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Exploring Antecedents of Japanese Major Students' Behavioral Intention to Use Japanese Language Learning Apps in Chengdu, China

Jingyi Zhang*

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Abstract

Purpose: This research investigates the determinants influencing the behavioral intention of Japanese major students to utilize Japanese language learning apps in Chengdu, China. The conceptual framework incorporates perceived enjoyment, perceived usefulness, perceived ease of use, attitude, task-technology fit, information quality, and behavioral intention. **Research Design, Data, and Methodology:** The research adopted a quantitative methodology, involving a survey of 500 Japanese language learners selected from eight universities located in Chengdu. Before collecting data, the study employed the Item-Objective Congruence (IOC) index and conducted a pilot test with a subset of 50 participants to assess and ensure the validity and reliability of the research instruments. Following this, the gathered data were analyzed by confirmatory factor analysis (CFA) and Structural Equation Modeling (SEM). **Results:** Perceived enjoyment and percived ease of use significantly influence perceived usefulness. Perceived usefulness and percived ease of use significantly influence attitude towards behavioral intention. Additionally, task-technology fit significant influences behavioral intention. Nevertheless, Perceived enjoyment has no significant influence on perceived ease of use. Information quality does not significantly influence behavioral intention. **Conclusion**: It is necessary to consider the products development, the balance between user-perceived enjoyment and perceived ease of use, and add more elements that can trigger user pleasure to create a better user experience.

Keywords : Japanese Learning App, Perceived Enjoyment, Perceived Usefulness, Attitude, Behavioral Intention

JEL Classification Code: E44, F31, F37, G15

1. Introduction

The report released by the organization in 2017 identified China as the country with the highest number of Japanese learners. A study conducted in 2019 by an organization that focuses on the teaching and learning of Japanese revealed that the number of teachers and students in the country was also the first in the world. Around a quarter of the world's teachers are involved in teaching Japanese, and research units are around one-sixth of the world's population. In 2020, China became the country with the largest number of learners and teachers of the Japanese language (Zhao, 2020). Five hundred thirteen universities within the country cater to the needs of this major. The organization's Southwest branch statistics reveal that ten universities within Sichuan province offer Japanese majors. Including Sichuan University, University of Electronic Science and Technology, Southwest Jiaotong University, Southwest University for Nationalities, Xihua University, Chengdu University of Technology, Sichuan Normal University, Chengdu College of Sichuan International Studies University, Sichuan Tourism College, Sichuan University Jincheng College, Sichuan University.More than 4,000 students from various backgrounds study at the university for a Japanese major.

Due to technological advancements, mobile electronic devices, such as smartphones and tablets, have become essential tools in people's lives and work. In addition, network technology is becoming more prevalent in schools.

1*Jingyi Zhang, Southwest Minzu University, China. Email: momoko391@126.com

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Mobile learning has gained much attention due to the increasing number of studies showing how it can help people improve their foreign language skills. One of the most important factors people can consider when learning a foreign language is listening and practicing more. However, the university's development strategy has been to reduce the number of classes and increase the number of internship credits. This has resulted in the reduction of the traditional teaching time and the need for more practice time. Due to the limited time and resources teachers have available, they need help to provide adequate care for their students. Various types of software are designed to make up for this deficiency, such as word discrimination, grammar analysis, daily conversations, and more. Each learning app has a unique training content (Keengwe & Bhargava, 2014).

Simulation training can be carried out in the spare time of learners. Due to the pandemic, the education industry's total market size reached 257.3 billion Yuan in 2020. The concentration rate among industry leaders has also risen. Distance learning has gained widespread popularity as a new form of education due to its numerous advantages. These include its convenient and digitized features (Zhao, 2020). According to the learners, learning software must enhance its functions, authority, and interest in its content to achieve learning goals. Despite China's rapid growth in the e-education industry, research on this subject is scarce (Coman et al., 2020).

The various tools and materials available through the mobile app for Japanese learning can be divided into four categories: online school, oral English lessons, vocabulary, and teaching materials. These are helpful for people with varying needs. Compared to traditional teaching methods, the advantages of using the app for Japanese learning are quite different. The economic burden of acquiring learning materials can be reduced for students by utilizing apps. For instance, the cost of Japanese dictionaries is exorbitant, while the electronic versions are typically much cheaper. Various types of audio and video materials, such as Japanese animation and TV series, can be accessed through the Japanese learning app. These materials can greatly enrich students' learning experiences and provide unique language scenarios (Thornton & Houser, 2005). Some apps also feature one-to-one conversations with Japanese individuals, which can help improve a student's language sense and help them master their pure language expressions. Although mobile learning has many features, there are still areas where it can be improved. For instance, some content needs to be more professional and rigorous, and the design and planning of learning programs are unreasonable. Also, some of the knowledge points need to be updated (Mindog, 2016). Due to the increasing number of factors that affect the development and implementation of online learning programs, the research field has become more focused on using information technology to improve the quality of education. The study is focused on Japanese majors studying in universities. It aims to investigate the factors influencing their choice of learning apps and the development status of such programs for students outside the classroom. It also aims to explore the factors that influence Japanese majors' adoption of Japanese learning apps.

