.1.2.2 The Home Page

When entering the home page, users are required to see the functional modules of this application clearly and find the practical module they need quickly (Hanfu Enthusiast 2-07). Therefore, in the middle of the home page, the three main functions of the interactive design module, the education module, and the personal home page are displayed in colour highlighted way with text (Figure 6.3).

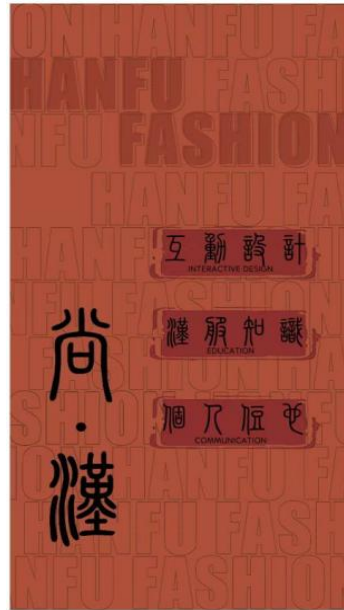


Figure 6.3: Homepage Design

6.1.2.3 Interactive Design Module

From the home page, the user can access the interactive design module. The first step is to select the desired style. In the questionnaire, 224 people pointed out that they would value the variety of style choices if they participated in an online interactive design of a modern Hanfu product. Therefore, in the style selection step, the monochrome charts of different styles are provided for users to choose from. According to the typical Hanfu form, the classes are mainly flounced Pao, Shenyi, Top, which cross collar and proper overlap, Ru skirt, Beizi, etc. The collar type is predominantly cross collar and good overlap or straight collar. The main sleeve types are straight, square, broad, etc. When the user selects one of these styles, the style appears full screen when clicked. At the bottom of the screen is a text description and introduction for the user to understand the history and features of the traditional Hanfu (Figure 6.4).



Figure 6.4: Style Selected Page Design and Style Introduction Page Design

The second step is to make the colour selection. Once users have completed the style selection, click next to the colour scheme. The selected style is at the top of the screen, and the colours available for selection are at the bottom. The colours are based on the traditional FIVE COLOURS, and to fully realise the user's design intentions, enrich the design and complete the rendering, the users select a colour to suit their design needs and then further adjust the lightness and purity. By clicking on parts of the design, the various positions of the Hanfu can be filled with different colours. At the same time, the colour preferences of the different dynasties are introduced to facilitate the users' understanding of the colourful culture of the Hanfu when users are working on the colour design (Figure 6.5).



Figure 6.5: Colour Selected Page Design

The third step is to add the patterns. The Hanfu patterns are divided into four main categories: plants, animals, people, and objects. Each of the designs is the hope of the ancients for a better life. The plans can be adjusted to suit the users' needs by dragging them to different positions and resizing them with a two-touch control. When adjusting the practice, a function box will appear around the design, and the user can use it to rotate the design and delete it if they are not satisfied with the result.

In addition, the user can zoom in on the design to facilitate fine adjustments to details. If users are unsatisfied with the operation, they can click the UNDO button to undo the previous process. Once the overall design is complete, clicking the SAVE button allows the design to be saved locally or published in the application (Figure 6.6).

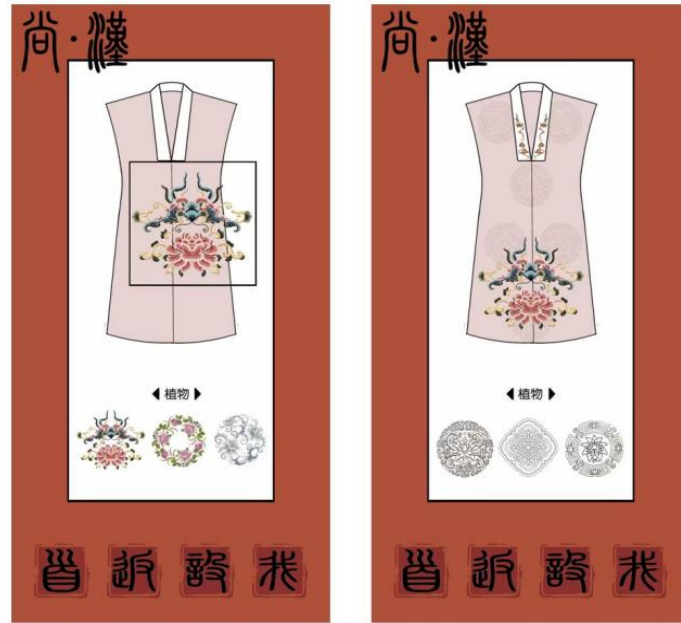


Figure 6.6: Pattern Selected Page Design

6.1.2.4 Education Module

Although the public's attention and interest in Hanfu have gradually increased in recent years, the community of Hanfu enthusiasts is still a niche group compared to China's population of 1.4 billion. Public awareness of Hanfu is still deficient, and some people may confuse Hanfu with ancient and opera costumes. In this context, it is vital to raise public awareness of Hanfu and to strengthen the spread of Hanfu culture. It is also one of the objectives of application development. The history and knowledge of Hanfu are sorted out and made more accessible to the public through simple text and pictures at the same time (Expert 1-03). Links or references for in-depth study are given to those willing to study further. It will enable the culture of Hanfu to be passed on through new technology and provide the related industries derived from Hanfu a sustainable development.

