

A study on the effect of user experience of fitness APP on product trust and purchase intention

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Abstract

Purpose - The purpose of this study is to take fitness APP users as the research object from the perspective of user experience to explore the influence of fitness APP user experience factors on product trust and purchase intention.

Design/methodology/approach - The study collected data on 275 customers who had experience buying and using fitness apps. To test the hypothesis, SPSS 27.0 and AMOS 26.0 statistical packages were used based on the collected data.

Findings - The results showed that the user experience factors (usefulness, ease to use, enjoyment, interaction) of fitness APP and the relationship between product trust had a positive effect, and product trust had a positive effect on purchase intention. In addition, exercise experience, showed a moderating effect in the relationship between the usefulness, easy to use of user experience and product trust.

Research implications or Originality - This study provided research model among user experience factors of fitness APP, product trust and purchase intention. This study can help sports and fitness companies with product optimization and marketing decisions.

Keywords: Fitness APP, User Experience, Usefulness, Product Trust, Purchase Intention

JEL Classifications: L83, M30, M31

I. Introduction

With the increasing optimization of the mobile Internet environment and the popularization of smart phones, mobile APPs have become the main carrier of Internet development. Through fitness APP, sports and Internet technology are fully integrated to make people exercise more scientifically.

Due to the spread of Corona 19, many gyms have struggled as traditional gyms are not suitable for exercise due to movement restrictions and quarantine requirements. Fitness services become impossible in an offline environment (Sujeong Yoon et al., 2022) Fitness apps have created a new way of fitness for people who are isolated at home. Because fitness APP courses do not use complex equipment in most cases, health apps can meet the needs of home fitness.

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Therefore, the demand for home fitness has gradually increased, and the downloads of fitness applications have also increased significantly. In the past year, the per capita consumption of Chinese residents in sports and related aspects exceeds 5,670RMB, and the average consumption of members who invest in online fitness such as fitness courses, fitness malls, and fitness APP members reached 3,820RMB (China Sporting Goods Federation, 2021). However, with the emergence of sports and fitness apps, the fitness user base continues to expand, and the challenges facing fitness app operators continue.

Most of the competition in the early stage of the application market is the competition of new users. Only by successfully acquiring new users and converting them into loyal users can they become the basis for later paid conversions. The conversion from new users to loyal users requires a catalyst, and user experience is this catalyst, and the sense of experience is directly related to the departure of new users and the conversion of new users to loyal users. The user experience of fitness APPs is better than offline fitness stores, whether in interface design, APP platform communication, and the performance of the APP itself. Therefore, operators need to focus on how to improve it. At present, with the rapid growth of the number of fitness APP users, in recent years, China's leading fitness APPs are doing a lot of online activities and creating their own brands to attract a large number of new users. However, events and content are not enough, products and services must be constantly upgraded.

By sorting out the research on sports and fitness APP, it is found that the research on sports and fitness APP mainly focuses on the functional characteristics, fitness APP users' intention to use and intention continue to use. There is very little research on the purchase intention of fitness APP products.

The paid item fitness APP mainly include training classes, memberships, shopping malls, etc. It is hoped that this study can make up for the lack of current research on the purchase intention of fitness APP user experience, and provide more theoretical support for related research.

This study will discuss whether and to what extent user experience affects product trust and purchase intentions for paid products in fitness apps. In terms of marketing, it is hoped that enterprises engaged in the sports and fitness industry will provide users with spiritual and material consumption desires as much as possible for the purpose of improving user experience. This study can help sports and fitness companies with product optimization and marketing decisions. User experience is a very important factor in all companies today. The user experience of a product not only determines whether a product sells well or not, but also affects the consumer's mentality and lifestyle to a certain extent. Therefore, this study will conduct quantitative research on the basis of the overall research on the user experience theory and evaluation system to determine whether each dimension affects the product trust and purchase intention of the fitness application market.

II. Theoretical background

1. Concept of Fitness APP

As one of the mobile apps, the fitness APP provides information and services related to sports and health, and has rich exercise and fitness functions such as running, yoga, and weight training. The fitness APP can provide functions tailored to the actual situation of the user's

gender, exercise preference, etc., and the user can complete the fitness plan through the fitness video and sound suitable for him in the right place (home, community queer, etc.).

In addition, fitness apps can track fitness status by providing a record of number, time, and post-workout conditions. According to a study by Kim, D. G. (2013), fitness apps can record various exercise data, for example, smartphones can provide exercise volume, exercise data, calendar and physical fitness data from wearable devices. Sungho Choi et al. (2017) proposed that fitness apps can provide online professional fitness guides, ranking lists, app ratings, and exercise records. The fitness app shows you how many calories you burn each day and even measures your physical fitness. A fitness app with these features is a useful tool to enhance your exercise. A study by Jin Xiaoyang and Wang Qi (2021) shows that fitness APP is an online platform for a healthy lifestyle, providing online users with one-stop services such as fitness training, running, cycling, making friends, fitness meal teaching, and purchasing products.

