

ABSTRACT

LI, AILIN. Chinese Consumers' Adoption Intention toward Virtual Fitting Rooms: From the Perspective of Technology Acceptance Model. (Under the direction of Dr. Yingjiao Xu).

Following the Technology Adoption Model, this study examined factors influencing Chinese consumers' adoption intention towards virtual fitting rooms (VFRs). Specifically, the following factors were examined: perceived usefulness, perceived ease of use, and perceived enjoyment. Additionally, the influence of two personality traits, fashion leadership and technology anxiety, was also investigated. An online survey was distributed to 474 Chinese consumers to collect data for this study. Descriptive analyses, comparative analyses (independent T tests) and regression analyses were conducted to test the proposed conceptual model regarding Chinese consumers' adoption intention towards VFRs. The results suggested that perceived usefulness, perceived ease of use and perceived enjoyment had significantly positive influences on Chinese consumers' adoption intention towards VFRs. Significant influence was revealed from the two personality traits on consumers' perceptions and their adoption intentions, as well as well as the relationship between the two.

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Chinese Consumers' Adoption Intention toward Virtual Fitting Rooms: From the Perspective of
Technology Acceptance Model

by
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DEDICATION

This master thesis is dedicated to my parents, Fang Li and Yang Li. Thank you for your unconditional love and support. Thank you for everything.

BIOGRAPHY

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CHAPTER 1: INTRODUCTION

1.1. Background of the Study

Online apparel sales continue to grow faster than any other e-commerce product segment. E-commerce has important advantages compared to traditional shopping channels (e.g. time, choice, price) but offers only a partial view of the shopping environment (Beck & Crié, 2016). The lack of physical apprehension is a major disadvantage of online purchasing (Beck & Crié, 2016). Therefore, one significant barrier to online shopping is the inconvenience and the postage cost of returning an unsuitable item. If a consumer knows that the piece of clothing they are buying would be a perfect fit, they would be more likely to buy – and retailers might not have to offer free shipping incentives to overcome the return problem. With an estimated 30% of all online apparel sales returned, it is not an insignificant issue (Digital Pulse, 2015).

By allowing shoppers to ‘experience’ an item more personally, online retailers could have a higher chance to motivate consumers to make a purchase. A report by Walker Sands (2015) showed that 35% more customers would shop online if they were able to try on items virtually, rather than just see images of them. To create a shopping environment close to reality, some companies now offer Virtual Fitting Rooms (VFRs) on their websites (Alvarez, 2017).

Virtual try-on systems make it possible for buyers to see themselves wearing different garments without actually wearing the clothes. Such system can improve the shopping experience by assisting customers to make purchase decisions or at least help narrow down selections before physically trying them on (Sekhavat, 2017). Various virtual try-on systems have been proposed in recent years, such as the Webcam Social Shopper (WSS) for Online shopping (Benoff, 2012), “Dressing Room” for mobile shopping (Ochwat, 2017), and “Magic Mirror” for in-store shopping (Banks, 2016). Generally, these techniques are implemented using

Augmented Reality (AR), in which computer-generated garments are superimposed on real data (Yuan et al., 2013).

1.2. Statement of the Problem

By the end of 2015, Chinese online retail transaction volume reached 3.88 trillion yuan (RMB), which was equivalent to a 12.9% increase in the proportion of total retail sales of consumer goods compared with the year before (CNNIC, 2016). However, inherent problems such as lack of fitting and try on experience may have greatly reduced the growth potential of online retailing in China. Additionally, Chinese retailers that carry multiple brands face the challenge of delivering the right fit and sizing solutions to their customers (Gilliland, 2016). Retailers are usually reliant on the contents provided by their multiple suppliers along with juggling different sizing rules for each garment type and brand (Kamath & Saurav, 2016). To solve fit and sizing problems, retailers must effectively deliver two things working together: accurate relevant contents and a good experience (Randall, 2015). Other than the obvious suggestions of more flexible returns policies and offering in-store returns and exchange options for online purchases, many experts go on to recommend investing in virtual fitting rooms (Randall, 2015).

The VFRs market in China is experiencing growth since 2014 (Guo et al., 2014). Some retailers in the Chinese fashion market have adopted virtual fitting rooms. For example, Uniqlo provides VFRs on their website, phone application and physical stores. Another major online retailer in China, Taobao, uses a VFR in collaboration with Haomaiyi, a technology company focused on virtual fitting rooms (Coleman, 2017). Although VFRs have been adopted in China for about five years, they are not widely adopted in the fashion retail industry. Only few retailers

tried to use it online, and most consumers even do not know they could use VFRs when shop online.

1.3. Purpose of the Study

The purpose of this study was to investigate Chinese consumers' adoption intention toward VFRs when they do online shopping. Specifically, following the Technology Acceptance Model (1996), the current research examined the following factors' influence on Chinese consumers' adoption intention toward VFRs: perceived usefulness, perceived ease of use and perceived enjoyment. Additionally, this study aimed to exam the influence of two relevant personality traits, fashion leadership and technology anxiety, on consumers' VFRs adoption intention.

1.4. Research Questions

The following three research questions guided the design of the current study to investigate Chinese consumers' adoption intention toward virtual fitting room:

1. What are Chinese consumers' adoption intention toward VFRs?
2. What factors are influencing Chinese consumers' adoption intention toward VFRs?
3. How would personality traits influence Chinese consumers' adoption decision toward VFRs?

CHAPTER 2: LITERATURE REVIEW

The purpose of this literature review is to lay a strong theoretical foundation for the investigation of Chinese consumers' adoption intention toward virtual fitting rooms from the perspective of Technology Acceptance Model. This section starts with a synthesis of the current literature on virtual fitting rooms and its current application in China. Following that, the Technology Acceptance Model (TAM) is reviewed, including perceived usefulness, perceived ease of use, and perceived enjoyment. Then, additional influential factors of consumers' adoption intention toward VFR are reviewed and analyzed, including fashion leadership and technology anxiety. Finally, a theoretical framework is presented with relevant hypotheses.

2.1. Virtual Fitting Rooms

2.1.1. Virtual Fitting Rooms

Online shopping is getting more popular in recent years. According to Statista (2018), e-commerce sales worldwide amounted to 2.3 trillion US dollars in 2017 and e-retail revenues are going up to 4.88 trillion US dollars in 2021. Fashion segment is a relatively mature market segment in e-commerce, which accounts for 28% of the total online market in 2016 (Bohnhoff, 2016). However, there are some inherent problems for online apparel shopping. A recent research showed that 81% of consumers seek information online before making a purchase (Fabiano, 2018), but the information they can find online is often limited. For example, they cannot interact with a salesperson or enjoy the atmosphere of a store or feel, touch or try on the product (Blázquez, 2014). This may lead to high unsatisfactory purchases and increase in the product return rates (Orendorff, 2019).

Virtual fitting rooms (VFRs) is one of the technologies emerged in the retail industry to help consumers make a more informed decision by virtually try on products. It is a technology

using simulation technology to build avatars for users based on users' measurements. VFR was first introduced in 2005 and widely used after 2010 (Dawndasekare et al., 2016).

As mentioned before, one of the main barriers of online clothing shopping is the fit problems. Besides, consumers would like to try on and see items in person and see how a fabric may drape on the body or the differences in fit between sizes (Hamanaka, 2017). The key purpose of VFR is to enable consumers to feel and look clothing of specific sizes on their body, then they could find the appropriate size (Gültepe & Güdükbay, 2014). Consumer experience in virtual try-on applications relates to delivering positive, intuitive, seamless steps so that consumers can gain confidence in his/her size selection when purchasing apparel online. Thus, the size and fitting online journey must be easy to use (Randall, 2015).

Results of Beck and Crie's experiments (2016) showed that the presence of such a tool significantly increases consumers' curiosity about the product, intention to patronize (online and offline) and intention to purchase (online and offline). In addition, consumers could save time by using virtual try-on apps, as they do not need to go to physical stores (Liaw & Chen, 2013). Virtual fitting rooms may also reduce the product return rate by allowing consumers to virtually try on products before purchase (Guo et al., 2014).

For consumers to try on the products on their virtual body, the first step is to input personal body measurement for the system to generate a virtual body (avatar). There are varying methods of body measurement input. One way is to enter consumers' hips, height, waist and other measurements manually to build an avatar (Garvey, 2010). Some other applications only need users to take a full-body picture and upload it on the apps. Consumers could mix and match different products in their virtual closet and try on products (Business Wire, 2016).

Although the virtual fitting room is a high technology, it still has many shortages. For example, some virtual fitting apps transfer the 2D consumers' photos to 3D avatars, so there would be some errors in sizes (Liang, 2017). In addition, some consumers may concern about their privacy, because they need to upload their sizes even photos to realize virtual fitting, which may reveal their privacy (Wang & Guan, 2015). Additionally, the uploading of body measurements and creating the virtual boy may be very time consuming (Erra et al., 2018).

2.1.2. Virtual Fitting Rooms in China

China is the largest e-commerce market in the world, with online retail sales of goods reached 1.4 trillion yuan (RMB) in the first quarter, 31.2% higher than a year ago (Cheng, 2017). In comparison, retail sales of physical stores only went up 7.2% over the same period of time (Cheng, 2017). Similarly, the frequency of Chinese consumers shopping in store is lower than the frequency of mobile shopping (Cheng, 2017). Taobao, Jingdong, and Tmall represent the major general online retailers in China. Domestic and global fashion brands also offer products via online channel in the Chinese market. Similar fit problems for online shopping exist in the Chinese market (Liang, 2017). Therefore, retailers, especially online retailers, started to utilize VFRs in their apps or websites, including Taobao, JD.Com, and Tmall (Wang et al., 2017).