2. Literature Review

2.1 Perceived enjoyment

The concept of PE explains the level of use one has of the system and how it will eventually adapt to them for their desired goal. The study also found that users consider PE to refer to how much benefit learning apps can provide (Yip et al., 2020). Davis et al. (1992) noted that PE refers to an individual's level of use of a system and how it will eventually adapt to them so they can complete their objectives. The researchers discovered that users' perceived enjoyment can influence their perceptions of the effort they put into a new system. This suggests that perceived enjoyment can have a significant influence when it comes to accepting or adopting e-learning (Deshpande et al., 2012). Yip et al. (2020) noted that the positive influence of users on the ease of using mobile learning applications is related to the concept of PE. Davis et al. (1992) also noted that the motivation of users to use particular kinds of systems often correlates with this concept. Abbad (2013) found that PE has indirect and direct effects on the inclination to conduct online financial transactions. According to Moon and Kim (2001), higher PE could encourage users to spend more time using the system, increasing their awareness of its value. A similar study by Elkaseh et al. (2015) revealed that students are significantly more likely to recognize how easy it is to use e-learning systems after being provided with a favorable experience. Hence, this study hypothesizes that:

H1: Perceived enjoyment has a significant influence on perceived usefulness**.**

H2: Perceived enjoyment has a significant influence on perceived ease of use.

2.2 Perceived ease of use

The perceived ease of use is computed by asking prospective users how easy it would be to use a certain technology. It also considers users' satisfaction level with the system (Davis, 1989). Bashir and Madhavaiah (2015) explained that perceived ease of use refers to the level at which the sample believes that the services of the target system are more efficient. The level at which learners think a learning system's operation is effortless and efficient is

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perceived ease of use (Rui-Hsin & Lin, 2018). Researchers have discovered that people's perceived ease of use with specific technology relates to how easy they think it is to use (Salloum et al., 2019). The researcher noted that PEOU refers to how easy it is for students to use e-learning programs. It indicates that they think that using such systems requires little effort (Baleghi-Zadeh et al., 2014). Chawla and Joshi (2019) claim that perceived ease of use can predict the intentions and attitudes of consumers toward adopting technology. Al-Qaysi et al. (2020) noted that various factors, such as system-specific and external factors, influence perceived ease of use. They also claimed that this perception can predict people's attitudes toward technology. Davis et al. (1992) noted that the PEOU directly affects how people perceive technology. The researchers also stated that PU can mediate this effect. Various studies have shown that the ease of use of new digital technologies helps create a mindset conducive to technology adoption. Hence, this study hypothesizes that:

H3: Perceived ease of use has a significant influence on perceived usefulness.

H5: Perceived ease of use has a significant influence on attitude.

2.3 Perceived usefulness

The subjective assessment of how likely a user is to enhance their behavior through a system is perceived usefulness (Davis, 1989). The subjective nature of PU makes it an important factor in the choice of a business system and the confidence of its users (Tung & Chang, 2008). Davis et al. (1992) noted that the subjective nature of PU affects users' attitudes toward technology use. It also mediates the impact of the attitude of PEOU toward technology use. Leong et al. (2011) concluded that the subjective nature of PU significantly affects the willingness and attitude of users toward online shopping. A study conducted by Alharbi and Drew (2014) revealed that the subjective nature of PU positively correlated with users' trust in mobile websites. According to a study conducted by Chawla and Joshi (2019), users can predict the ease of use of a product or service by assessing the perceived usefulness of a system. Through a study conducted by Gupta and Arora (2019), they learned that perceived usefulness can influence the behavior of users when it comes to using specific and innovative technologies. Hence, this study hypothesizes that:

H4: Perceived usefulness has a significant influence on attitude.