With the rapid development of the Internet, various applications emerge one after another, and fitness APPs are also rapidly popularized in public life. Through existing research, scholars have found that fitness APPs do not have a unified definition. On the basis of existing research, this study defines fitness APP as a one-stop mobile APP for equipment purchase and meeting all fitness needs of users.

2. User Experience Factors of APP

To study the components of user experience, the most influential theories are flow experience, situational experience and user engagement theory. The literature review found that scholars' research on user experience did not strictly follow these theories. Scholars in various fields increased or decreased the elements of their own research according to the characteristics of their research goals. Hassenzahl, M. and Tractinsky, N. (2006) divided user experience into four categories: manipulative, cognitive, motivating and suggestive, and it is presented as a practical experience and a hedonic experience by function. Peter Morville (2006) classified findability, accessibility, usability, usefulness, credibility, desirability, and value.

Since 2015, the user experience components of applications have been researched in various fields, Sun, Qi, and Kim and Se Hwa (2015) found that the user experience factors of travel applications include use efficiency, aesthetics, brand reliability, social Purpose, ease of use. Lee Seung-min (2018) proposed that photo app user experience factors are composed of four variables: convenience, usability, entertainment, and design. Zhang Yi et al. (2019) proposed that the user experience of a mobile learning APP consists of five elements: enjoyment, reliability, usability, usability, and interactivity. Cho, Hyoun-Ah and Chun, Hejin (2019) examine the impact of usefulness, reliability, ease of use, and brand image as user experience factors for delivering apps on satisfaction and continued use intentions. Zhuo Zhang and Jang Chunggun (2021) studied smartphone medical application user experience factors based on user experience theory, smartphone application user experience and mobile medical application research. Studies have shown that influencing factors such as product resources, medical advertisement recommendations, doctor-patient interaction, inducing emotional pleasure, and application learning difficulty have a great impact on users' obtaining a good experience when using the application.

In this study, we will refer to the concept of user experience factors derived from various previous studies and consider the characteristics of fitness applications, and decide usefulness,

ease to use, enjoyment, interaction and brand image as fitness applications user experience factors.

3. Product Trust

Trust is a broad definition, and each discipline defines trust differently. In the field of marketing, trust is widely used as an important factor influencing consumer psychology, attitude, decision-making, purchasing behavior and repurchase behavior. In Morgan, R. M. and Hunt, S. D. (1994), trust refers to authenticity, that is, trust refers to the trustworthiness and honesty of a counterparty in a trading partner. Garbarino, E. and Johnson, M. S. (1999) listed quality and service reliability as factors of trust. Reliability and sincerity are the foundation of trust. Product trust is the attitude of consumers towards a certain product among many products, and it is the psychological sense of security and trust that a product brand expects to bring to consumers when purchasing a product (Pauling and Li Junhua, 2009). Trust is a tool that facilitates communication to safely choose and use brands in the relationship between businesses and consumers (Na Chae Man 2020).

Due to the nature of the online environment, it is impossible for consumers to actually see or use a product before purchasing, so various factors are needed to ease consumer anxiety (Kim, Jaehun and Shin, Jong-Kuk, 2022). When consumers buy a product, they will be influenced by the trust in the product and the information they have in advance, which are the main factors for consumers to judge whether to buy or not (Park Hye-ji, 2011).

4. Purchase Intention

Intention is a subjective probability that an individual can engage in a specific action, and is extended through the same concept, and purchase intention is the high or low probability that a consumer wants a specific purchase action. Dodds, W. B. et al. (1991) defined purchase intention as an action that indicates the likelihood of purchasing the product.

Engel, J. F. et al. (1995) defined purchase intention as the expected or planned future behavior of consumers and defined as the possibility that attitudes of beliefs will be translated into behaviors. Kotler, P. (1999) found that consumers' purchase intention occurs when consumers are stimulated by external factors, and purchases are determined by their personal characteristics and purchase decision-making process. Purchasing intention connects consumers' purchasing behavior and purchasing attitude and can be said to be a subjective possibility that consumers act to make actual purchase behavior (Heo Jae Kang et al, 2019).