Taobao is China's largest online marketplace for consumers. With a registered user base of nearly 100 million, it reaches an overwhelming majority of online shoppers in China (Business Wire, 2009). Taobao offers a wide variety of products, including fashion products, furniture, household products, electronic products, and others. In 2016, Taobao partnered with Haomaiyi, a technology company focused on VFRs, to build up its new interactive online campaign and total solution of new fashion retail (Haomaiyi, 2017). Founded in 2013, Haomaiyi focuses on avatar virtual fitting and AI fitting room technologies. This avatar virtual fitting tool

requires users to input some key personal metrics to create, then all the pieces would be automatically put on the avatar once you select them (Wu, 2018). It was reported that using VFRs at Taobao not only can bring more consumers, but also can reduce product returns (Guo et al., 2014). Figure 1 is a screen shot of the VFR sponsored by Haomaiyi on the Taobao website. This application allows the customer to “customize” their virtual avatar by choosing color style, skin color, and wearing glasses or not. After set the virtual avatar, consumers can virtually try on different products.

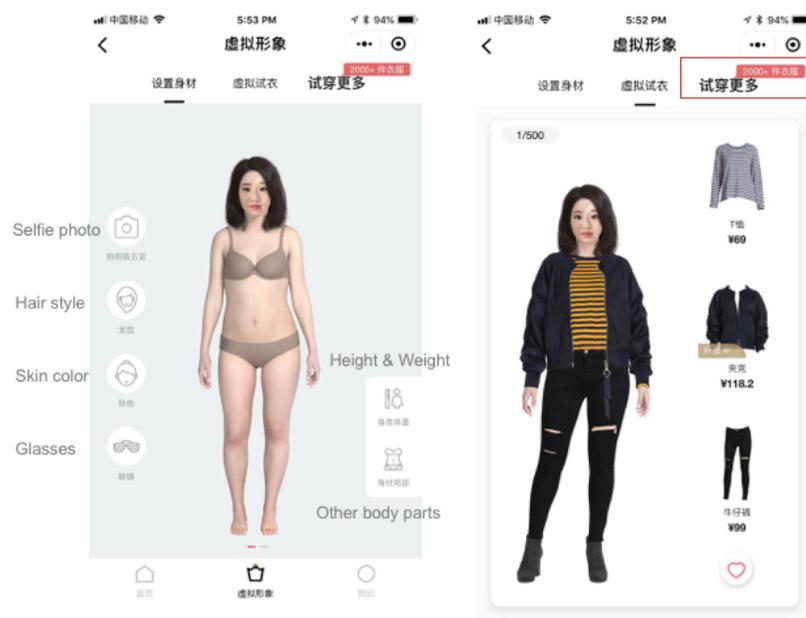


Figure 1. Haomaiyi virtually try-on page in Taobao (Wu, 2018)

2.2 Technology Acceptance Model

Built upon the Theory of Reasoned Action (Fishbein & Ajzen, 1975), the Technology Acceptance Model (TAM) developed by Davis (1985) has been widely employed in investigating consumers’ acceptance behavior toward technology (Kuo et al., 2015). TAM argues that users’ motivation could predict their response to the use of a system (technology). Davis (1989) further suggested that users’ motivation can be explained by three factors,

including perceived usefulness, perceived ease of use, and attitude toward using the system which can be influenced by the former two factors. Additionally, perceived usefulness and perceived ease of use could be directly influenced by the system's design characteristics. Figure 2 visually depicts the modified TAM.

In addition to perceived usefulness and perceived ease of use, Davis et al. (1992) suggested that perceived enjoyment could also have a significant influence on the intention to use computers at workplace as an intrinsic motivation. That is, TAM proposed three key factors that might influence consumers' intention toward technology adoption, including perceived usefulness, perceived ease of use, and perceived enjoyment. Furthermore, Venkatesh and Davis (1996) proposed that there might be external variables influencing the beliefs of a person might have toward the system. The external variables included system characteristics, training, user involvement in design and the nature of the implementation process (Venkatesh & Davis, 1996).

Over the years, TAM has been proven useful in understanding human being's adoption of new technology related applications, such as web site usage (Heijden, 2003), and online shopping (Kim, 2012).

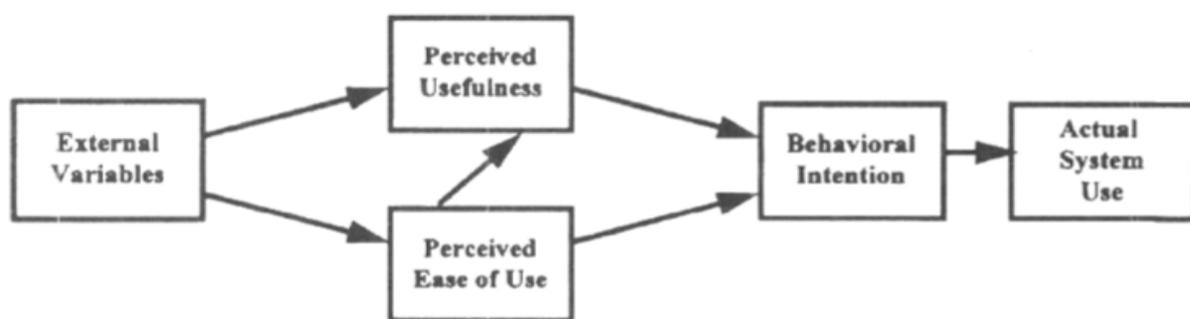


Figure 2. TAM proposed by Venkatesh and Davis (1996)

2.2.1. Perceived Usefulness

Perceived usefulness refers to the degree to which a user believes that using a particular system would be useful in their performance (Davis, 1985). Davis (1985) concluded that people tend to use or not to use a system to the extent that they believe it will help them perform their job better. According to Davis et al. (1992), users' perceived usefulness of computer in workplace involved that it could improve users' performance and productivity in the MBA program. In the context of VFRs, the perceived usefulness can refer to the benefits consumers perceived when using virtual fitting rooms, including try on experience (Liaw & Chen, 2013), and saving their time and effort in using services rather than employing traditional ways to access the same kind of service (Erra et al., 2018). Virtual fitting rooms could help customers improve their online shopping experience at any time and in any place without any restrictions (Alawan et al., 2018). Guided by TAM, it was proposed in this study that consumers' perceived usefulness could have a direct impact on Chinese consumers' intention to adopt VFRs for their apparel purchase, as stated below:

H1: Perceived usefulness will have a positive influence on consumers' adoption intention toward VFRs for their apparel purchase.

2.2.2. Perceived Ease of Use

Perceived ease of use is defined as the degree to which a user believes that using a particular system would be free of effort (Davis, 1985). Davis (1985) concluded that people tend to use or not to use a system to the extent that the beliefs of the efforts required to use a system can directly affect system usage behavior. In the prior research of online technology, many studies proved the importance of perceived ease of use on consumers' intention to adopt new technologies (Hsu et al., 2006). For example, it was revealed that consumers' intention to

transact is positively related to the perceived ease of use of the Web interface (Pavlou, 2003). In the context of VFRs, the following hypothesis was developed in terms of the influence of perceived ease of use on consumers' VFR adoption intention:

H2: Perceived ease of use will have a positive influence on consumers' adoption intention toward VFRs.

2.2.3. Perceived Enjoyment

Perceived enjoyment is the extent to which “the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use” (Venkatesh, 2000). In the prior studies regarding technology acceptance, many researchers argued that intrinsic motivations (i.e. enjoyment, fun, entertainment, and playfulness) has an impact on consumers' adoption intention toward new systems and applications (Davis et al., 1992; Heijden, 2004). In a study examining adoption of mobile internet in Saudi Arabia, perceived enjoyment was proved to have significant influence on consumers' intention to adopt mobile internet (Alalwan et al., 2018). It was suggested that VFRs could provide consumers with a degree of fun and enjoyment when using it (Erra et al., 2018). Consumers would be willing to use VFR since it brings online shopping pleasure. Thus, the following hypothesis was developed in this study:

H3: Perceived enjoyment will have a positive influence on consumers' adoption intention toward VFR.

2.3. Personality Traits

2.3.1. Fashion Leadership

Fashion leadership was described as the ability not only to involve and learn about fashion but also the level of influence others to select fashion products (Kim and Hahn, 2012).

Fashion leadership is also involved in the Big Five Model as an inner characteristic (Lang & Armstrong, 2018). In the previous studies, it was proved that consumers' fashion leadership has an impact on their level of intention, attitude and decision-making regarding fashion products (Cheng, 2015; Wang, Cho, & Liu, 2019; Zhang & Kim, 2013). As VFR is a tool to provide virtual try on experience for their online apparel purchase, it was proposed in this study that fashion leadership would influence consumers' perception, intention, and their decision-making process toward using VFRs. Specifically, the following hypotheses were proposed:

H4: Fashion leadership will have a positive influence on Chinese consumers' (a) perceived usefulness, (b) perceived ease of use, and (c) perceived enjoyment of using VFRs for apparel purchase

H5: Fashion leadership will have a positive influence on Chinese consumers' adoption intention toward using VFRs for their apparel purchase.

H6: Fashion leadership will have a moderating effect on the influence of perceived usefulness, perceived ease of use and perceived enjoyment on their adoption intention toward using VFRs for apparel purchase.