From the home page, people can access the Hanfu overview module by clicking on the button EDUCATION. After collecting and collating historical information about Hanfu from books and documents, resources have been classified according to different styles and dynasties. It is divided into seven sections: Shang, Warring States, Qin and Han, Wei and Jin, Tang, Song, and Ming. In this module, the user will find icons for each of the seven dynasties, and by clicking on a dynasty user will be redirected to the overview page for that dynasty. In each dynasty, there is a description of the content of each Hanfu for that dynasty, stating the characteristics and cultural connotations of Hanfu at different times (Figure 6.7).



Figure 6.7: Dynasty Selected Page Design

As an application with the function of popularising traditional culture, the application's design needs to be targeted to create a cultural atmosphere in line with the theme of Hanfu. In addition to professionalism, the most critical issue is to change the

boring traditional way of science popularisation and innovate the form of engagement to increase the fun of the interactive experience. For example, in different dynasties, users can switch between other costumes by sliding the page to find the class of clothing they are interested in. This makes it easy for visitors to find relevant content and demonstrates the richness and diversity of Hanfu styles in the same period. If users want to learn more about a specific type, they can click on the links on the page to jump to the digital museum or digital library (Figure 6.8).



Figure 6.8: Education Page Design

6.1.2.5 Hanfu Communication Module

With the rapid development of the internet and new media technologies, sharing has broken through the limitations of time and space, expanding how people communicate and interact and making it possible to share anytime and anywhere. According to the

results of question 28 in quantitative survey, people are more concerned about the views of others. Allowing more people to see the results of interactive design can attract and promote a sense of identity and belonging among more users. Affirmative feedback can be a strong motivation for users to use the application and even make future purchases (Expert 1-07). Therefore, having a communication module in the application will allow Hanfu enthusiasts to share and communicate while gaining a sense of identity and satisfaction.

This module provides users with the opportunity to communicate with each other. With this application feature, Hanfu enthusiasts who do not know each other can gather as individuals to become a community and, in terms of identity, become companions. People of different genders, professions, and regions can simultaneously publish their innovative designs of modern Hanfu on the application, express their opinions on others' designs and learn from each other. Two hundred thirty-nine people paid attention to whether there are some design samples to show in question 14 of the questionnaire. They account for 75.9%. They can share information in the module through their virtual accounts. By liking, commenting, and re-posting Hanfu interactive design, individuals focus on Hanfu to share a common emotional experience, gain emotional energy, complete the transmission of Hanfu-related information and form a large-scale interaction. In this process, emotional energy can be generated by sharing one's experiences within the group. Nevertheless, the excitement generated by this experience is short-lived. Individuals can convert the short-term emotional satisfaction generated during the interaction into a long-term dynamic identity guided by a shared concern when participating in collective activities. This can be sublimated into group solidarity. In other words, it is a sense of belonging within the group.

The individual's desire to be part of a group and lives in harmony with others is an outward expression of belonging. Belonging evolves from a sense of security. In other words, when an individual has a sense of belonging in a group, their understanding of security is enhanced, and they no longer feel alone but in a loving community where they can be sheltered. Therefore, for the user, the Hanfu Culture Circle sharing module on the application creates a safe place to interact. From this point of view, the module allows users to gain an identity, and increase their stickiness and sense of belonging, which reduces perceived risk, increases perceived value, and increases the willingness to use or purchase (Figure 6.9).



Figure 6.9: Communication Page Design

6.1.3 Design of the Application

User Interface (UI) design encompasses layout, colour, font, etc. Its primary purpose is to optimise the flow of user-machine interaction, thereby improving the application's ease of use and enhancing the user experience (Peng, 2022). According to the interviews, people thought an exemplary UI design should be simple, aesthetically pleasing, and guided. By controlling the visual differences of different visual elements, users can make their distinctions and understand the difference in their level of importance when using the application, helping users get navigation guidance effectively. A good visual design will not only make the application more distinctive. Still also make the operation of the application comfortable and straightforward, fully reflecting the positioning of the application.

6.1.3.1 Colour Design

Regarding the use of colour design in the application, reference is made to the Five Colours commonly found in Chinese culture while considering people's aesthetic requirements in modern society. Therefore, the traditional colour of red is used as the primary colour, visually giving the user a classic and lively feeling.

6.1.3.2 Font Design

The overall style of the font in this application is uniform and regular. The app uses a handwritten font for the icons and a standard form for the content text. Firstly, the handwritten icons echo the classical beauty of the Hanfu. Secondly, the regular format for the content text could increase reading efficiency.

6.1.3.3 Icon Design

Icons are computer graphics with precise referential meanings. Icons in the interface design are the functional identifiers of the application and are an essential medium for conveying information. The application uses icons to guide the user's thinking, help them make quick decisions, and find things to target. Icons are often more influential than words and even more universal than language, there are no recognition barriers, and the user knows what instructions can be completed when they see the icon. In this application, traditional Chinese elements were extracted and transformed into icons to make the interface easy to understand while creating a conventional cultural atmosphere (Figure 6.11).