III. Hypothesis Development

1. Research Hypothesis and Model

1.1 The Relationship Between the Usefulness of User Experience Factors in Fitness Apps and Product Trust

According to Park Hye-ji (2011), usefulness is seen as "the degree to which the use of information provided by other consumers forms a belief that using information provided by other

consumers will help in purchasing decisions”. Defined as the degree to which a person believes performance will improve. Na, Youn-Kue and Hong, and Byung-Sook (2008) concluded that the perceived usefulness of online shopping products has a positive impact on usage attitudes. Cho, Sung-Ho and An, Dae-Hee (2019) verified that O2O platform service features have a positive impact on usefulness, and usefulness has a positive impact on trust. The usefulness of fitness APP user experience is to help users achieve fitness goals and develop good fitness habits. After users use fitness apps and achieve a certain level of performance, it increases their trust in fitness apps and products. Based on these discussions, the following hypotheses can be established.

H1: Usefulness will have a positive (+) effect on product trust in fitness apps.

1.2 The Relationship Between the Ease to Use of User Experience Factors in Fitness Apps and Product Trust

According to a study by Koufaris, M. and Hampton-Sosa, W (2004), one of the reasons consumers do not shop online is that the complex design of websites makes it difficult for consumers to use them. Therefore, an easy-to-learn and easy-to-use system compared to a complex and difficult-to-use website can help consumers quickly find the information they want and reduce search costs. Gefen, D. et al. (2003) found that the ease of use of a website can increase the user's perception of the usefulness of the website as well as increase the user's trust on the website. In a study on the relationship between technology acceptance model and trust in the restaurant industry, perceived usefulness and perceived ease of use of hotel product sales social commerce users showed a significant effect on trust (Song, Ju-Hyung et al, 2018). Based on these discussions, the following hypotheses can be established.

H2: Ease to use will have a positive (+) effect on product trust in fitness apps.

1.3 The Relationship Between the Enjoyment of User Experience Factors in Fitness Apps and Product Trust

It was confirmed that emotional variables (pleasure, anxiety) are very important in electronic trust, and pleasure is an important variable influencing trust (Hwang, Y. and Kim, D. J, 2007). Hedonistic motivation in internet banking has been shown to have a strong influence on trust (Alalwan, A. A. et al, 2015). Young-Ju Mun and Jong-Ho Lee. (2009) conducted an empirical study on repurchase intention of social presence, pleasure, satisfaction and trust formation in B2C e-commerce, and the results show that pleasure had a positive impact on trust. In the process of experiencing the product, if the customer has a positive shopping mood, it is easy to form trust in the product in the mall. Based on these discussions, the following hypotheses can be established.

H3: Enjoyment will have a positive (+) effect on product trust in fitness apps.

1.4 The Relationship Between the Interaction of User Experience Factors in Fitness Apps and Product Trust

According to Lewis, J. D. and Weigert, A. (1985), consumers' trust in companies mainly comes from their interactions with companies, and long-term interactions between companies and consumers increase trust and lead to positive purchase intention. Blackwell, R. D. et al. (2001) concluded that maintaining consumer trust in a particular brand requires long-term interaction and communication. Through interaction, customers develop a natural sense of trust in the product, as the range of opportunities to obtain information about the product or service expands during the stage of communication with advertisers or other customers (Fortin, D. R. and Dholakia, R. R. 2005). Lee Eun-Mi et al. (2009) stated that the interaction of Internet shopping mall users affects trust, and trust affects reuse intention. Based on these discussions, the following hypotheses can be established.

H4: Interaction will have a positive (+) effect on product trust in fitness apps.

1.5 The Relationship Between the Brand Image of User Experience Factors in Fitness Apps and Product Trust

Yoo, B. et al. (2000) suggested that brand image is the basis for forming positive expectations, facilitating mutual relationships, and building brand trust. TANG Xiaoxiao and HONG Ruyan. (2016) suggested that if consumers know more about the brand of a shopping platform, they will have more emotional awareness of the platform and feel safer and more trustworthy when shopping on this platform. While e-commerce continues to grow, competition among online retailers will intensify, potential customers can easily compare sites and search for better and cheaper products, creating trust in products, and brand image is an important factor affecting trust (Rahman et al, 2020). Deok-Hyeon Kim et al. (2014) proved that brand image can have a positive effect on product trust. Based on these discussions, the following hypotheses can be established.

H5: Brand image will have a positive (+) effect on product trust in fitness apps.

1.6 The Relationship Between Product Trust and Purchase Intention

The higher the product reliability, the higher the customer's expectations before purchase, and the characteristic of maintaining a voluntary acceptance attitude even when experiencing temporary unpleasant situations during the purchase process (Jung, K. H. et al, 2007). According to a study by Cheung, C. and Lee, M. K. (2000), reducing consumers' perceived risk, trust in online shopping is highly likely to promote product purchases. When customers build trust in the community, seller, or other entity of the product, they have a strong purchase intention (Fu, S. et al, 2018). Based on these discussions, the following hypotheses can be established.

H6: Product trust will have a positive (+) effect on product purchase intentions in fitness apps.