2.3.2. Technology Anxiety

As more and more technologies emerge, it is important to learn about consumers' technology anxiety to explore their willingness to use new technologies (Meuter et al., 2003). Technology anxiety was defined as the "the fear, apprehension and hope people feel when considering use or actually using technology tools" (Cambre & Cook, 1985). It focuses on a user's state of mind about general technology tools (Yang & Forney, 2013). Research suggested a negative influence of technology anxiety on consumer behavior. For example, technology anxiety was found negative influence on consumers' perceived usefulness (Igbaria & Iivari,

1995), and perceived ease of use (Hackbarth et al., 2003). Meuter et al. (2003) found that technology anxiety did help to predict usage of self-service technologies in that consumers with higher level of technology anxiety would had a lower intention to use self-service technologies. Yang and Forney (2013) investigated the moderating effects of technology anxiety on the relationships between performance expectancy and intention to use mobile shopping and identified that technology anxiety had a negative impact on their relationship. Since VFR is still a newly emerged new technology, consumers' technology anxiety may have important effects on their adoption intention toward VFRs. Consumers with high technology anxiety may not want to use VFR when they shop apparel online. Thus, the following hypotheses were proposed:

H7: Consumers' technology anxiety will negatively influence their (a) perceived usefulness, (b) perceived ease of use, and (c) perceived enjoyment of using VFRs for apparel shopping

H8: Consumers' technology anxiety will be negatively related to their adoption intention toward using VFRs for apparel shopping.

H9: Consumers' technology anxiety will have a moderating effect on the influence of perceived usefulness, perceived ease of use, and perceived enjoyment on their adoption intention toward using VFRs for apparel shopping.

2.4. Theoretical Framework

Based on the above literature review and the hypotheses proposed, a theoretical framework (Figure 3) was developed for this study regarding the relationships between consumers' adoption intention of VFR and the identified factors, including perceived usefulness, perceived ease of use, perceived enjoyment, fashion leadership, and technology anxiety.

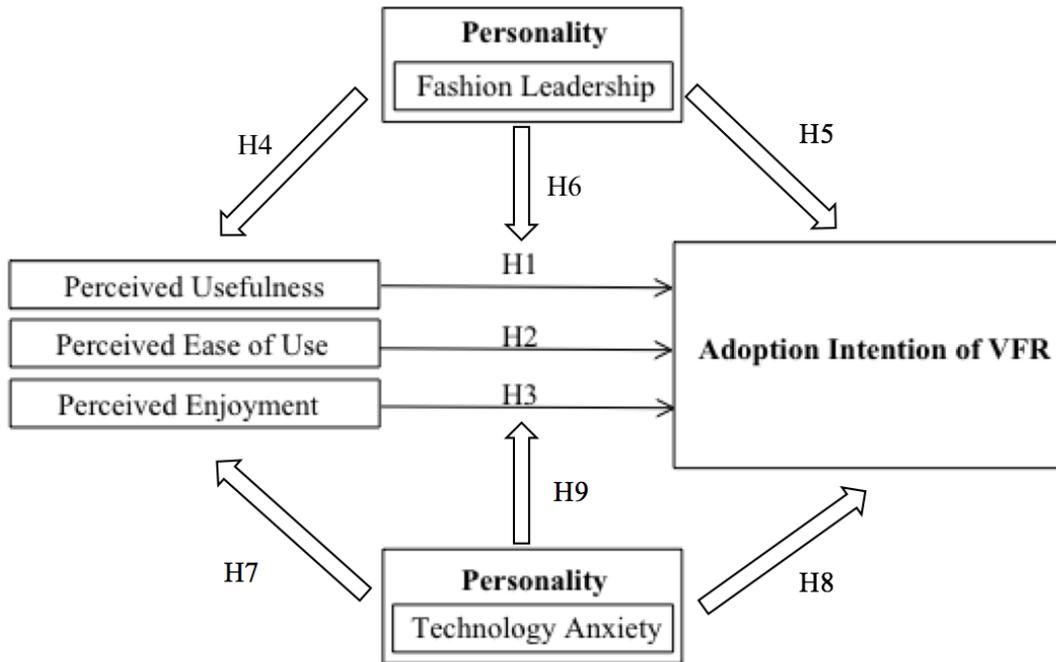


Figure 3. Theoretical framework containing hypotheses H1-H9

CHAPTER 3: METHODOLOGY

3.1. Overview

This chapter presents the methodological procedure utilized to collect data and the instruments used to measure the variables. In addition, measurement tools and methods used in the research were discussed. The purpose of this study was to investigate Chinese consumers' adoption intention toward virtual fitting rooms from the perspective of TAM. Also, it was to find differential perceived usefulness, perceived ease of use, perceived enjoyment and adoption intention of consumers with different levels of fashion leadership and technology anxiety. The moderating effects of personality traits between consumer perceptions and adoption intentions toward VFR were also examined.

3.2. Data Collection

The data for this study were collected via an online survey developed through Qualtrics. The questionnaire was first developed in English (Appendix A), and then translated to Chinese (Appendix B). The survey was then sent to five Chinese before distribution to check and modify if there were any grammar or comprehension problems to ensure the validity of the survey translation. The Institutional Review Board approval (Appendix C) was obtained through North Carolina State University prior to the survey distribution. The respondents were required to be 18 to 50 years old.

A snowball sampling method was used to recruit a convenience sample to participate in the survey. A survey link was posted to a Chinese social media platform-WeChat, as well as sent to several mailing lists. The survey took approximately 5-8 minutes for a thorough completion. The goal was to obtain a total of 400 completed surveys. Qualtrics automatically recorded and stored the responses for data analysis. The data collection took place over a two-week duration in

November 2018. A total of 474 questionnaires were collected. During the data collection process, ongoing monitoring was implemented to delete incomplete surveys and surveys completed in obviously careless manners. A total of 414 surveys were retained for data analysis, after deleting the incomplete surveys.

3.3. Survey Instrument

There were four sections in the survey. The first section measured Chinese consumers' general online shopping behaviors, including their online shopping frequency, problems they have encountered when shop online, and consumers' familiarity of virtual fitting rooms. The second section focused on consumers' perceptions and adoption intentions toward VFRs. The third section measured the participants' personality traits including fashion leadership and technology anxiety. The last section included the demographic information including gender, age, level of education, marital status and family annual income level.

Existing scales were adopted and/or modified to measure the following variables pertaining to this particular study: perceived usefulness, perceived enjoyment, perceived ease of use, adoption intention toward VFRs, fashion leadership and technology anxiety. Each of the constructs was measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Below is the detailed information of the measurement of the key constructs in this study.

3.3.1. General Online Shopping Behavior

General online apparel shopping behaviors contain the following aspects: online shopping frequency and challenges for online shopping in terms of sizing, color and style. Consumers' awareness and experience with VFRs were also measured in this section.

3.3.2. Perceptions and adoption intentions toward VFRs

To measure Chinese consumers' perceptions toward VFRs, respondents were asked to answer questions in terms of perceived usefulness, perceived enjoyment and perceived ease of use of VFR. Perceived usefulness was measured by five items modified from Venkatesh and Bala's (2008) study. Table 1 contains the measurements of perceived usefulness. The items were measured on a 5-point Likert scale.

Table 1. Perceived Usefulness (PU) measurement

Item	Statement
PU1	Using VFR can help increase the effectiveness of online apparel shopping.
PU2	Using VFR for online apparel shopping can increase the product fit in terms of size.
PU3	Using VFR for online apparel shopping can increase the product fit in terms of style.
PU4	Using VFR can help the color choice for my online apparel purchase.
PU5	Using VFR can provide opportunities for me to experiment different outfit combinations.

Four items used in Venkatesh and Bala's (2008) study were modified and used in this study to measure consumers' perceived ease of use. Table 2 listed the measurements of perceived ease of use of VFRs. The items were measured on a 5-point Likert scale.

Table 2. Perceived ease of use (PEOU) measurement

Item	Statement
PEOU1	I think the interaction with VFR technology will be simple.
PEOU2	I think it will be easy to learn how to use VFR.
PEOU3	I don't think using VFR will require a lot of mental effort.
PEOU4	I don't think there are many online retailers in China currently using VFR technologies.

Three items used in Venkatesh and Bala (2008) were modified and used in this study to measure consumers' perceived enjoyment. Table 3 lists the measurements of perceived enjoyment. The items were measured on a 5-point Likert scale.

Table 3. Perceived enjoyment (PE) measurement

Item	Statement
PE1	I think using VFR will be enjoyable.
PE2	I think virtually trying on different apparel items will be fun.
PE3	I think it is interesting to see how different clothing items look on “me” virtually.

Adoption intention toward VFRs was measured by four items modified from the study of Kim and Karpova (2010). Table 4 lists the measurements of adoption intention toward VFRs. The items were measured on a 5-point Likert scale.

Table 4. Adoption Intention (AI) measurement

Item	Statement
AI1	I intend to use VFR apps for online apparel shopping in the future.
AI2	I would like to use VFR to virtually try on apparel products in physical stores if available.
AI3	I would like to be one of the earlier users of VFR.
AI4	I will make an effort to use VFR in the future.

3.3.3. Personality Traits

Fashion leadership was measured by using four items adapted from Goldsmith et al. (1993). Table 5 lists the measurements of fashion leadership. The items were measured on a 5-point Likert scale.

Table 5. Fashion leadership (FL) measurements

Item	Statement
FL1	I am aware of fashion trends and want to be one of the first to try them.
FL2	I am the first to try new fashion; therefore, many people regard me as being a fashion leader.
FL3	It is important for me to be a fashion leader.
FL4	I am usually the first to know the latest fashion trends.

Technology anxiety was measured by using four items modified and adapted from Hwang and Kim (2007), which represented a modified short version of the scale used by Hackbarth et al (2003). Table 6 lists the measurements of technology anxiety. The items were measured on a 5-point Likert scale.

Table 6. Technology anxiety (TA) measurements

Item	Statement
TA1	It scares me to think that I could cause to destroy a large amount of information by hitting the wrong key when using a new technology.
TA2	I hesitate to use new technologies for fear of making mistakes that I cannot correct.
TA3	I feel apprehensive about using a new technology.
TA4	Thinking for using a technology makes me nervous.