Figure 6.11: The Icons Design

Mainstream icon design styles were created by referring to the product designers' works on several major design-sharing platforms, including linear, face, anthropomorphic, and hand-drawn icons. The modern and widely used basic style linear icon style is employed in this study to create icons by integrating elements linked to Hanfu and drawing through lines. To ensure uniformity of the icons in the application, care was taken to keep the size and lines of the icons consistent throughout the design.

6.1.3.4 Image Design

In terms of specifications, the images that appear in the application are set to the same size to maintain uniformity. The content is based on scanned documents, pictures of excavated artefacts, photographs of relevant ancient paintings, etc.

6.1.4 Simulation Effects and Limitations

The simulation demonstration was produced using professional software such as Sketch, Principle, and Adobe Photoshop to simulate the application use visually. The simulation demonstration was presented in animated form, which was more attractive and clearer than static drawings. It can be used in post-marketing commercials to attract more potential users to the application. The application's design has been researched and improved, but there are still some limitations to making the application work, and it requires more professional support. For example, it faces problems with technical staff, hardware equipment and software configuration, and a lack of App Store developer accounts. However, the application's design ideas, structural framework, and necessary design elements are ready to be used if the funding is sufficient and the market is allowed.

6.1.5 Future Development Plans

Based on the study's results, the incorporation of 3D modelling techniques and the expansion of promotional methods could also be included in modules of the application in the future.

6.1.5.1 Combining New Technologies

Over the past few years, virtual technology has become a popular way to showcase clothing designs. Unfortunately, virtual technology is still complex and time-consuming, and it is currently not possible to rapid response through mobile phone applications.

In the last question of the questionnaire, when asking suggestions for the application, eight respondents mentioned virtual fitting technology. Sample-004 said, “It could use 3D modelling to simulate how the finished design would look on the body”, and sample-014 said, “It would be fun to have a simulated fitting.” These suggestions represent user expectations and need to be taken into account in future development. Under the background of technology updates and market demand, it is believed that this technology can be integrated into the development of the application in future. Clothing virtual technology is an organic combination of clothing art and digital technology, which simulates the effect of real people wearing a dress, helps to improve users’ perceived value and reduce users’ perceived risk, and may even change the traditional production mode of the clothing industry in the future, not only improve productivity but also improve quality and create higher value.

The 3D virtual effect enables the 2D parametric layout of clothing to be visualised, allowing the non-clothing design public to visualise the design effect and achieve a fast and efficient method. The 3D fabric scanning technology can also enrich the fabric simulation effect of 3D virtual clothing. In question 18 of the questionnaire, 215 people expressed a desire for more fabric options in the application. With virtual fabrics, users will see a more realistic fabric effect and shorten the gap between the design drawing and

the actual product. This would reduce the perceived risk to the user and thus increase the willingness to use the application.

6.1.5.2 Expanding Promotion Methods

Sample-007 of questionnaire survey wrote in the last question of the questionnaire, “I would like to attend more Hanfu design events”, and sample-073 said, “We should hold more events such as Hanfu fitting to promote the designs and at the same time popularise Hanfu knowledge to increase people’s interest”, sample-113 said, “Hold Hanfu culture week to make more people participate in is a good idea”. Therefore, in the future, it is also essential to use the communication function of the application to organise events that combine online and offline actively. This helps to increase the stickiness and loyalty of the application’s users.

In-depth interviews show that engaging activities promoting Hanfu culture, such as Hanfu performances, appeal to most young people. The current activities regarding Hanfu can be broadly divided into the following types. Firstly, the daily wearing of Hanfus. This event is often attended by a small group of people who travel together in Hanfu, creating a conversation to attract attention and promote the costume. Secondly, Hanfu events are held at traditional festivals. These events are combined with conventional festivals to commemorate and recreate traditional folklore. Thirdly, various ceremonies, such as birthdays and weddings. This is a time when people generally follow the old rules of etiquette and dress in Hanfu to complete an essential moment in their lives. Fourthly, commercialised Hanfu events. Businesses usually hold these with the aim of selling. It is crucial to integrate these activities with this application through some methods. Users first communicate and interact through the application to reach an initial consensus on a

common topic of interest, Hanfu. Then, relevant Hanfu events can be planned online through the communication module, such as interactive modern Hanfu design competitions, and news is released. The users then move from the online community into the real world and execute various offline activities. Finally, after the offline activities, they return to the application to share their emotional experiences in text, pictures, and videos, thus generating higher emotional energy. This helps to enhance the perceived emotional value of the user and thus increases the likelihood of using the application.

6.2 Chapter Summary

This chapter proposes the creation of an interactive design application that showcases modern Hanfu design for educational and promotional purposes. This aligns with the third research objective of this study. The application's design is influenced by the findings of research objectives one and two, which are comprised of three modules: Hanfu interactive design, Hanfu education, and Hanfu communication. The description of the UI design, functionality, and usage of each module are present in this chapter. In the interactive design module, users can choose a style and select colours to complement it. They can then add their favourite pattern. The styles, colours, and patterns are inspired by traditional Hanfu. It ensures that modern Hanfu designs maintain the typical features of traditional Hanfu. In the Hanfu education module, users can explore the characteristics and cultural significance of Hanfu from different dynasties. This approach provides accurate information while also catering to the needs of modern young people who seek easy access to information. In the Hanfu communication module, users can create their own social media accounts and share their modern Hanfu designs created through interactive design.