2.4 Attitude

Fishbein and Ajzen (1975) defined attitude as the learner's tendency to dislike or like certain technical devices. The attitude toward using educational technology is also a key indicator of a user's acceptance of such technology (King & He, 2006). Fong and Wong (2015) noted that the attitude toward technical devices is the most important factor influencing an individual's technology use. A study conducted by Purwanto and Tannady (2020) revealed that ATT significantly impacts the utilization of e-learning tools. The study conducted by Al-Qaysi et al., (2020) revealed that a person's attitude toward a specific technology can influence their behavioral intentions when using it. Liu et al. (2009) stated that understanding users' attitudes toward e-learning can help create an environment conducive to teaching. The researchers noted that users' attitude toward e-learning can influence their intention to use the technology (Kalaiarasi & Srividya, 2013). Huang et al. (2007) noted that the positive effects of PEOU and PU on attitude can be seen in the results of studies. Other research has also shown that attitude can affect behavioral intentions. A study by Kim and Park (2014) suggested that people's attitudes determine their desire to do certain behaviors. Attitudes are known to explain the better performance of users' external and internal cognitive abilities than other factors (Hernandez-Ortega, 2011). Hence, this study hypothesizes that:

H6: Attitude has a significant influence on behavioral intention.

2.5 Task-Technology Fit

Chang (2013) noted that task-technology fit refers to how a computer application can help users complete various tasks. The TTF is the degree to which a task can be accomplished and meet the users' needs by a system (Lin & Wang, 2012). Researchers believe that the TTF model highlights how technology performs when its capabilities meet the needs of consumers (Goodhue & Thompson, 1995). The TTF model was also cited as a factor that prompted people to continue using Massive Open Online Courses. Sun and Zhang (2006) noted that the regulatory significance of the Task-technology fit concept has been acknowledged in information technology use. Even if people believe technology is advanced, they might only use it if they think it performs well or meets their expectations (Junglas & Watson, 2008). Research has shown that Task-technology fit can mediate the relationship between technical attributes and performance (Gatara & Cohen, 2014). Ouyang et al. (2017) conducted a study that analyzed the factors influencing students continued mobile learning participation. The researchers found that the TTF influence positively influenced the adoption of Massive Open Online Courses by behavioural intention (Wan et al., 2020). Hence, this study hypothesizes that:

H7: Task-technology fit has a significant influence on behavioral intention.

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2.6 Information quality

Nelson et al. (2005) defined information quality as the quality of the content that online services deliver. Services deliver. Lin (2011) claims that information quality encompasses the degree to which information is useful, significant, and complete. The quality of information presented and collected by information systems is determined by the characteristics they offer (Cheng, 2018). The concept of information quality pertains to how e-learning aids in acquiring essential information so that learners can utilize mobile devices to comprehend it (Wongvilaisakul & Lekcharoen, 2015). According to some researchers, the quality of information also involves the users' perceptions about the quality of the information presented on websites (McKinney et al., 2002). Perkowitz and Etzioni (2000) linked the quality of information to its usefulness. They noted that users only rely on information that is up-to-date and accurate. The study conducted by Saeed et al. (2003) showed that the quality of information affects how consumers behave online. A recent study by Rai et al. (2002) revealed that information quality is related to network system use. According to Omar et al. (2010), the belief in the usefulness of information systems can boost the chances of individuals taking advantage of them. Hence, this study hypothesizes that:

H8: Information quality has a significant influence on behavioral intention.

2.7 Behavioural Intention

According to Fishbein and Ajzen (1975), the concept of behavioral intention is subjective and refers to the probability that a user will perform certain behaviors. Ajzen and Fishbein (1980) further stated that behavioral intent refers to the likelihood of a person following a technical strategy. Ajzen (1991) believes that the level at which people are willing to put in the required effort to achieve a goal is referred to as behavioral intention, which can indicate their level of commitment. The concept of behavioral intent is used in e-learning to describe the intention of a learner to continue using the system in the future (Liao & Lu, 2008). Park (2009) defined the concept of behavioral intention as the degree to which learners plan on using e-learning resources in the future. In the TAM model, behavioral intention denotes the motivating elements that can influence a person's conduct while utilizing a system (Alshammari et al., 2016). According to Davis (1989), attitude and personal values influence an individual's intentions. Studies have shown that the effects of behavioral intention on a person's use of e-learning systems can be significant (Khor, 2014). Regarding acceptability, Business Intelligence is regarded as one of the most crucial factors people consider when it comes to accepting technology (Cheng, 2012). Al-Adwan and Smedley (2013) noted that the willingness to use a system based on the TAM model is the most accurate predictor of its usage.