3.4. Data Analysis

The data analysis included three stages: data processing, descriptive analyses, and hypothesis testing. In the first stage, the survey link was deactivated with a total of 474 responses after the 2-week data collection period as the goal was to obtain 400 complete surveys. A total of 60 surveys were eliminated because respondents either submitted incomplete surveys or select “no” in the consent form. Then, the data were transferred to SPSS (Statistical Package for the Social Science) for data analyses.

In the second stage, descriptive analyses were conducted to generate the sample profile and to gain an understanding of respondent's general online shopping behavior their awareness of and experience with VFR, and personality traits. Reliability analyses were conducted to test the consistency of the following multi-item variables: perceived usefulness, perceived ease of use, perceived enjoyment, adoption intention, fashion leadership and technology anxiety. And the median point of each personality trait was used to divide respondents into two groups (e.g. high anxiety vs. low anxiety).

In the final stage, to test hypotheses 1-3, regression was employed to regress adoption intention while simultaneously removing those that aren't important; p-value of 0.05 was used to determine the significance of influence. To test hypotheses 4, 5, 7 and 8, multiple T-tests were conducted. To test hypotheses 6 and 9 (moderating effects of personality traits), multiple linear regression were employed in different personality trait groups.

CHAPTER 4: RESULTS

This chapter consists of three major sections: data screening and cleaning process, descriptive analyses results, and hypotheses testing results. Hypotheses 1-3 were tested by regression analysis (Linear Regression). Hypotheses 4, 5, 7 and 8 were tested by comparing means (Independent T-tests). Hypotheses 6 and 9 were tested by multi-group regression analyses (Linear Regression). A brief discussion was provided for each analysis.

4.1. Data Screening and Cleaning Process

A total of 474 surveys were recorded. Out of the 474 surveys collected, 60 questionnaires were removed from the data pool. The following three criteria were used to delete questionnaires: (1) selected “No” in the consent form (19 questionnaires were deleted); (2) questions for the key constructs were not answered (23 questionnaires were deleted); (3) selected the same choices for every question (18 questionnaires were deleted). After this data screening and cleaning process, 87.34% of total questionnaires (414) were retained for further data analyses.

4.2. Descriptive Analyses

4.2.1. Sample Profile

Frequency analyses were conducted to compile the sample profile. The demographic characteristics of the sample were summarized in Table 7. Among the final sample (N=414), over two-thirds of the respondents were female (70.3%). Over half of the respondents (58.2%) were in the age range of 18 to 30, with another 10.4% in the age range of 31 to 35 and the remaining 31.4% between 36 and 50. Majority of the respondents (63.4%) were single. About half of the respondents were students (42.9%). The sample in general was well educated, with majority of the respondents (88.2%) having at least some college education. More than half

(59.9%) of the respondents' annual family income was less than 100,000 Chinese Yuan (CNY) (approximately 14,535 USD).

Table 7. The demographic characteristics of the sample

	Frequency	Percent
Gender		
Male	123	29.7
Female	291	70.3
Age		
18-25	162	39.1
26-30	79	19.1
31-35	43	10.4
36-40	32	7.7
41-45	29	7
46-50	69	16.7
Marital Status		
Unmarried	224	54.1
Married	182	44
Others	8	1.9
Education Level		
High school or below	49	11.8
Some college, no degree	100	24.2
Bachelor's degree	118	28.5
Master's degree and above	147	35.5
Annual Family Income Level (CNY)		
Less than 75000	139	33.6
75,000~99,999	109	26.3
100,000~149,999	79	19.1
150,000~199,999	42	10.1
200,000 or more	45	10.9

4.2.2. General Shopping Behavior

In addition to demographic characteristics, respondents' general online shopping behavior was also measured. Table 8 shows that most respondents had online shopping experiences (91.8%). Majority of the respondents experienced fit problems for their online apparel purchases, with only 4.1% reported no fit problems. About 16.9% of the respondents

reported having often or always had fit problems, with another 47.6% reported sometimes having fit problems. Similarly, only 4.8% and 6% of the respondents reported no problems with style and color problems respectively for their online apparel purchase. In conclusion, most of the respondents had encountered fit problems in online apparel shopping.

Table 8. General shopping behavior of the sample

		Frequency	Percent
Have you ever shopped online before?	Yes	380	91.8
	No	34	8.2
How often do you shop online for apparel products?	Never	11	2.7
	Occasionally	139	33.6
	Sometimes	114	27.5
	Often	129	31.2
	Always	21	5.1
Have you experienced any problems when buying apparel online in terms of size?	Never	11	4.1
	Occasionally	139	31.4
	Sometimes	114	47.6
	Often	129	15.7
	Always	21	1.2
Have you experienced any problems when buying apparel online in terms of style?	Never	20	4.8
	Occasionally	155	37.4
	Sometimes	184	44.4
	Often	51	12.3
	Always	4	1.0
Have you experienced any problems when buying apparel online in terms of color?	Never	25	6.0
	Occasionally	144	34.8
	Sometimes	177	42.8
	Often	63	15.2
	Always	5	1.2

Table 9 reports the most popular online apparel shopping platforms among the respondents. Taobao, an online marketplace (similar to Amazon), was ranked the first in terms of the respondents' mentioning, followed by Tmall, VIP Shop, and Jingdong. Other mentioned platforms included Amazon, Uniqlo, and brands' websites.

Table 9. Online apparel shopping platforms

Online Shopping Platform	Frequency
Taobao	221
Tmall	38
VIP Shop	37
Jingdong	25
Brand Website	25
Amazon	3
Uniqlo	2

As shown in Table 10, only 27.8% of respondents had heard of VFRs before. An even smaller number of respondents (6.3%) had experiences of using VFRs through Taobao or Uniqlo. Among those, almost half (46.2%) of the respondents were not satisfied with their VFR experiences.

Table 10. Consumers' Experience with VFRs

		Frequency	Percent	
Have you ever heard of VFR before?	Yes	Taobao	18	27.8
		Uniqlo	5	
		Other	5	
		Forgot Name	20	
		No Response	67	
	No	299	72.2	
Have you ever used VFR before?	Yes	Taobao	4	6.3
		Uniqlo	1	
		Other	2	
		Forgot Name	3	
	No Response	16		
No	388	93.7		
If you have used VFR, are you satisfied with it?	Yes	14	53.8	
	No	12	46.2	

4.2.3. Consumer Perceptions and Adoption Intention toward VFRs

A reliability analysis was conducted on each of the multi-item variables related to consumers' perceptions and adoption intentions toward VFRs. Results (Table 11) suggested good reliability for all the four variables with Cronbach's alphas above 0.70.

Table 11. Multi-item scales reliability statistics of consumer perspectives of VFR

Multi-item Scales	Cronbach's Alpha	N of Items
Perceived Usefulness	0.849	5
Perceived Enjoyment	0.859	3
Perceived Ease of Use	0.751	4
Adoption Intention	0.835	5

Descriptive analyses results (Table 12) suggested that in general consumers had positive perceptions toward VFRs. On a 5-point Likert scale, the mean scores for the three perceptions were all on the higher side, including perceived usefulness (M=3.80, SD=0.56), perceived ease of use (M=3.65, SD=0.57), and perceived enjoyment (M=3.94, SD=0.63). Similarly, the sample in general showed a positive intention toward adopting VFRs (M=3.76, SD=0.58).

Table 12. Descriptive statistic of consumer perspective

	Mean	Std. Deviation
Perceived Usefulness	3.7976	.56457
Perceived Enjoyment	3.9404	.62904
Perceived Ease of Use	3.6461	.56942
Adoption Intention	3.7585	.57504

4.2.4. Personality Traits

Both personality traits of fashion leadership and technology anxiety were existing scales with good reliability. The reliability analyses (Table 13) conducted in this study confirmed the strong reliability with the Cronbach's alphas for both scales above 0.7.

Fashion leadership was measured by a scale of four items. Reliability analyses revealed a Cronbach's alpha of 0.848. The results showed that fashion leadership at a medium level (M = 3.129, SD = 0.757). Respondents were then classified as low vs. high fashion leadership on the basis of a median split (3.250) based on their responses on the fashion leadership scale. That is, those who scored below 3.250 were classified as low fashion-leadership (n=206) and those who scored 3.250 or above were classified as highly fashion-leadership (n=208).

Technology anxiety was measured by a scale of four items. Reliability analyses revealed a Cronbach's alpha of 0.839. The sample in general had a relatively low level of technology (M = 2.862, SD = 0.765). Similarly, respondents were then classified as low vs. high technology anxiety on the basis of a median split based on their responses on the technology anxiety scale. The median score for technology anxiety was 3.000. That is those who scored below 3.000 were classified as having low technology anxiety (n=193) and those who scored 3.000 or above were classified as having high technology anxiety (n=221).

Table 13. Reliability analysis of personality traits

	Cronbach's Alpha	Mean	Median	Std. Deviation
Fashion Leadership	0.848	3.129	3.250	0.757
Technology Anxiety	0.839	2.862	3.000	0.765

4.3. Hypotheses Testing

4.3.1. Factors Influencing Adoption Intention toward VFRs

A linear regression was employed to describe the statistical relationship between consumers' perceptions and their adoption intention toward VFRs. The R square of this model (Table 14) was 0.519. The results (Table 14) showed that perceived usefulness (p = 0.000), perceived enjoyment (p = 0.000), and perceived ease of use (p = 0.000) all had a significant positive influence on consumers' adoption intention toward VFR. It is worth mentioning that

perceived enjoyment had the strongest impact on adoption intention ($\beta=0.375$), followed by perceived ease of use ($\beta=0.307$) and perceived usefulness ($\beta=0.186$). Therefore, hypotheses 1-3 were accepted.