1.7 Moderating Effect of User Characteristics (Exercise Experience)

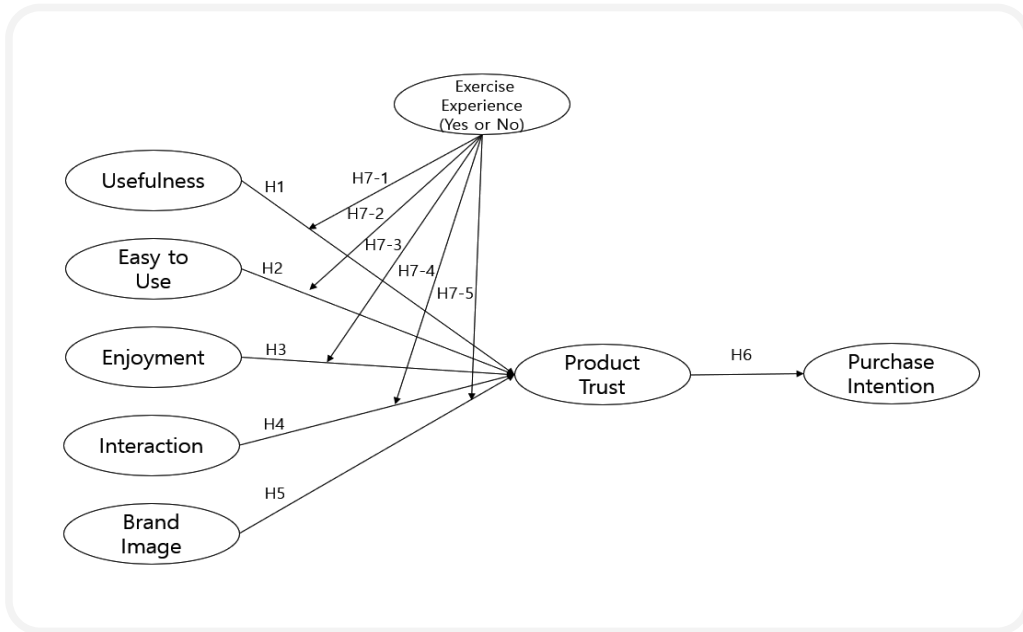
This study uses exercise experience as a moderator between product trust and purchase intention. The respondents were divided into two sample groups: "Exercise experience" and "without sports experience". "Exercise experience" refers to respondents who have exercise experience before using fitness apps; "no exercise experience" refers to respondents who have no exercise experience before using fitness apps.

This study believes that through the user's evaluation of fitness apps, users with certain exercise experience are more likely to find the most suitable products for them at this stage than users without exercise experience when using fitness apps, and will form trust and purchase behavior of products.

Gefen, D. (2000) found that consumers' familiarity with bookstores affects their trust and purchase intentions for online bookstore shopping. Cheol Park (2004) states that as experience with the Internet increases, knowledge increases, and the perceived risk of Internet shopping decreases due to skilled Internet search and use. Tan (1999) research shows that the more experience shopping online, the higher the tendency to accept risk rather than avoid it, suggesting that consumer behavior changes depending on the degree of online shopping experience. When Pang Chuan (2004) studied the online trust of customers in B2C e-commerce, it was empirically proved that users with online shopping experience had higher trust than those without online shopping experience. If fitness APP users have exercise experience, it is expected to affect their trust and purchase intention of fitness APP products. Therefore, the hypotheses of the user characteristics of the moderating variable (whether or not exercise experience) are as follows.

- H7:** For users with exercise experience, user experience factors of fitness apps will have a greater impact on product trust in fitness apps than users without exercise experience.
- H7-1:** Usefulness will have a greater impact on product trust in fitness apps for users with exercise experience than users with no exercise experience.
- H7-2:** Ease of use will have a greater impact on product trust in fitness apps for users with exercise experience than for users with no exercise experience.
- H7-3:** Enjoyment will have a greater impact on product trust in fitness apps for users with exercise experience than for users with no exercise experience.
- H7-4:** Interaction will have a greater impact on product trust in fitness apps for users with exercise experience than for users with no exercise experience.
- H7-5:** Brand image will have a greater impact on product trust in fitness apps for users with exercise experience than for users with no exercise experience.

Fig. 1. Research Model



2. Operational Definition of Variables

In this study, we will refer to the concept of user experience factors derived from various previous studies and consider the characteristics of fitness applications, and decide usefulness, ease of use, enjoyment, interaction and brand image as fitness applications user experience factors. In this study, the original measurement items were screened and appropriately modified according to the previous research to form the measurement scale of the user experience factors of the fitness application in this study. There are a total of 21 items, using the 5-point Likert scale (1=strongly disagree, 5=strongly agree). Operational definition of variables are shown in (Table 1).