They can also view other people's modern Hanfu designs. This feature increases the emotional value of users and encourages them to use or purchase modern Hanfu.

CHAPTER 7

CONCLUSION AND RECOMMENDATION

7.1 Overview

The costume is an important expression of human culture. As the traditional costume of the Han Chinese people, Hanfu is of great importance to research. With the rise of mobile devices, accessing and communicating information has become faster and easier, providing new opportunities for the development of modern Hanfu design. Modern Hanfu design is a crucial symbol of Han Chinese culture, reflecting cultural progress. Research on modern Hanfu design serves as a theoretical basis for the development of the Hanfu industry in modern society, and incorporating Hanfu elements into modern clothing design is vital for inheriting and promoting traditional culture. This research solves the problem of a shortage of original designs in the Hanfu market while also exploring how traditional culture can be popularised and educated in modern society. The promotion of modern Hanfu design by using interactive design applications among young Chinese individuals ultimately increases their awareness and strengthens national unity and self-assurance.

7.2 Conclusion

This study aims to identify the current awareness of modern Hanfu design among the young generation in China and explore the suitability of using interactive design applications to educate and promote modern Hanfu design, proposing the interactive design application. The study proposes a new theoretical model, which combines the Influencing Factors of the Online Purchase Intention Model (Li, 2018) and the Howard-

Sheth Model (Howard & Sheth, 1969) to achieve this goal. The theoretical model is unique to this study and has not been used in previous research. Additionally, a demo of an interactive design application for modern Hanfu has been developed. Specifically, this study has three research objectives, and therefore the results are present in three areas. The results include the awareness of modern Hanfu design among the young generation in China, the suitability of using interactive design applications to educate and promote modern Hanfu design, and suggestions for this type of application.

Firstly, more and more young consumers are willing to pay for modern Hanfu that meets the aesthetics and living habits of modern people. They could like to integrate the cultural and aesthetic values embodied in Hanfu into their lives. As a part of Hanfu, modern Hanfu is also one of the carriers of traditional Chinese culture. Modern Hanfu reflects the spiritual thought of the Chinese. At the same time, from an aesthetic point of view, it represents the traditional Chinese aesthetic perspective and artistic value. However, due to the historical development of the fault, the young generation in China still needs to gain a higher awareness of modern Hanfu. Many young people need help distinguishing it from ancient theatre costumes or are unclear about the Hanfu characteristics of each dynasty.

Secondly, the young generation in China has grown up with technological advances, and they are accustomed to using mobile applications. They share similar lifestyle preferences and are open to exploring new experiences. Some of them have even expressed interest in Hanfu culture already. This makes it advantageous to use interactive design applications to promote Hanfu knowledge and modern Hanfu designs. By utilising new technology and design techniques, modern Hanfu designs can be presented with traditional

Hanfu aesthetics. Thereby the modern Hanfu design conveys traditional Hanfu culture in a contemporary context. This approach can effectively enhance the understanding of Hanfu among the young generation in China and contribute to the cultural pride of the Han Chinese nation.

Thirdly, this study finds the relationship between the influencing factors and completes the final theoretical model by verifying and researching. It is important to propose interactive design applications in educating and promoting modern Hanfu design. In addition, a mobile phone application software development was carried out to achieve the purpose of education and promotion of modern Chinese dress design. In order to ensure the sustainable development of Hanfu, it is important to commercialise modern Hanfu and integrate it into contemporary life. This can be achieved through interactive design and purchasing of modern Hanfu by using applications, which will help young generation to learn more about Hanfu culture. As time goes on, awareness of modern Hanfu among young generation in China will naturally increase.

7.3 Research Contribution

This study aims to raise awareness of modern Hanfu among young generation in China by using interactive design applications. The results of this study will contribute to the design of modern Hanfu, the heritage of Hanfu culture, and the integration of new technology with traditional culture. Eventually, the awareness of the modern Hanfu and Hanfu among young generation will be raised and the national culture will be passed on.

The emergence of modern Hanfu is a result of historical progression and a continuation of traditional Hanfu. This research proposes a modern Hanfu design that preserves the fundamental elements of the traditional Hanfu form, while providing the

young generation with greater opportunities for individual creativity. By utilizing new technologies and design methods, and integrating the qualities of traditional Hanfu with contemporary fashion trends and aesthetics, a Hanfu appropriate for modern times can be created. Modern Hanfu is distinct from ordinary clothing because its consumers place greater value on quality and cultural significance. Those who appreciate and wear modern Hanfu appreciate the style, colour, shape, and fabric of modern Hanfu, and relish the spiritual exploration that it offers. As a result, for modern Hanfu design, it is critical to emphasise cultural significance while maintaining high product quality and customer service. These recommendations will promote the growth of modern Hanfu design.