Table 14. Linear regression of factors influencing adoption intention of VFRs

Dependent Variable	Model	Standardized Coefficients		
		Beta	t	Sig.
Adoption Intention to VFR	Perceived Usefulness	0.186	3.972	0.000
	Perceived Enjoyment	0.375	7.738	0.000
	Perceived Ease of Use	0.307	7.812	0.000

4.3.2. Personality Traits

4.3.2.1. Independent-samples T-test

Independent-sample T-tests were employed to test whether there was statistical evidence that Chinese consumers' perceived usefulness, perceived enjoyment and perceived ease of use were significantly different between the subgroups based on their personality traits, including fashion leadership and technology anxiety. Specifically, a low vs. high division was made for fashion leadership and technology anxiety respectively. The independent T-test was applied between the high and low groups for each of the two personality traits. The T-test results (Table 16) indicated that respondents with a high level of fashion leadership had more positive perceptions toward VFRs than their low fashion leadership counterparts, including perceived usefulness ($p = 0.000$), perceived enjoyment ($p = 0.000$), and perceived ease of use ($p = 0.000$). Therefore, hypothesis 4 was accepted.

Table 15. T-test Results of Consumers' Perceptions based fashion leadership

	Fashion Leadership	N	Mean	Std. Deviation	t	p
Perceived Usefulness	high	208	3.9548	.53773	5.924	.000
	low	206	3.6388	.54750	5.924	.000
Perceived Enjoyment	high	208	4.1490	.57100	7.184	.000
	low	206	3.7298	.61579	7.182	.000
Perceived Ease of Use	high	208	3.7704	.54051	4.569	.000
	low	206	3.5206	.57158	4.568	.000

Similarly, the T-test results (Table 16) also suggested significant differences between the high and low technology anxiety groups in terms of their perceptions toward VFRs. Specifically, consumers with lower level of technology anxiety had more positive perceptions, including perceived usefulness ($p = 0.015$), perceived enjoyment ($p = 0.000$), and perceived ease of use ($p = 0.000$). Therefore, hypothesis 7 was accepted.

Table 16. T-test Results of Consumers' Perceptions based technology anxiety

	Technology Anxiety	N	Mean	Std. Deviation	t	p
Perceived Usefulness	high	221	3.7348	.56770	-2.434	.015
	low	193	3.8694	.55373	-2.438	.015
Perceived Enjoyment	high	221	3.8250	.61263	-4.068	.000
	low	193	4.0725	.62308	-4.064	.000
Perceived Ease of Use	high	221	3.5724	.55888	-2.844	.005
	low	193	3.7306	.57107	-2.839	.005

T-tests were also conducted to test if there was any significant difference in adoption intention between consumers having high vs. low fashion leadership and technology anxiety.

The results (Table 17) revealed consumers with high fashion leadership had a significantly

higher intention to adopt VFRs than their low fashion leadership counterparts ($p = 0.000$). Significant difference was also found between the high vs. low technology anxiety groups. Specifically, consumers having lower degree of technology anxiety had a significantly higher intention to adopt VFRs. Therefore, hypotheses 5 and 8 were accepted.

Table 17. T-test Results of Adoption Intention based personality traits

	N	Mean	Std. Deviation	t	p
Fashion Leadership					
High Leadership	208	3.9769	0.5106	8.396	0.000
Low Leadership	206	3.5379	0.5528	8.393	0.000
Technology Anxiety					
High Anxiety	221	3.6480	0.5550	-4.270	0.000
Low Anxiety	193	3.8850	0.5729	-4.261	0.000

4.3.2.2. Multi-group Linear regression

To test the moderating effect of fashion leadership on the relationship between consumers' perceptions and their adoption intention toward VFRs, a linear regression analysis was conducted on each of the two fashion leadership groups. The results (Table 18) showed that for the low fashion leadership group, consumers' adoption intention was significantly influenced by the following factors in order of importance: perceived enjoyment ($p = 0.000$), perceived ease of use ($p = 0.000$), and perceived usefulness ($p = 0.001$). For the high fashion leadership group, consumers' adoption intention was significantly influenced by the following factors in order of importance: perceived ease of use ($p = 0.000$), perceived enjoyment ($p = 0.000$), and perceived usefulness ($p = 0.048$). While the three factors all had significant influence on consumers' adoption intention toward VFRs, their importance varies between the two groups. Therefore, it was concluded that fashion leadership had a moderating effect on the relationship between consumers' perceptions and adoption intentions toward VFRs. Therefore, H6 was supported.

Table 18. Multiple Regression Analyses (H6)

Independent Variables	Adoption Intention					
	Low FL			High FL		
	β	t	p.	β	t	p.
Perceived Usefulness	0.240	3.426	0.001	0.131	1.993	0.048
Perceived Enjoyment	0.332	4.725	0.000	0.351	5.105	0.000
Perceived Ease of Use	0.255	4.304	0.000	0.360	6.384	0.000

To test the moderating effect of technology anxiety on the relationship between consumers' perceptions and their adoption intention toward VFRs, a linear regression analysis was conducted on each of the two high vs. low technology anxiety groups. The results (Table 19) showed that for the low technology anxiety group, consumers' adoption intention was significantly influenced by the following factors in order of importance: perceived ease of use ($p = 0.000$), perceived enjoyment ($p = 0.000$), and perceived usefulness ($p = 0.041$). For the high technology anxiety group, consumers' adoption intention was significantly influenced by the following factors in order of importance: perceived enjoyment ($p = 0.000$), perceived usefulness ($p = 0.041$), and perceived ease of use ($p = 0.000$). Similarly, while the three factors all had significant influence on consumers' adoption intention toward VFRs, their importance varies between the two groups. Therefore, it was concluded that technology anxiety had a moderating effect on the relationship between consumers' perceptions and adoption intentions toward VFRs. Therefore, H9 was supported.

Table 19. Multiple Regression Analyses (H9)

Independent Variables	Adoption Intention					
	Low TA			High TA		
	β	t	p.	β	t	p.
Perceived Usefulness	0.138	2.055	0.041	0.243	3.638	0.000
Perceived Enjoyment	0.368	5.279	0.000	0.353	5.175	0.000
Perceived Ease of Use	0.378	6.684	0.000	0.239	4.318	0.000

4.3.3 Summary of Hypotheses Testing

In summary, the multiple tests were conducted to test the hypotheses. Table 20 provides a summary of hypotheses testing results.

Table 20. Summary of hypotheses testing (H1-H9)

Hypothesis	Statement of Hypothesis	Results
H1	Perceived usefulness will have a positive influence on consumers' adoption intention toward VFRs for their apparel purchase.	Supported
H2	Perceived ease of use will have a positive influence on consumers' adoption intention toward VFRs.	Supported
H3	Perceived enjoyment will have a positive influence on consumers' adoption intention toward VFRs.	Supported
H4	Fashion leadership will have a positive influence on Chinese consumers' (a) perceived usefulness, (b) perceived ease of use, and (c) perceived enjoyment of using VFRs for apparel purchase	Supported
H5	Fashion leadership will have a positive influence on Chinese consumers' adoption intention toward using VFRs for apparel shopping.	Supported
H6	Fashion leadership will have a moderating effect on the influence of perceived usefulness, perceived ease of use and perceived enjoyment on their adoption intention toward using VFRs .	Supported
H7	Consumers' technology anxiety will negatively influence their (a) perceived usefulness, (b) perceived ease of use, and (c) perceived enjoyment of using VFRs for apparel shopping.	Supported
H8	Consumers' technology anxiety will be negatively related to their adoption intention toward using VFRs for apparel shopping.	Supported
H9	Consumers' technology anxiety will have a moderating effect on the influence of perceived usefulness, perceived ease of use, and perceived enjoyment on their adoption intention toward using VFRs for apparel shopping.	Supported

CHAPTER 5: DISCUSSIONS, CONCLUSIONS, AND LIMITATIONS

The objective of this study was to investigate the factors influencing Chinese consumers' perceptions and their adoption intention toward VFRs by following the Technology Acceptance Model proposed by Venkatesh and Davis (1996). The following research questions guided the current research: (1) What are Chinese consumers' adoption intention toward VFRs; (2) What factors are influencing Chinese consumers' adoption intention toward VFRs; (3) How would personality traits influence Chinese consumers' adoption decision toward VFRs?

5.1. RQ1: Chinese Consumers' Adoption Intention toward VFRs

According to the results, very few respondents have heard and used virtual fitting rooms before, almost half of those who used VFRs before were not satisfied with VFRs. In the analysis of consumer adoption intention, most Chinese consumers intended to adopt VFRs for online shopping in the future. And their perceptions toward VFRs were positive on average.

5.2. RQ2: Influence of Consumers' Perceptions on Adoption Intention

Consumers' perceived usefulness had a significant influence on Chinese consumers' adoption intention toward virtual fitting room. In the study by Saadé and Bahli (2005), they stated that perceived usefulness has a strong positive effect on students' intention to use the Internet-based learning systems (ILS), since students believe that if they use the ILS, their performance in the course would improve. Similarly, in terms of VFR, if consumers consider the virtual fitting room as a useful system which could help them improve the online shopping experience, they will intend to use virtual fitting room. The values associated with perceived usefulness are effectiveness, fit, color choice, and combinations. The most useful function of VFR considered by Chinese consumers is that it could provide opportunities to experiment

different outfit combinations. Therefore, the retailers used VFR should upload various styles of their products and provide more functions for consumers.

Perceived ease of use had a positive impact on Chinese consumers' adoption intention toward virtual fitting rooms. It was worth mentioning that most respondents believed that it would be easy to learn how to use virtual fitting room. As previous study (Ramayah, 2005) claimed, perceived ease of use has a positive influence on the online shopping intention, which suggested that the ease of use of the technology is imperative in predicting the potential e-shoppers' intent. Therefore, ease of use of VFR should be considered by retailers to attract consumers to use it.