3. Research Methods and Materials

3.1 Research Framework

The conceptual framework for this study was developed using the three theoretical models related to the study. These models are information ecology, task technology adaptation, and technology acceptance. The study's conceptual structure is based on the three theoretical models. It is designed to analyze the factors that can affect the intentions of learners using Japanese apps in China's Chengdu. Figure 1 shows the conceptual structure based on the three different theoretical viewpoints.

The study analyzed the factors that influence the intentions of Japanese majors when it comes to using learning apps, including PU, PE, PEOU, ATT, IQ, and TTF. Furthermore, the study explored the causal link between the variables and revealed the link between these influencing elements.

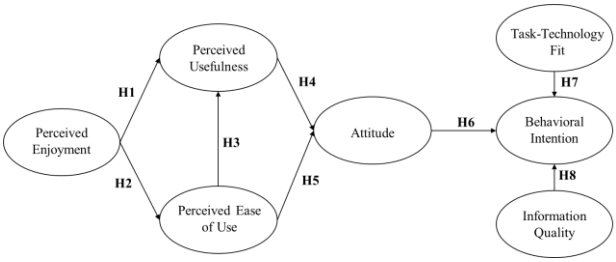

Figure 1: Conceptual Framework

H1: Perceived enjoyment has a significant influence on perceived usefulness.
H2: Perceived enjoyment has a significant influence on perceived ease of use.
H3: Perceived ease of use has a significant influence on perceived usefulness.
H4: Perceived usefulness has a significant influence on attitude.
H5: Perceived ease of use has a significant influence on attitude.
H6: Attitude has a significant influence on behavioral intention.
H7: Task-technology fit has a significant influence on behavioral intention.
H8: Information quality has a significant influence on behavioral intention.

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3.2 Research Methodology

For the study, the researcher surveyed the students across eight universities in Sichuan's Chengdu city. The researcher used a quantitative method to collect data, which they then analyzed to identify the key factors that significantly affect an employee's innovation behavior.

The survey was conducted in three parts. The first part asked about the identities of the learners of the Japanese language. The screening questions were then used to identify the majors of these individuals. Second, to analyze all eight hypotheses, a 5-point Likert scale was used to measure five proposed variables, ranging from strongly disagree (1) to agree (5). Finally, demographic issues are gender and age. In the pilot test, 30 respondents were evaluated by experts on the objective consistency index of the project and the pilot test.

Prior to commencing data collection and distributing the questionnaires, the content validity of the questionnaire was rigorously evaluated by enlisting the expertise of three experts who conducted the Item-Objective Congruence (IOC) assessment. Additionally, a pilot test using Cronbach's Alpha was employed to confirm the content validity of the questionnaire. All items in the IOC evaluation surpassed the 0.6 threshold, demonstrating strong content validity. According to the criteria established by George and Mallery (2003), an acceptable level of reliability is indicated when Cronbach's Alpha exceeds 0.7. In this context, the pilot test, which included a sample of 50 participants, yielded Cronbach's Alpha values of 0.7 or higher for all constructs, thus affirming the questionnaire's reliability.

Convergence validity was verified using statistical tools. A structural equation model was also utilized to test the variables' paths. Finally, a matrix was created to check if the hypothesis was confirmed. The path coefficients between the variables were examined using a structural equation model. A covariance line was also utilized to correct the areas where the fit index did not fully meet the requirements. A matrix was then created to test if the hypothesis had been confirmed.

3.3 Population and Sample Size

The paper's target audience is Japanese major students studying in the eight universities in Sichuan Province's Chengdu city and surrounding areas. The structural equation model's sample size suggests that at least 550 individuals should be part of the research (Kline, 2011). The survey was conducted on a large group of respondents. After screening the questionnaires, 578 individuals' data and information were analyzed.

3.4 Sampling Technique

A purposive sampling was employed to survey a sample of Japanese major students from eight universities situated in Chengdu. According to Arnab (2017), stratified sampling is a widely used technique for large-scale surveys. It is advantageous because it allows researchers to collect a diverse sample with a good budget. It also guarantees the accuracy of the results. In addition, it allows them to divide the population into smaller groups based on their characteristics. In this study, it is divided into two levels according to gender. Then, it is divided into four stages according to age. Finally, the survey was conducted in universities with Japanese majors in Chengdu. The sample size of each school was 40-200, depending on the number of students. To distribute the sample to universities, the researchers collected information on the number of students from the heads of Japanese majors at eight universities in 2023. As shown in Table 1, the sample size of 600 was allocated to eight universities according to the population size. The researchers then distributed questionnaires online using convenience sampling. As a results, 578 responses were valid.