Ensuring the accuracy and authenticity of information about Hanfu is essential. Disseminating cultural knowledge requires in-depth thinking and historical evidence. Due to Hanfu's historical development, it remains relatively unknown in modern society, and its concept needs further clarification. However, with the Chinese government's encouragement and support, more young people are learning about Hanfu. The dissemination of knowledge about Hanfu must be academic and standardised to revive its relevance. Sustainable development is vital, and education and modern Hanfu design should not be limited to information transmission but should penetrate people's lives. Without broader acceptance of Hanfu culture through various activities, it will not be possible for it to develop and survive in the long run. Therefore, this study integrates Hanfu information with modern Hanfu design to enhance people's understanding of Hanfu culture.

The progress of modern technology is aiding the growth of Hanfu culture. New media is now an essential component of daily life, and it is aiding in the spreading of

Hanfu knowledge. Interactive designs allow for greater engagement and bolster the value of products while also fulfilling consumers' desire for unique designs. With the advent of various new technologies, Hanfu is becoming more contemporary, and modern designs will be more readily accepted by the masses.

Hanfu has developed alongside Chinese civilisation, with a rich history of inheritance, broad geographic influence, and a strong cultural identity. Over thousands of years, each element of Hanfu has gained meaningful significance and embodies deep cultural connotations. Hanfu has witnessed the evolution of societal elements throughout Chinese history. Raising awareness among young people about Hanfu increases their cultural self-confidence. The significance of modern Hanfu design as a symbol of Chinese traditional culture and an inheritance of Hanfu is paramount in cultivating young people's cultural self-assurance.

7.4 Recommendations for Future Research

With the revival of traditional Hanfu, more and more people are willing to wear Hanfu in their daily lives, and the future market for Hanfu has excellent potential for development. It is essential to use interactive design applications to spread the culture of Hanfu and promote the design and development of modern Hanfu with the needs of the current social development. The following recommendations are made for research in future.

The study is mainly centred on the young generation in China who may have an interest in Hanfu. The qualitative research sample consists of 16 participants, while the quantitative research sample has 315. Further research could expand the total sample size to improve the data support.

In this study, an interactive application for modern Hanfu design was examined in relation to lifestyle preferences, interactive design, educational information, perceived functional value, perceived emotional value, and perceived risk. It should be noted that Hanfu and modern Hanfu are complex and multifaceted topics, encompassing more than just these factors, and thus there may be additional factors to consider in future research. New variables could be introduced to the model to further explore this topic.

Given the advancements in technology and market needs, it is expected that the integration of virtual clothing technology into application development will happen soon. This technology combines clothing art and digital technology to create a simulation of how a dress would look on a real person. Integrating new technologies into the production of Hanfu will open up a wider range of possibilities for its development.

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APPENDICES

Appendix A: Journal Publications

1. **Ding, M. S.,** Abdullah, Q. D. L., Hamid, S. B. A. (2022). Intelligent Clothing Design and Data Acquisition under the Scientific Graphics Programming Combined with Wearable Multisensor. *Mathematical Problems in Engineering*, (2022).
2. **Ding, M. S.,** Abdullah, Q. D. L., Hamid, S. B. A. (2020). Clothing Communication of the Typical Costume of Han Nationality in Modern Times. *International Journal of Service Management and Sustainability*, 5(2), 201-220.

Appendix B: Interview Transcripts

EXPERT 1-01

1. What do you think about the development of Hanfu nowadays?

The development of Hanfu in China is currently on a rapid rise. This development can be seen in several ways. Firstly, the Chinese government is very supportive of traditional cultural development. Secondly, the general public slowly moves from not accepting Hanfu to appreciating and liking it. More and more young people are going out in Hanfu, especially in scenic spots; people in Hanfu can be seen everywhere, from performers to tourists. There are also more and more clubs, events and performances about Hanfu culture. The growing popularity of Hanfu is something that we all can feel.

2. What are your suggestions for the future of Hanfu development?

Regarding the heritage of Hanfu, initially, it was all about restored costumes made by scholars with historical relics as the standard. People were more concerned with some of the more recognisable dynasties, such as the Wei and Jin dynasties and the Song dynasty. It has gradually developed into the various dynasties' costume study, classification and innovation. But for the general public, it may still be impossible to actively distinguish between the different dynasties and the characteristics of Hanfu. Most people need to be more explicit about the concept of Hanfu. Their sources of information are primarily passive, and their perception of Hanfu is easily led and influenced.

I suggest first rectifying the Hanfu market. Penalize brands that convey the wrong message about Hanfu or sell copycats. Secondly, regulate costumes for film and television dramas, including social media. For the general public, especially those who lack knowledge of Hanfu, the channels they know about Hanfu are Hanfu products, films, television dramas and social media messages. The regulation of these messages can prevent misinformation

to the general public. In addition, it is essential to take the initiative to strengthen publicity. For example, museums, Hanfu events and scenic spots are all excellent mediums. With the help of these public places or events, the general public can subtly develop an interest in Hanfu. In short, the development of Hanfu is a long process, and it requires the efforts of everyone.