There was a significant influence of perceived enjoyment found in Chinese consumers' adoption intention toward virtual fitting room. This suggested that if consumers could have fun and feel enjoyable when using VFRs, they will intend to adopt it in their online shopping. This is supported by Ramayah (2005), in that consumers would only shop online if they find it to be "enjoyable in its own right".

Additionally, this study compared the strength of the effect of technology acceptance factors to the adoption intention toward VFRs. The results indicated that the impact of Chinese consumers' perceived enjoyment on their intention to adopt VFR technology is greater than perceived ease of use and perceived usefulness. The greater impact of perceived enjoyment suggests that Chinese consumers' intention to adopt VFR depends on whether it is enjoyable to use.

5.3. RQ3: Influence of Personality Traits on Perceptions and Adoption Intention

5.3.1. Influence of Fashion leadership

Chinese consumers' perceived usefulness, perceived ease of use, perceived enjoyment and adoption intention toward virtual fitting rooms had significant difference between high and low fashion leadership consumer groups. The findings showed that the perceived usefulness, perceived ease of use, perceived enjoyment and adoption intention toward VFRs of consumers with high fashion leadership were more positive than those with low fashion leadership. As Zhang and Kim (2013) claimed in a previous study, retailers should pay more attention to their selection of goods to attract more high fashion innovators to the stores.

The results showed that consumers with fashion leadership exerted moderating effect on the relationship between consumer perceptions and their adoption intention toward VFRs. To be specific, for Chinese consumers with high fashion leadership, the impact of perceived ease of use on adoption intention toward VFR is greater than perceived enjoyment and perceived usefulness, which means if VFR is easy to use, it will attract consumers with high fashion leadership. While for Chinese consumers with low fashion leadership, perceived enjoyment has the greatest impact on adoption intention toward VFR compared with perceived ease of use and usefulness. In other words, enjoyment is the most important factor for Chinese consumers with low fashion leadership to adopt VFR.

5.3.2. Influence of technology Anxiety

Chinese consumers' perceived usefulness, perceived ease of use, perceived enjoyment and adoption intention toward virtual fitting rooms had significant difference between high and low technology anxiety consumer groups. The findings showed that consumers with low technology anxiety held more positive perceptions and adoption intention toward VFRs than

their high technology anxiety counterparts. As Meuter et al. (2003) mentioned, technologies should address the technology anxiety of potential users. In that case, VFRs should provide detailed explanation on how to use it, for example, online apparel retailers could provide the education video for consumers to reduce their technology anxiety. For Chinese consumers with high technology anxiety, perceived enjoyment has the largest impact on consumers' intention to adopt VFR, while for consumers with low technology anxiety, perceived ease of use has the greatest influence on adoption intention.

5.4. Conclusion and Implications

Results of this study examined the technology acceptance drivers for Chinese consumers' adoption intention toward virtual fitting rooms and verified the impact of moderators (personality traits) on consumers' adoption intention toward VFRs. Consumers with different personality traits tend to use virtual fitting room for different reasons. Overall, the impact of perceived usefulness, perceived ease of use, and perceived enjoyment are prominent. Consumers likely to use virtual fitting rooms because they perceive VFRs to be useful in their online apparel shopping, easy to use, or enjoyable to use VFRs.

From the analysis of personality traits effect, Chinese consumers with high fashion leadership perceived more positive perceptions and adoption intention toward VFRs than those with low fashion leadership. Conversely, Chinese consumers with high technology anxiety perceived less usefulness, ease of use, enjoyment and adoption intention toward VFR than those with high technology anxiety. Besides, there were moderating effects of personality traits found in the relationship between technology acceptance drivers and adoption intention toward VFRs.

From an academic perspective, by exploring consumers' adoption intention, this study confirms that Chinese consumers held positive adoption intention toward VFRs and provides an

insight toward Chinese consumers' behavior toward VFRs. Based on the previous studies of technology acceptance, this study creates a theoretical model, especially for Chinese consumers' adoption intention toward VFR. Overall, perceived usefulness, perceived ease of use and perceived enjoyment were found exerted significantly positive influence on Chinese consumers' adoption intention toward VFRs. Such results provide reference for future research on Chinese consumers' adoption intention toward new technologies.

In terms of managerial implications, results of this study provide the reference information for online apparel retailers on how to attract consumers to buy their products by introducing or developing VFRs. The finding showed that Chinese consumers in general held positive perceptions and intention toward using VFRs. Therefore, online clothing retailers could employ such technology to attract consumers as a marketing strategy. Besides, enjoyment is the most important characteristic of VFR for consumers who want to use it.

5.5. Limitations of the Study and Suggestions for Further Study

This study investigated the relationship between technology acceptance drivers and Chinese consumers' adoption intention toward virtual fitting rooms and examined the moderating effects of personality traits (fashion leadership and technology anxiety). While the results are very insightful, there are some limitations within the context of this research that should be noted.

Since most Chinese consumers have not used VFRs before as noticed in the literature (Huang, 2011) and revealed in this study, their perceptions of VFRs might be imaginative, hence may not reveal the real situation of VFR. Secondly, the moderating effect of the two personality traits were tested by multi-group regression analyses. A structural equation modeling (SEM) could be employed in the future studies to better capture the potential differential effects. Third,

the findings cannot represent the general consumer population, since a snowball sampling method was employed to recruit a convenience sample to participate in the survey. Finally, because of the online survey data collection, the study is skewed toward young consumers with high education level. Thus, due to the unique characteristics of various generations, studied that use a sample from the general population may result in different findings regarding consumers' behaviors and motivations. Therefore, future research should replicate the study using a more diverse sample from the general population, including other generations. Additionally, other factors influencing Chinese consumers' adoption intention toward virtual fitting room could be explored in future research, such as demographics and other psychographic factors.

REFERENCES

- Alalwan, A. A., Baabdullah, A. M., Rana, N. P., Tamilmani, K., & Dwivedi, Y. K. (2018). Examining adoption of mobile internet in Saudi Arabia: Extending TAM with perceived enjoyment, innovativeness and trust. *Technology in Society*, 55, 100-110.
doi:10.1016/j.techsoc.2018.06.007
- Alvarez, E. (2017). Gap envisions a future with augmented-reality 'dressing rooms'. Retrieved from <https://www.engadget.com/2017/01/30/gap-augmented-reality-dressing-rooms/>
- Banks, A. (2016). Augmented reality examples: How fashion & retail are using it. Retrieved from <https://www.highsnobiety.com/2016/07/25/augmented-reality-examples/>
- Beck, M., & Crié, D. (2016). I virtually try it ... I want it! virtual fitting room: A tool to increase online and offline exploratory behavior, patronage and purchase intentions. *Journal of Retailing and Consumer Services*, doi:10.1016/j.jretconser.2016.08.006
- Benoff, J. (2012). The webcam social shopper's 1st facebook integration. Retrieved from <http://staging.zugara.com/wss2/virtual-dressing-room-facebook-integration/>
- Blázquez, M. (2014). Fashion shopping in multichannel retail: The role of technology in enhancing the customer experience. *International Journal of Electronic Commerce*, 18(4), 97-116. doi:10.2753/JEC1086-4415180404
- Bohnhoff, T. (2016). E-commerce: Fashion. Retrieved from https://cdn.statcdn.com/static/pdf/ca_study_readsample/DMO_sample_38340.pdf
- Business Wire. (2009). Taobao partners with UNIQLO to grow china's online fashion market. Retrieved from <https://www.businesswire.com/news/home/20090416005293/en/Taobao-Partners-UNIQLO-Grow-China%E2%80%99s-Online-Fashion>

- Business Wire. (2016). Zeekit launches the most advanced virtual fitting room app for retailers and consumers. Retrieved from <https://www.businesswire.com/news/home/20160915005299/en/Zeekit-Launches-Advanced-Virtual-Fitting-Room-App>
- Cambre, M. A., & Cook, D. L. (1985). Computer anxiety: Definition, measurement, and correlates. *Journal of Educational Computing Research*, 1(1), 37-54. doi:10.2190/FK5L-092H-T6YB-PYBA
- Cheng, M. (2017). eCommerce in china – the future is already here. Retrieved from <https://www.pwccn.com/en/retail-and-consumer/publications/total-retail-2017-china/total-retail-survey-2017-china-cut.pdf>
- Cheng, R. (2015). Blog intention based on fashion involvement and trust. *International Journal of Electronic Commerce Studies*, 6(1), 19-36. doi:10.7903/ijecs.1390
- CNNIC. (2016). 2015 China Online Shopping Market Research Report. Retrieved from <https://www.cnnic.net.cn/hlwfzyj/hlwzxbg/dzswbg/201606/P020160721526975632273.pdf>
- Coleman, L. (2017). What to expect from china's \$46 billion AI focus as it hits CES. Retrieved from <https://www.forbes.com/sites/laurencoleman/2017/12/10/what-to-expect-from-chinas-46-billion-ai-focus-as-it-hits-ces/>
- Davis, F. (1985). *A technology acceptance model for empirically testing new end-user information systems*
- Davis, F. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-40.

- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the Workplace. *Journal of Applied Social Psychology*, 22(14), 1111-1132.
doi:10.1111/j.1559-1816.1992.tb00945.x
- Dawndasekare, D. M. S. P. K., Subhasinghe, V. S. C., Hemendra, K. H. S., Niroshika, A., & Anuradha, P. K. (2016). The Real-time Virtual Fitting Room: VFIT.
- Digital Pulse. (2015). Virtual dressing rooms will become reality sooner than you imagined. Retrieved from <https://www.digitalpulse.pwc.com.au/virtual-dressing-rooms/>
- Erra, U., Scanniello, G., & Colonnese, V. (2018). Exploring the effectiveness of an augmented reality dressing room. *Multimedia Tools and Applications*, 77(19), 25077-25107.
doi:10.1007/s11042-018-5758-2
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Garvey, J. (2010). Fits.me virtual fitting room: Say goodbye to clothing size mishaps. Retrieved from <https://newatlas.com/fitsme-virtual-fitting-room-say-goodbye-to-clothing-size-mishaps/15791/>
- Gilliland, N. (2016). How six online retailers are combatting wrong-size returns. Retrieved from <https://econsultancy.com/how-six-online-retailers-are-combatting-wrong-size-returns/>
- Goldsmith, R. E., Freiden, J. B., & Kilsheimer, J. C. (1993). Social values and female fashion leadership: A cross-cultural study. *Psychology and Marketing*, 10(5), 399-412.
doi:10.1002/mar.4220100504
- Gültepe, U., & Güdükbay, U. (2014). Real-time virtual fitting with body measurement and motion smoothing. *Computers & Graphics*, 43, 31-43. doi:10.1016/j.cag.2014.06.001

- Guo, M., Shi, H., Shi, R., Qiao, R. (2014). Analysis of 3D Fitting Systems Applied Prospect on Taobao. *China Science and Technology Information*, 22, 210-212, doi: 10.3969/j.issn.1001-8972.2014.22.089
- Hackbarth, G., Grover, V., & Yi, M. Y. (2003). Computer playfulness and anxiety: Positive and negative mediators of the system experience effect on perceived ease of use. *Information & Management*, 40(3), 221-232. doi:10.1016/S0378-7206(02)00006-X
- Hamanaka, K. (2017). Dressing room by gap augmented reality app revealed at CES 2017. Retrieved from <http://wwd.com/business-news/technology/dressing-room-by-gap-augmented-reality-app-revealed-at-ces-10737610/>
- Haomaiyi. (2017). AI fitting technology has revolutionized the fashion retail. Retrieved from <http://www.haomaiyi.com>
- Heijden, H. (2003). Factors influencing the usage of websites: The case of a generic portal in the netherlands. *Information & Management*, 40(6), 541-549.
- Heijden, H. (2004). User acceptance of hedonic information systems. *MIS Quarterly*, 28(4), 695-704. doi:10.2307/25148660
- Huang, N., & Qin, G. (2011). A study of online virtual fitting room adoption based on UTAUT. In *2011 International Conference on E-Business and E-Government (ICEE)* (pp. 1-4). IEEE.
- Hwang, Y., & Kim, D. (2007). Customer self-service systems: The effects of perceived web quality with service contents on enjoyment, anxiety, and e-trust. *Decision Support Systems*, 43(3), 746. Retrieved from <https://search.proquest.com/docview/206602998>
- Hsu, M., Yen, C., Chiu, C., & Chang, C. (2006). A longitudinal investigation of continued online shopping behavior: An extension of the theory of planned behavior. *International Journal of Human - Computer Studies*, 64(9), 889-904. doi:10.1016/j.ijhcs.2006.04.004

- Igbaria, M., Iivari, J. (1995). The effect of self-efficacy on computer usage. *Omega, Int. J. Mgmt Sci*, 23 (6), 587-605
- Kamath, N., & Saurav, S. (2016). Handbook of research on strategic supply chain management in the retail industry IGI Global.
- Kim, H., & Karpova, E. (2010). Consumer attitudes toward fashion counterfeits: Application of the theory of planned behavior. *Clothing and Textiles Research Journal*, 28(2), 79-94.
doi:10.1177/0887302X09332513
- Kim, J. B. (2012). An empirical study on consumer first purchase intention in online shopping: Integrating initial trust and TAM. *Electronic Commerce Research*, 12(2), 125-150.
- Kim, J., & Hahn, K. H. Y. (2012). Effects of personal traits on generation Y consumers' attitudes toward the use of mobile devices for communication and commerce. *Human Technology an Interdisciplinary Journal on Humans in ICT Environments*, 8(2), 133-156.
doi:10.17011/ht/urn.201211203032
- Kim, J., Ma, Y. J., & Park, J. (2009). Are US consumers ready to adopt mobile technology for fashion goods? *Journal of Fashion Marketing and Management*, 13(2), 215-230. Retrieved from <http://www.econis.eu/PPNSET?PPN=605173966>
- Kuo, B., Roldan-Bau, A., & Lowinger, R. (2015). Psychological help-seeking among latin American immigrants in Canada: Testing a culturally-expanded model of the theory of reasoned action using path analysis. *International Journal for the Advancement of Counselling*, 37(2), 179-197. doi:10.1007/s10447-015-9236-5
- Lang, C., Armstrong, C. (2018). Fashion leadership and intention toward clothing product-service retail models. *Journal of Fashion Marketing and Management: An International Journal*, 22(4), 571-587, doi:10.1108/JFMM-12-2017-0142

- Liang, D. (2017). Research on virtual fitting and intelligent E-commerce system. *Sci-Tech Innovation and Productivity*, 218(6), 61.
- Liaw, G., & Chen, C. (2013). The impact of virtual fitting room technology on consumers' online purchase intention. *Management and Administrative Sciences Review*, 2(1), 23-35.
- Meuter, M. L., Ostrom, A. L., Bitner, M. J., & Roundtree, R. (2003). The influence of technology anxiety on consumer use and experiences with self-service technologies. *Journal of Business Research*, 56(11), 899-906. doi:10.1016/S0148-2963(01)00276-4
- Ochwat, D. (2017). The DressingRoom by gap mobile app. Retrieved from <https://shoppermarketingmag.com/dressingroom-gap-mobile-app>
- Orendorff, A. (2019). The plague of ecommerce return rates, industry benchmarks, and how to maintain profitability. Retrieved from <https://www.shopify.com/enterprise/ecommerce-returns>
- Ramayah, T., & Ignatius, J. (2005). Impact of perceived usefulness, perceived ease of use and perceived enjoyment on intention to shop online. *ICFAI Journal of Systems Management (IJSM)*, 3(3), 36-51.
- Randall, G. (2015). Fashion ecommerce: Are virtual fitting rooms the silver bullet? Retrieved from <https://econsultancy.com/fashion-ecommerce-are-virtual-fitting-rooms-the-silver-bullet/>
- Saadé, R., & Bahli, B. (2005). The impact of cognitive absorption on perceived usefulness and perceived ease of use in online learning: An extension of the technology acceptance model. *Information & Management*, 42(2), 317-327. doi:10.1016/j.im.2003.12.013
- Sekhavat, Y. A. (2017). Privacy preserving cloth try-on using mobile augmented reality. *IEEE Transactions on Multimedia*, 19(5), 1041-1049. doi:10.1109/TMM.2016.2639380

- Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, 11(4), 342-365. doi:10.1287/isre.11.4.342.11872
- Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 273-315. doi:10.1111/j.1540-5915.2008.00192.x
- Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision sciences*, 27(3), 451-481.
- Walker Sands. (2015). Reinventing retail: what businesses need to know for 2015 whitepaper. Retrieved from https://www.walkersands.com/wp-content/uploads/2018/07/Walker_Sands_Future_of_Retail_2015.pdf
- Wang, M., Yu, C., & Fang, F. (2017). Consumer awareness and function requirement of three-dimensional virtual fitting. *Wool Textile Journal*, 45(11), 78–83.
<https://doi.org/10.19333/j.mfkj.2016120261106>
- Wang, S., & Guan, Y. (2015). Status and Comparison on Advantages & Disadvantages of Virtual Shop Software. *Jiangsu Science & Technology Information*, (21), 73-74.
- Wang, Y., Cho, H., & Liu, C. J. (2019). The moderating roles of fashion innovativeness and involvement in the attitude toward online customization in Taiwan apparel market.
- Wu, C. (2018). Startup pouring old wine in new bottle will probably end up nowhere. Retrieved from <https://blog.rehub.tech/startup-pouring-old-wine-in-new-bottle-will-probably-end-up-nowhere/>
- Yang, K., & Forney, J. C. (2013). The moderating role of consumer technology anxiety in mobile shopping adoption: differential effects of facilitating conditions and social influences. *Journal of Electronic Commerce Research*, 14(4), 334.

Yuan, M., Khan, I. R., Farbiz, F., Susu Yao, Niswar, A., & Min-Hui Foo. (2013). A mixed reality virtual clothes try-on system. *IEEE Transactions on Multimedia*, 15(8), 1958-1968.

doi:10.1109/TMM.2013.2280560

Zhang, B., & Kim, J. (2013). Luxury fashion consumption in china: Factors affecting attitude and purchase intent. *Journal of Retailing and Consumer Services*, 20(1), 68-79.

doi:10.1016/j.jretconser.2012.10.007

APPENDICES

Appendix A. English Version of the Survey

Note to individual filling out this questionnaire:

Thanks for taking the time to fill out this questionnaire. The information that you provide will give us valuable insights into consumers' intention to adopt virtual fitting room (VFR) technology in the fashion industry.

Please complete this questionnaire as completely as you can.

Thanks again for your time and effort.

Ailin Li
College of Textiles, NCSU
ali19@ncsu.edu
(919) 272-9530

Consent Form

Voluntary Consent by Participant:

If you are between the ages of 18 - 50 and you agree to participate in this study, please select 'yes' below in order to proceed on to the survey. Otherwise, please select 'no.' Your completion of the survey implies your consent for the researchers to use the data for research purposes. The data you provided will be analyzed collectively. You have the right to skip any question that you do not feel comfortable answering in the survey.

- Yes
- No

Virtual fitting rooms (VFR): A technology, which allows consumers to try on products on a virtually simulated model based on their body measurements through various methods.