Table 1. Operational Definition of Variables

Variables	Operational Definition	Measurement Indicators	Related Studies
Usefulness	The fitness app is useful and helps users achieve their goals precisely.	USE1 Fitness apps help me reach my workout goals faster and more efficiently.	Peter Morville (2006) Cho, Hyoun-Ah and Chun, Hejin (2019) Zhang Yi et al. (2019)
		USE2 I gained more knowledge about my health while using fitness apps.	
		USE3 When using fitness apps, I can get scientific and effective exercise guidance from them.	
Easy to Use	The degree to which the fitness app is perceived as being easy to use and	ETU1 The fitness app is very easy to use.	Cho, Hyoun-Ah and Chun, Hejin (2019) Sun, Qi and Kim, SeHwa (2015) Zhuo Zhang and Jang
		ETU2 The login process of the fitness APP is not complicated.	

	convenient to use.	ETU3	Can easily explain to others how to use the fitness app.	chunggun (2021)
Enjoyment	The level of happiness users perceives while using the fitness app.	ENJ1	I am happy when using fitness apps.	
		ENJ2	I have a lot of fun using fitness apps.	Zhang Yi et al. (2019)
		ENJ3	I enjoy using the fitness apps.	
Interaction	The degree to which users exchange opinions and information with other users when using the fitness app	INI1	Connect with other users on the fitness app's community platform.	
		INI2	Questions you have when using fitness apps can be answered on the platform.	Zhang Yi et al. (2019) Zhuo Zhang and Jang chunggun (2021)
		INI3	Can provide solutions to common usage problems (automated replies)	
Brand Image	The degree to which users perceive value in using the fitness app.	BI1	Fitness apps have a positive image	Cho, Hyoun-Ah and Chun, Hejin (2019)
		BI2	Fitness apps are very attractive	Lee, Young-Jun and Oh, Kyung-A(2019).
		BI3	Fitness apps are valuable apps	
Product Trust	The degree to which users trust the fitness app's product or service.	PT1	The products quality of fitness apps are trustworthy.	
		PT2	The products and classes recommended by the fitness app are reliable.	Na Chae Man (2020) Kim, Jaehun and Shin, Jong-Kuk, (2022).
		PT3	I don't think I'll lose money buying products from fitness apps.	
Purchase Intention	Attitudes towards purchase intention of products or services provided by fitness apps	PI1	I plan to purchase products from the fitness app.	
		PI2	Willing to buy exercise products from fitness apps when it is necessary to buy.	Hyun Byun et al. (2015) Li, Chao Yang (2021)
		PI3	I have a high purchase intention for products recommended by the fitness app.	

3. Data Collection and Analysis Methods

At present, China's fitness APP includes training classes, memberships, shopping malls, etc., and each module of the fitness APP needs to be further optimized to obtain a better user experience. This research conducted a preliminary survey through the survey website (wenjuan.com), and selected Chinese consumers who have "experience in using fitness apps such as Keep, Health, Daily Yoga, etc." for the survey. This study empirically analyzed how the user experience of fitness apps affect product trust and purchase intention. The survey was conducted from July 25th to August 10th, 2022, for a period of 16 days, and a total of 308 questionnaires were distributed. Of these, the remaining 275 were used for empirical analysis, excluding 33 questionnaires with insincere responses and poor accuracy and reliability. Statistical programs SPSS 27.0 and AMOS 26.0 were used for data analysis in this study. The empirical analysis consisted of frequency analysis, reliability analysis, confirmatory factor analysis, and structural equation model in order.

IV. Empirical research

1. Frequency analysis

Results of frequency analysis of demographic characteristics (Table 2). From the overall characteristics, there were 130 males (47.3%) and 145 females (52.7%) among the respondents. The male to female ratio is close. By age, 99 people (36.0%) were 19-30 years old, 96 people (34.9%) were 31-40 years old, 53 people (19.3%) were 41-50 years old, and 27 people (9.8%) were over 51 years old. Among them, the 19-30 age group accounted for the highest proportion. Monthly income of 2001-4000 RMB 32 people (11.6%), 4001 to 6000 RMB 66 people (24.0%), 6001 to 8000 RMB 109 people (39.6%), 8001-10000 RMB 53 people (19.3%), more than 10001 RMB 15 people (5.5%). The educational backgrounds of the respondents were 18 graduated from academic high school persons (6.5%), 122 college graduated people (44.4%), 111 university graduated persons (40.4%), and 24 Master's degree or above students (8.7%). Regarding exercise experience, 165 respondents (60.0%) had exercise experience, and 110 (40.0%) had no exercise experience.