3. What is your opinion on traditional Hanfu and modern Hanfu?

The relics of Hanfu that have survived in museums are like the roots of a big tree, while the modern Hanfu sold in the market nowadays are like branches and leaves of a tree. They have absorbed the nutrients from the roots, and whether they are innovated or improved, they cannot be separated from their cultural roots.

Some people may think that the new style of Hanfu is separate from Hanfu. There is no need to dismiss all of them, as the development of Hanfu needs to allow for diversity. These attempts may need to be more mature and feasible, but they are a process of exploration, and we could know how to pass on Hanfu culture better in modern society through this process. For example, the choice of fabrics, the craftsmanship of the patterns etc., there is no need to restore them completely, nor is it possible to do so. Thus, we inevitably try to improve Hanfu's development in different ways.

4. What type of people would you like to learn about and wear Hanfu?

It is mainly a female group, with relatively few men and children. Many different types of people would like to learn about and wear Hanfu, as there are many types of Hanfu. People with a gentle and introverted personality may prefer a more delicate style like the Ru skirt. The Wei and Jin dynasties may be more popular with girls with brighter personalities. Most people who are very into traditional culture prefer the Ming dynasty style of Hanfu, which is very ornate.

5. Do you follow any of the websites that are currently popularising knowledge of Hanfu? What do you think of them?

Usually, I look at websites that provide knowledge of Hanfu. There are many such sources, but most need to be more comprehensive and focus on individual aspects such as certain dynasties, certain styles, etc. There is no website that I am aware of that systematically collates all the information on Hanfu from the pre-Qin dynasty to the Republic of China. So as an academic, I browse information in my leisure time on this kind of website, and when I need educational information, I will collect it through books, academic papers, etc.

6. What is your opinion on the brands and shops selling modern Hanfu online?

China has a clear advocacy for the transformation of brilliant traditional culture: we need to promote creative change and innovative development. We should remember our roots, facing the future. This is the best way to combine traditional culture with modernity and revitalise history, as does the modernisation of Hanfu.

Nowadays, there are many Hanfu brands. Most of the products they sell are modifications of Hanfu or modern clothes with traditional patterns added to them. Many bloggers on the internet showcase different Hanfu by dressing up and cosplaying. I think the emergence of these phenomena proves the public's love for Hanfu and their confidence in traditional culture.

Some enthusiasts believe that a modified version of modern Hanfu differs from Hanfu. This is a radical view. Hanfu has been around for a long time and has changed a bit in different historical periods incorporating the background and culture of the time. Hanfu should be broad. Thus, anything that meets modern aesthetics fits in with everyday life and has elements of traditional Hanfu can be called modern Hanfu. Dressing up is essential, but more important is the history and culture of the dress. All this presupposes that account

must be considered and that designers must be fully aware of and understand Hanfu before improving it. Hanfu enthusiasts should also be careful to distinguish between restored style Hanfu, modified Hanfu and clothing with Hanfu elements, and keep them distinct.

7. Explain the idea of this application development to the interviewee and then ask for an opinion.

It is a great idea.

Once, I saw an interactive machine at an ethnic minority museum. People could pick ethnic minority costumes to match in the machine and see the instant effects. The device was exciting and impressed me, so if there is a similar convenient application, users would be attracted to it.

Regarding the suggestions, I would like to mention the following points: 1. The knowledge needs to be popularised with a clear chronological division, which will help users to understand the ability of Hanfu more clearly. 2. The design elements must be strictly regulated and balance history and modernity well. 3. If the interactively designed costumes are produced for sale, then how the copyright belongs and the issue of protecting the original design needs to be considered.

HANFU ENTHUSIAST 2-01

1. Do you know the difference between Hanfu and modern Hanfu? Do you prefer a restored style or an innovative design for everyday wear?

I am well aware of the differences between Hanfu and modern Hanfu. Modern Hanfu may need to be clearly defined now; it is broad and abstract. Some think it includes clothes created by merchants with no historical basis or stylish garments inspired by certain aspects of Hanfu.

However, modern Hanfu should be based on historical sources and suitably modified to fit everyday people based on traditional Hanfu. And all Hanfu you can buy now should fall under modern Hanfu. Because the weaving techniques have changed and embroidery techniques can be done by machine, Hanfu is now very different from traditional ones, even if it is in the restored style. Of course, I do not think this is not good because it shows we have advanced technology. Moreover, the new technology has produced more productive and better quality Hanfu.

I prefer to wear innovative designs in my everyday life, and for Hanfu to be passed on in modern times, it has to be integrated into life. Modern Hanfu has more options in terms of fabrics, and by using modern materials for traditional styles, people can get more designs than traditional Hanfu.

2. How do you learn about Hanfu?

Most of the time, I learn about Hanfu by reading books on the history of the costume, browsing Weibo, or talking to groups of Hanfu enthusiasts.

Books can provide sound knowledge for people more passionate about this culture and are a very professional way to learn.

Weibo has been my most used social media for a few years and is the most convenient way to learn about Hanfu. It is easy and quick to browse relevant information on Weibo. However, the knowledge sources need to be more cohesive and discernment; it is like looking for a needle in a haystack.

It is also essential for enthusiasts to communicate with each other, especially those in the same region, to meet, exchange, discuss, and share much information about Hanfu.