Section One: General shopping behavior

- Have you ever shopped online for apparel products? If yes, please list the name of the retailer or the name of the app.
 - Yes _____
 - No

- How often do you shop online for apparel products?
 - Always
 - Often
 - Sometimes
 - Occasionally
 - Never

- Have you experienced any problems when buying apparel online in terms of size?
 - Always
 - Often
 - Sometimes
 - Occasionally
 - Never

- Have you experienced any problems when buying apparel online in terms of style?
 - Always
 - Often
 - Sometimes
 - Occasionally
 - Never

- Have you experienced any problems when buying apparel online in terms of color?
 - Always
 - Often
 - Sometimes
 - Occasionally
 - Never

- Have you ever heard of virtual fitting room before? If yes, please list the name of the retailer or the name of the app.
 - Yes _____
 - No

- Have you ever used virtual fitting room in the past? If yes, please list the name of the retailer or the name of the app.
 - Yes _____
 - No

- If yes, are you satisfied with it?
 - Yes
 - No

Section Two: Main Questions

Directions: On a scale from 1 to 5, where ‘1’ means you would strongly disagree with the statement and ‘5’ means you strongly agree with the statement. Please evaluate the following statements.

Questions: Perceived Usefulness	1	2	3	4	5
Using VFR can help increase the effectiveness of online apparel shopping.					
Using VFR for online apparel shopping can increase the product fit in terms of size.					
Using VFR for online apparel shopping can increase the product fit in terms of style.					
Using VFR can help the color choice for my online apparel purchase.					
Using VFR can provide opportunities for me to experiment different outfit combinations.					

Questions: Perceived Enjoyment	1	2	3	4	5
I think using VFR will be enjoyable.					
I think virtually trying on different apparel items will be fun.					
I think it is interesting to see how different clothing items look on “me” virtually.					

Questions: Perceived Ease of Use	1	2	3	4	5
I think the interaction with VFR technology will be simple.					
I don’t think using VFR will require a lot of mental effort.					
I think it will be easy to learn how to use VFR.					
I don’t think there are many online retailers in China currently using VFR technologies.					

Questions: Fashion Leadership	1	2	3	4	5
I am aware of fashion trends and want to be one of the first to try them.					
I am the first to try new fashion; therefore, many people regard me as being a fashion leader.					
It is important for me to be a fashion leader.					
I am usually the first to know the latest fashion trends.					

Questions: Technology Anxiety	1	2	3	4	5
It scares me to think that I could cause to destroy a large amount of information by hitting the wrong key when using a new technology.					

I hesitate to use new technologies for fear of making mistakes that I cannot correct.					
I feel apprehensive about using a new technology.					
Thinking for using a technology makes me nervous.					

Questions: Adoption Intention	1	2	3	4	5
I intend to use VFR apps for online apparel shopping in the future.					
I would like to use VFR to virtually try on apparel products in physical stores if available.					
I would like to be one of the earlier users of VFR					
I will make an effort to use VFR in the future.					

Section Three: Demographics

- Gender
 - Male
 - Female
- Age
 - 18~25
 - 26~30
 - 31~35
 - 36~40
 - 41- 45
 - 46-50
- Marital status
 - Married
 - Unmarried
 - Others
- Education Level
 - 1) High school diploma or below
 - 2) Some college, no degree

- 3) Bachelor's degree
- 4) Graduate degree
- Annual Family Income Level
 - 1) Less than ¥75,000
 - 2) ¥75,000~¥99,999
 - 3) ¥100,000~¥149,999
 - 4) ¥150,000~¥199,999
 - 5) ¥200,000 or more

Appendix B. Chinese Version of the Survey

感谢您参加美国北卡罗莱纳州立大学的这项调查研究。此问卷大概会耽误您 10 分钟的时间。通过此问卷我们旨在了解中国消费者对虚拟试衣间的看法。您有权跳过任何让您感到不适的问题，但我们希望您能完成所有问题，并对此表示十分感谢。如果您对本次调查有任何疑问，请通过电子邮件联系我们，邮箱地址: ali19@ncsu.edu。

参与者的自愿同意书：

如果您的年龄在 18-50 岁之间且您同意参加本研究，请在下面选择“是”以继续进行调查，否则请选择“否”。您完成调查意味着您同意研究人员将数据用于研究目的。您提供的数据将被用于集体分析。

- 是
- 否

虚拟试衣间 (VFR)：在线购买服装时，在虚拟试衣间 app 或网页上传自己的身体测量数据和个人头像照片，可以生成虚拟的人体模型，消费者可以通过该虚拟模型进行服装试穿。问题陈述中将使用 VFR 指代虚拟试衣间。

第一部分: 购物行为

- 您有在网上购买服装的经历吗?如果有，请列出您购买服装的平台。
 - 有 _____
 - 没有
- 您在网上购买服装的频率是？
 - 总是
 - 经常
 - 有时
 - 偶尔
 - 从不

- 在网上购买服装时，您是否遇到过尺寸不合适的问题？
 - 总是
 - 经常
 - 有时
 - 偶尔
 - 从不
- 在网上购买服装时，您是否遇到过款式不合适的问题？
 - 总是
 - 经常
 - 有时
 - 偶尔
 - 从不
- 在网上购买服装时，您是否遇到过服装颜色与图片不符的情况？
 - 总是
 - 经常
 - 有时
 - 偶尔
 - 从不
- 您以前听说过虚拟试衣间吗？如果听说过，请列出零售商的名称或 app 的名称。
 - 是 _____
 - 否
- 您曾经使用过虚拟试衣间（VFR）吗？如果使用过，请列出零售商的名称或 app 的名称。
 - 是 _____
 - 否
- 您对 VFR 的使用体验满意吗

- 是
- 否

第二部分: 主要问题

说明:在 1 到 5 的范围内, 其中“1”表示您强烈反对该陈述, “5”表示您非常同意该陈述。请评估以下声明。

问题: 感知有用性	1	2	3	4	5
使用 VFR 可以帮助我提高网上服装购物的效率。					
使用 VFR 进行网上服装购物可以在尺寸方面提高服装的合身效果。					
使用 VFR 进行网上服装购物可以在款式方面提高服装的合身效果。					
使用 VFR 进行网上服装购物能够帮助我进行颜色选择。					
使用 VFR 能够给我提供体验不同服装组合的机会。					

问题: 感知乐趣	1	2	3	4	5
我认为使用 VFR 会很愉快。					
我认为虚拟地试穿服装会很有趣。					
在虚拟的“我”身上试穿不同的衣服会很好玩。					

问题: 感知行为控制	1	2	3	4	5
我认为与 VFR 技术的互动会很简单。					
我不认为使用 VFR 会很复杂。					
我认为学习如何使用 VFR 会很容易。					
我不认为中国有很多在线服装零售商正在使用 VFR 技术。					

问题: 时尚领导力	1	2	3	4	5
我了解时尚潮流, 并希望成为最先尝试它们的人之一。					
我一般是最先去尝试新时尚的人, 因此, 很多人都认为我是时尚领导者。					

对我来说，成为时尚领导者非常重要。					
我通常是最先了解最新流行趋势的人。					

问题: 技术焦虑	1	2	3	4	5
当使用一个新技术时，我很担心我可能会操作不当。					
我对使用新技术感到犹豫是因为害怕造成自己无法纠正的错误。					
我对使用新技术感到担忧。					
一想到要使用新技术我就很紧张。					

问题: 采用意图	1	2	3	4	5
我打算将来使用 VFR 的手机 app 进行在线服装购物。					
我愿意在实体店中使用店家提供的 VFR 虚拟地试穿服装产品。					
我愿意成为 VFR 的早期用户之一。					
我未来会尝试使用 VFR。					
我认为中国更多的服装零售商应该提供 VFR。					

第三部分: 基本信息

- 您的性别
 - 男
 - 女
- 您的年龄
 - 18~25 岁
 - 26~30 岁
 - 31~35 岁

- 36~40 岁
 - 41~45 岁
 - 46~50 岁
- 您的婚姻状态
 - 未婚
 - 已婚
 - 其他
- 您的教育程度
 - 高中文凭或以下
 - 大学在读
 - 学士学位
 - 研究生在读或以上
- 您的家庭年收入水平
 - 低于 ¥ 75,000
 - ¥ 75,000~ ¥ 99,999
 - ¥ 100,000~ ¥ 149,999
 - ¥ 150,000~ ¥ 199,999
 - ¥ 200,000 以上

Appendix C. IRB Form for Approval of Surveying

Dear Ailin Li:

Date: November 10, 2018

IRB Protocol 14347 has been assigned Exempt status

Title: Chinese Consumers' Adoption Intention toward Virtual Fitting Rooms: From the Perspective of Theory of Planned Behavior(TPB)

PI: Xu, Yingjiao

The research proposal named above has received administrative review and has been approved as exempt from the policy as outlined in the Code of Federal Regulations (Exemption: 46.101. Exempt b.2). Provided that the only participation of the subjects is as described in the proposal narrative, this project is exempt from further review. This approval does not expire, but any changes must be approved by the IRB prior to implementation.

1. This committee complies with requirements found in Title 45 part 46 of The Code of Federal Regulations. For NCSU projects, the Assurance Number is: FWA00003429.
2. Any changes to the protocol and supporting documents must be submitted and approved by the IRB prior to implementation.
3. If any unanticipated problems or adverse events occur, they must be reported to the IRB office within 5 business days by completing and submitting the unanticipated problem form on the IRB website:
<http://research.ncsu.edu/sparcs/compliance/irb/submission-guidance/>.
4. Any unapproved departure from your approved IRB protocol results in non-compliance. Please find information regarding non-compliance here:
http://research.ncsu.edu/sparcs-docs/irb/non-compliance_faq_sheet.pdf.

Please let us know if you have any questions.

Jennie Ofstein

NC State IRB Office

919.515.8754 (email is best)