Table 2. Demographic Characteristics of Respondents

	Specification	Frequency	Percentage
Gender	Male	130	47.3
	Female	145	52.7
Age	19 to 30	99	36.0
	31 to 40	96	34.9
	41 to 50	53	19.3
	50 or older	27	9.8
Education	Graduated from academic high school	18	6.5
	College graduated	122	44.4
	University graduated	111	40.4
	Master's degree or above	24	8.7
Monthly income	2001 to 4000 CNY	32	11.6
	4001 to 6000 CNY	66	24.0
	6001 to 8000 CNY	109	39.6
	8001 to 10000 CNY	53	19.3
	10001 CNY or above	15	5.5
Exercise experience	Yes	165	60.0
	No	110	40.0

2. Reliability analysis

Reliability is the reliability of survey data measurements and refers to the degree to which results are obtained when the same subject is repeated in the same way (Gliem, J. A. and Gliem, R. R. 2003). This study mainly used internal consistency reliability to evaluate the reliability of the questionnaire. The value of Cronbach's alpha for each variable is generally considered unreliable if the coefficient value is less than 0.60, Cronbach's alpha between 0.60 and 0.70 is considered acceptable, and values between 0.70 and 0.80 are considered reliable, between 0.80 and 0.90 is considered very good (George, and Mallery, P. 2003). Validity and Reliability Report. The Cronbach' α of the variables used in the study were all

higher than 0.80, so it is judged to have high reliability. The detailed results are shown in (Table 3).

Table 3. Results of Scale's Reliability

Variables	Item Number	Cronbach' α
Usefulness	3	0.858
Easy to Use	3	0.835
Enjoyment	3	0.889
Interaction	3	0.858
Brand Image	3	0.878
Product Trust	3	0.884
Purchase Intention	3	0.880

3. Confirmatory Factor Analysis

Convergent validity was assessed based on the following three evaluation criteria. First, as a result of CFA, factor loading was more than 0.6, which was significant for all. Second, the standard of average variance extracted (AVE) was used. As a result, it was found that the AVE of each component exceeded the demand standard of 0.5. Third, convergent validity was considered through construct reliability (CR). As a result of the evaluation, it was showed that the construct reliability for each construct satisfies the acceptance criterion of 0.7 overall (Bagozzi, R. P. and Yi, Y. 1988). Such a series of analysis results show that the model of this study has convergent validity. The detailed results are shown in (Table 4).

Table 4. The Result of AVE

Variable	Items	Standardised Regression	S.E.	C.R.	P	AVE	Concept Reliability
Usefulness	USE1 <--- Usefulness	0.682				0.695	0.871
	USE2 <--- Usefulness	0.932	0.107	13.044	***		
	USE3 <--- Usefulness	0.867	0.088	12.780	***		
Easy to Use	ETU1 <--- Easy to use	0.888				0.654	0.845
	ETU2 <--- Easy to use	0.646	0.064	11.467	***		
	ETU3 <--- Easy to use	0.870	0.061	15.671	***		
Enjoyment	ENJ1 <--- Enjoyment	0.750				0.738	0.894
	ENJ2 <--- Enjoyment	0.900	0.083	15.216	***		
	ENJ3 <--- Enjoyment	0.918	0.085	15.364	***		
Interaction	INI1 <--- Interaction	0.902				0.696	0.871
	INI2 <--- Interaction	0.896	0.070	17.794	***		
	INI3 <--- Interaction	0.686	0.064	12.932	***		
Brand Image	BI1 <--- Brand image	0.892				0.721	0.885
	BI2 <--- Brand image	0.925	0.060	18.843	***		
	BI3 <--- Brand image	0.716	0.059	13.994	***		
Product Trust	PT1<---Product trust	0.885				0.726	0.888
	PT2 <---Product trust	0.751	0.055	15.001	***		
	PT3 <---Product trust	0.912	0.051	19.967	***		
Purchase Intention	PI1<--- Purchase intention	0.693				0.728	0.888
	PI2 <--- Purchase intention	0.923	0.111	13.830	***		
	PI3 <--- Purchase intention	0.923	0.110	13.828	***		

Note: Model fit index: CMIN/DF = 1.517, NFI = .935, CFI = .947, IFI=977, RMSEA = .043

Discriminant validity was analyzed by comparing the square root of the AVE of each concept and the value of the correlation coefficient (Fornell, C. and Larcker, D. F. 1981). As a result of the analysis, the square root value of AVE was larger than the correlation coefficient with other constructs, confirming discriminant validity. The detailed results are shown in (Table 5).