3. Have you ever had any experience buying modern Hanfu? How was the shopping experience?

I have had experience in buying modern Hanfu. The main channel is Taobao. For most young people, Taobao is a vital shopping platform. As for the occasion, I can only say that there are good and evil, it depends on luck if you can get a satisfactory product.

4. If you want to have a Hanfu product, what factors would you consider (for example, aesthetic, practical, and cultural needs)?

First, it must look good, whether a Hanfu or any other dress. Then I think about the occasion, whether for an event or everyday wear. The third point is the fabric. I cannot deny that silk or brocade fabrics are excellent, but they are much work to maintain and care for. I may not buy Hanfu made from these fabrics because they must be cleaned easily. The last thing is value for money, such as the choice of style and material to match the price.

In terms of aesthetics, as I mentioned before, fabric, fit and colour scheme are my three most basic requirements. Concerning practical needs, it should be durable and not a hassle to clean. When it comes to culture, Hanfu can be used as a carrier of traditional culture, and I essentially wear Hanfu out of my identification with traditional dress culture.

5. Some people hold that modern Hanfu is a continuation of traditional culture, while others see modern Hanfu as a betrayal of conventional Hanfu culture. What do you think about these two views?

I agree with both views. Of course, here I must emphasise the definition of modern Hanfu that I mentioned before. All things change with the times, and so does the Hanfu. If we keep on imitating the old days, sooner or later, Hanfu will be remembered again. At the same time, the essential features must be preserved. It is these basic features that make Hanfu different from other garments. If the crucial elements are discarded, it is not Hanfu anymore.

Another view is that modern Hanfu is a betrayal of tradition, which I can understand. As I mentioned before, some businesses have entirely disregarded the historical features of Hanfu for profit or borrowed a little bit of Hanfu for inspiration to make a modern garment, which is disrespectful to history, and I strongly disapprove of such behaviour.

The interviewees were given a detailed introduction to the design concept of the application first.

6. The respondents were then asked if they would be willing to participate in the interactive design of modern Hanfu. Would they be ready to buy the modern Hanfu they have designed? Is there any expectation or doubt about the application?

I am willing to participate in interactive design and buy my modern Hanfu design.

I am very excited about this application. If as many people use it as possible, it will undoubtedly promote the spread and development of Hanfu.

But to be honest, I do have my concerns. Firstly, the price is essential, as customisation means a high price. The more options there are for fabrics, accessories etc., the more difficult it will be for manufacturers to produce, and in the end, the consumer will pay for

all these costs. Then there is the issue of duration; I am worried that it will take a long time to make my interactive design into a garment. Finally, there is the issue of the effectiveness of the interactive format. Getting a satisfactory piece of Hanfu through interactive design with only a passing interest is easy with relevant knowledge. Thus, people who want to complete a Hanfu innovation through interactive design must know the basics at least.

7. Is it necessary to educate on Hanfu culture in this application?

It is so necessary. Users may use the application because they are curious, follow a trend, or love traditional culture; the reasons are varied. Nevertheless, Hanfu is a manifestation of history; if you are interested, you must know the history. At the present stage, because of the mixed information and the rapid spread of information, Hanfu is being misinterpreted by some people. As long as the information is reliable and trustworthy in this application, this will significantly attract users.

Appendix C: Questionnaire

The online questionnaire was collected through Questionnaire Star software.

<https://www.wjx.cn/vj/OtA55f7.aspx#>

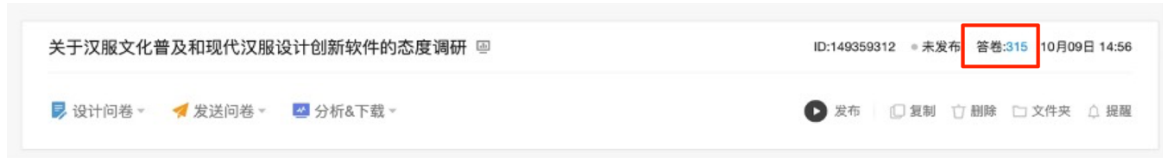


Figure 1: Screenshot of online questionnaire website

1. What is your gender?
(A). Male. (B). Female.
2. What is your age?
(A). under 20. (B). 21-30. (C). 31-40. (D). 41 and older
3. What is your education level?
(A). High School and below. (B). College. (C). Undergraduate. (D). Master and above
4. What is your monthly income? (if you are a student, choose your monthly living expenses)
(A). 2000 and under. (B). 2001-4000. (C). 4001-6000. (D). 4001 and above
5. Have you ever browsed Hanfu information online or bought Hanfu products before?
(A). Yes. (B). No
6. How often do you view information about Hanfu?
(A). More than once a week. (B). On average, once a month. (C). At most ten times a year.
(D). Less than once a year
7. How do you like to browse information about Hanfu?
(A). Specialized searches. (B). Followed by a passing interest. (C). Random recommendations. (D). Others

8. How long have you been following (or wearing) Hanfu products?
(A). Less than a year. (B). 1-2 years. (C). 2-3 years. (D). More than three years
9. If you were considering purchasing Hanfu products, what would be your preferred source of purchase?
(A). Retail store. (B). APPs. (C). Online shop. (D). Not sure
10. Would you like to participate in the interactive design process (e.g., colour selection, detail selection, etc.) when choosing a Hanfu product?
(A). Yes. (B). No. (C). Not sure

Suppose there is an application that could support users to choose and combine styles, colours, patterns, fabrics, etc., to design a modern Hanfu through online interaction, and in the process, could show the traditional Hanfu information about the elements of the module has been chosen (information from various academic works, library materials, museums, etc.). Please answer the following questions based on this setting and make a sensible choice based on your feelings about the description. One means Strongly Disagree, two means Disagree, three refers to Indicates neutrality, four means Agree, and five means Strongly Agree.