Table 5. Discriminant Validity Analysis

	AVE	Usefulness	Easy to Use	Enjoyment	Interaction	Brand Image	Product Trust	Purchase InTention
Usefulness	0.695	0.834						
Easy to Use	0.654	0.454*	0.809					
Enjoyment	0.738	0.344***	0.376***	0.859				
Interaction	0.696	0.357***	0.266***	0.353***	0.834			
Brand Image	0.721	0.453***	0.421***	0.439***	0.409***	0.849		
Product Trust	0.726	0.407***	0.386***	0.361***	0.421***	0.767***	0.852	
Purchase Intention	0.728	0.369***	0.252***	0.290***	0.295***	0.520***	0.589***	0.853

Diagonal Matrix *** P Value <0.001

4. Hypothesis Analysis

The structural model created indicated acceptable goodness-of-fit-measures ($\chi^2/df=1.518$, GFI=0.920, AGFI=0.893, RMR=0.068, TLI=0.970, CFI=0.976, RMSEA=0.043). Consequently, these indices indicated that the structural model shown adequately fitted the data. (Table 6) show the results of six hypotheses in this study. A summary of results is as follows. First, this study analyzed the relationship between six dimensions of user experience factors of the fitness APP and product trust, the results were that the four hypotheses concerning the impact of usefulness, easy to use, enjoyment, and interaction on production trust were supported. As expected, usefulness ($\beta=0.208$, $p<0.01$), easy to use ($\beta=0.163$, $p<0.05$), enjoyment ($\beta=0.141$, $p<0.05$), and interaction ($\beta=0.289$, $p<0.01$) of user experience of fitness APP are positively related to product trust. Thus, H1, H2, H3 and H4 are supported. Unlike this, brand image didn't significantly effect on brand trust.

Second, we are supposed to the positive relationship between product trust and purchase intention, In the results of path analysis, product trust had significant effect on purchase intention ($\beta=0.628$, $p<0.01$). Therefore, H6 were supported.

Table 6. Hypotheses

Direct Effect	Standardised Regression	S.E.	C.R.	P	Remarks
H1: USE → PT	0.208	0.088	2.957	0.003	Supported
H2: ETU → PT	0.163	0.087	2.368	0.018	Supported
H3: ENJ → PT	0.141	0.085	2.112	0.035	Supported
H4: INI → PT	0.289	0.069	4.559	***	Supported
H5: BI → PT	0.009	0.062	0.154	0.877	Rejected
H6: PT → PI	0.628	0.068	10.788	***	Supported

Model Summary: $\chi^2/df=1.518$, RMR=.068, RMSEA=.043, GFI=.920, AGFI=.893, NFI=.933, IFI=.976, TLI=.970, CFI=.976

Notes: 1. *** $p<0.005$

5. Moderating effect analysis

The moderator variable in this study was a group variable, and it was verified whether the moderating effect between the user experience factors of the five fitness apps and the product trust existed by dividing the survey subjects into two groups, whether or not they had exercise experience. The results are shown in (Table 7) and described as in (Table 8).

Table 7. Multiple Group Analysis

	Group	Hypothesis	Standardised Coefficient	S.E.	C.R.	P	Hypothesis
Exercise Experience	YES	USE → PT	0.339	0.106	3.962	***	0.339
		ETU → PT	0.317	0.112	3.836	***	0.317
		ENJ → PT	0.039	0.104	0.482	0.630	0.039
		INI → PT	0.251	0.079	3.512	***	0.251
		BI → PT	-0.004	0.076	-0.052	0.958	-0.004
	NO	USE → PT	0.031	0.144	0.274	0.784	0.031
		ETU → PT	-0.179	0.113	-1.650	0.099	-0.179
		ENJ → PT	0.211	0.136	1.928	0.054	0.211
		INI → PT	0.373	0.115	3.416	***	0.373
		BI → PT	-0.038	0.099	-0.350	0.727	-0.038

Unconstrained Model Summary: X2/df=1.250, DF= 346, RMSEA=.030, NFI=.894, IFI=.977, TLI=.971, CFI=.976

Notes: 1. ***p<0.005

Table 8. Moderating Effect Analysis

Hypothesis	Group				Z Absolute Value	Remarks
	YES		NO			
	Non-standardised Coefficient	S.E.	Non-standardised Coefficient	S.E.		
H7-1: USE → PT	0.420	0.106	0.039	0.144	2.131	Supported
H7-2: ETU → PT	0.429	0.112	-0.186	0.113	3.865	Supported
H7-3: ENJ → PT	0.050	0.104	0.261	0.136	1.232	Rejected
H7-4: INI → PT	0.277	0.079	0.394	0.115	0.839	Rejected
H7-5: BI → PT	-0.004	0.076	-0.035	0.099	0.248	Rejected

(Table 8) shows the evaluation for users with exercise experience and users without exercise experience with the Z absolute value. In this case, the value of Z absolute value is presented to determine their significant impact. It can be said that the difference between the two groups has a moderating effect only when the Z absolute value is greater than the reference value of 1.96 (Howell, D. C., 2007). H7-1 showed that the non-standardized coefficient value of the exercise experience group was 0.420, the value of the no exercise experience group was 0.039, and the Z absolute value = 2.131 was greater than 1.96, which proved to have a moderating effect. So H7-1 is supported. H7-2 showed that the non-standardized coefficient value of

the exercise experience group was 0.429, the value of the no exercise experience group was -0.186, and the Z absolute value = 3.865 was greater than 1.96, which proved to have a moderating effect. So H7-2 is supported. But the Z absolute value in H7-1, H7-2, H7-3 are all less than 1.96, so H7-1, H7-2, H7-3 are rejected.

V. Conclusion

From the perspective of user experience, this study takes fitness APP users as the research object to explore the influence of fitness APP user experience factors on product trust and purchase intention. Research models and hypotheses are validated through theoretical and empirical analysis. The analysis results of this study are summarized as follows.

First, the research analysis results show that usefulness, ease of use, enjoyment, and interaction have a positive impact on product trust. But brand image has no significant effect on product trust. The results of the route analysis found that usefulness and interaction had the greatest impact on product trust. Usefulness is the most basic premise, and it is important for users to first understand how to use a fitness APP. The interaction mainly occurs on the community platform of fitness APP, and good management of the platform is crucial for users to share information with the platform or with other users. A highly active community will increase the freshness and trust of users, thereby stimulating consumption. Second, this study validates that brand image has no significant impact on product trust, product trust has a positive impact on purchase intention. This is inconsistent with the findings of Deok-Hyeon Kim et al. (2014). In their study, brand image has a significant impact on product trust, and product trust has a significant impact on purchase intention. This means that for consumers who have never purchased a product, trust in the product cannot be formed only by relying on the brand image. The purchase intention can be stimulated only after the brand image awareness and product trust are generated after purchasing the product. Third, in the relationship between all user experience factors of fitness APP and product trust, the moderating variable of exercise experience is used. The study found a moderating effect between usefulness, ease to use and product trust. Users with exercise experience scored significantly higher than those without exercise experience in terms of usefulness and ease to use. When users with exercise experience use the fitness APP, it is easier to understand the functions and courses of the fitness APP. Users can achieve ideal fitness results after using for a period, which can increase the credibility of fitness APP paid courses and products. However, when inexperienced users come into contact with fitness applications for the first time, they will be unfamiliar with the use of fitness applications and exercise guidance, and it will take a long time to understand and learn. Furthermore, the results showed that there were no significant differences in the relationship between enjoyment, interaction, brand image and product reliability. This may be related to the characteristics of fitness itself. Because exercise and fitness are not a pure entertainment program, it requires a combination of time, energy, persistence and other factors to achieve a better fitness effect. For users who have used traditional fitness methods or have never exercised, it is a brand-new experience, so there is no obvious difference in the enjoyment, interaction, brand image of the fitness APP user experience between them, and they are not very insensitive to product trust.

Based on the conclusions of this research, we have attempted to come up with the following marketing implications. First, this study shows that interaction has a positive effect on product

trust. Therefore, improving the operation of the community platform seems to help increase user loyalty. With the deepening of the network, consumers are actively influencing the consumption choices of those around them, and social marketing can reduce the cost of trust based on group consensus. Second, usefulness and easy to use have a significant impact on product trust. It is necessary to accelerate the transition of new users to paying users by creating differentiated paid courses content. Because usefulness and easy to use appear in the content of fitness courses and the fitness performance of users, there are the cores of fitness apps and one of the important factors for users to choose fitness apps. Third, users with exercise experience scored significantly higher than those without exercise experience in terms of usefulness and ease to use. So, fitness APPs should carry out differentiated marketing for users with and without exercise experience, highlighting the impact of the usefulness and ease to use of fitness APP user experience on the product trust of users with exercise experience. Finally, this study also believes that fitness APPs should not only focus on fitness technology and related professional guidance, but also expand to other fields. For example, add relevant knowledge such as reasonable matching of diet and fatigue relief after exercise in the section settings, because some knowledge in these fields may be urgently needed by many fitness enthusiasts, which can enable users to have a better experience.

This study has the following limitations and future research directions. First, in this study, for the data analysis, the sample collection is only for Chinese consumers, so the study has limitations. Since the pace of development of fitness apps may vary across countries, it is expected that future studies will be able to draw more diverse conclusions by collecting samples of foreign consumers. Secondly, in this study, among the 275 samples, the number of valid samples for those with exercise experience was 165, and the number of valid samples for those without exercise experience was 110. If we had the same number of exercise-experienced and non-exercise respondents in our future studies, we think the results may be different from what is currently available. Third, the user experience factors obtained in this study are selected according to the user experience of the current fitness APP. With the evolution of fitness apps, more new user experience factors may be derived in the future, so we will add new variables in future research, this part will be improved even better.

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