11. I prefer leisure such as reading and painting to go out for sports or shopping.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
12. What is your age? I like costume drama, classical music, or cosplay of the ancients.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
13. I like traditional Chinese cultures, such as calligraphy, embroidery, painting, and tea.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

When considering using a modern Hanfu interactive design application, I value whether there are some design samples to show.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

14. If participating in the interactive self-design of modern Hanfu products online, I would like to participate in an interactive design that is simple enough to operate.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

15. If participating in interactive self-design of modern Hanfu products online, I value whether the interface is well designed.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

16. If participating in interactive self-design of modern Hanfu products online, I value the variety of style options.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

17. If participating in interactive self-design of modern Hanfu products online, I value the variety of fabric options.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

18. If participating in interactive self-design of modern Hanfu products online, I value the variety of patterns and colour options.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

19. An interactive design application incorporating traditional Hanfu information can help me learn more about Hanfu culture.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

20. When browsing information about Hanfu from any source, I value reliability and authenticity.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

21. When browsing information about Hanfu from any source, I value how logical and exciting the information is presented.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
22. I need to combine theoretical knowledge with practical design.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
23. Learning it is more convenient and informative to learn about traditional Hanfu culture online than libraries and museums.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
24. Get a unique modern Hanfu that I designed that could meet my needs.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
25. Gaining knowledge of Hanfu is an essential function for me.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
26. The creatively designed details of the modern Hanfu elements can satisfy my need for uniqueness.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
27. I get emotional satisfaction if others recognise my Hanfu designs.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
28. Wearing modern Hanfu products can reflect that I am a cultured person.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
29. Wearing modern Hanfu products will show that I am a traditional Chinese person.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.
30. If I were to do an interactive design of a modern Hanfu online, I would be worried that I would be unable to capture the cultural connotations of the design elements.
(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

31. If I do an interactive design of a modern Hanfu online, I am worried that I can not do it well.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

32. If I were to do an interactive design of a modern Hanfu online and purchase this product, I would be concerned that the product would not match my layout.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

33. I worried that if I bought a modern Hanfu product that I had designed interactively, I could not return it or exchange it if it did not fit.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

34. It may take a more extended period if I produce a modern Hanfu product that I have participated in an interactive design as a product.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

35. I want to try out the application that combines information about Hanfu with the interactive design of modern Hanfu.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

36. If the experience is good, I recommend the app that combines knowledge of Hanfu with interactive design to my friends.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

37. I would consider buying the costume if people around me approve of the modern Hanfu piece I designed interactively.

(A). 1. (B). 2. (C). 3. (D). 4. (E). 5.

38. What other suggestions are you for applying Hanfu education and modern Hanfu interactive design?

第38题: 对于汉服文化的普及和现代汉服的互动设计, 您还有什么好的建议?

搜索答案文本

搜索

☒ 过滤空选项

导出Excel

序号	提交答卷时间	答案文本	查看答卷
2	2月12日 15:02	作为社团需要时刻明确自己的工作内容和方向，说到核心就是社团领导人自己得弄清楚汉服的概念。社会上确实有一些出于其他目的穿古装的人，我们排除掉那些炒作或蹭热点吸引眼球的，剩下的还有一部分属于朝代发烧友，他们对某一朝代极为痴迷，进而通过服饰角色扮演将自己想象成那个时代的人。他们会掌握一定的历史知识，这是不可否认的，社团可以与他们进行适当的历史话题交流，但同时也需要提醒社员明确自己的定位，摆正自己的位置。我们并不是提倡歧视有特殊着装癖好者或是朝代发烧友，而是要找到一个相处的方式，如果大家存在交集，那就多多交流，如果没有，那就各行其是。	查看答卷
3	3月23月22日 ⁴	官方主流媒体多做宣传	查看答卷
5	2月12日 15:06	可以采用3d建模的形式模拟设计成品的上身效果	查看答卷
9	3月22日 15:09	无	查看答卷
11	3月22日 15:11	无	查看答卷
12	3月22日 15:11	无	查看答卷
14	3月22日 15:12	要继续努力哇，毕竟汉服想要普遍出现在生活中还是比较难滴~	查看答卷
15	3月22日 15:12	不太了解	查看答卷
20	3月22日 15:18	希望多办一些普通的汉服设计活动，增加活跃度	查看答卷
21	3月22日 15:18	在关键城市设制相关的实体店，方便参观了解。	查看答卷

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Figure 2: Screenshot of some answers to question 39