Table 1: Sample Units and Sample Size

University	Population Size	Proportional Sample Size
Sichuan University	160	40
University of Electronic Science and Technology of China	160	40
Southwest Jiaotong University	160	40
Southwest University for Nationalities	400	80
Sichuan Normal University	160	40
Chengdu University of Technology	400	80
Xihua University	400	80
Chengdu College, Sichuan International Studies University, Sichuan	960	200
Total	**2800**	**600**

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

Demographic data were targeted at 578 participants; the results are shown in Table 2. 546 students have used Japanese learning apps, accounting for 94.5% of the total. The highest age group was 20-22 (271 people, 46.9%). The proportion of students in the age group of 18-20 is also relatively high, with 224 students, 38.8%. Since more girls are in foreign language majors, this is also reflected in the gender distribution. There are 436 girls among the interviewees, accounting for 75.4%; There were 142 male students, accounting for 24.6%.

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Table 2: Demographic Profile

Demographic and General Data (N=578)		Frequency	Percentage
Used Japanese learning APP	Yes	546	94.5%
	No	32	5.5%
Age	Under 18 years old	3	0.5%
	18-20 years old	224	38.8%
	20-22 years old	271	46.9%
	Over 22 years old	80	13.8%
Gender	Male	142	24.6%
	Female	436	75.4%

Source: Constructed by author

4.2 Confirmatory Factor Analysis (CFA)

In CFA analysis, the Cronbach's alpha in the table 3 are as follows: PU is 0.853, PEOU is 0.849, PE is 0.868, ATT is 0.833, BI is 0.905, IQ is 0.851, and TTF is 0.836. Cronbach's alpha coefficient of all potential variables is greater than 0.7, indicating high internal consistency reliability. It can be used for further statistical analysis and validation. This study used confirmatory factor analysis (CFA) to verify the validity through convergence and discriminant validity. First, the test of convergence validity is shown in Table 3, which shows the values of factor load > 0.5, average variance extracted (AVE) > 0.5, and composite reliability (CR) > 0.7 of this study.

Table 3: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Perceived Usefulness (PU)	Davis et al. (1992)	3	0.853	0.804-0.835	0.855	0.663
Perceived Ease of Use (PEOU)	Davis (1989)	4	0.849	0.614-0.881	0.845	0.582
Perceived Enjoyment (PE)	Chao (2019)	4	0.868	0.719-0.856	0.870	0.627
Attitude (ATT)	Fishbein and Ajzen (1975)	3	0.833	0.728-0.805	0.843	0.643
Behavioral Intention (BI)	Fishbein and Ajzen (1975)	3	0.905	0.814-0.952	0.911	0.774
Information Quality (IQ)	DeLone and McLean (2003)	3	0.851	0.728-0.875	0.855	0.664
Task-technology Fit (TTF)	Gebauer and Ginsburg (2009)	4	0.836	0.673-0.840	0.829	0.550

In the CFA test, relative Chi-square (CMIN/df), goodness of Fit index (GFI), adjusted Goodness of Fit index (AGFI), approximate root mean square error (RMSEA), Comparative fit index (CFI), normalized fit index (NFI) and Tuck-Lewis Index (TLI) were selected as the model fitting indexes. The goodness of fit index values is shown in Table 4, and all values align with the requirements in the table, indicating good goodness of fit.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	<5.00（Al-Mamary & Shamsuddin, 2015; Awang, 2012）	4.374
GFI	≥0.85 (Sica & Ghisi, 2007)	0.875
AGFI	≥0.80 (Sica & Ghisi, 2007)	0.837
NFI	≥0.80 (Wu & Wang, 2006)	0.883
CFI	≥0.80 (Bentler, 1990)	0.907
TLI	≥0.80 (Pedroso et al., 2016)	0.888
RMSEA	<0.08 (Pedroso et al., 2016)	0.076
Model Summary		**In harmony with empirical data**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, NFI = Normed fit index, TLI = Tucker-Lewis index and RMSEA = Root mean square error of approximation

Zait and Bertea (2011) argue that discriminant validity indicates that the interconnection between the measured items should be greater than between other scale items from other structures, which should theoretically not be interconnected. Researchers believe that in discriminant validity, the square root value of AVE should be greater than the coefficient of any two latent variables, and the parameters of the two latent variables should be less than 0.8 (Liu et al., 2010). The discriminative validity values of this study are shown in Table 5, indicating that they all meet the standard's requirements.

Table 5: Discriminant Validity

	PU	PEOU	PE	ATT	BI	IQ	TTF
PU	**0.814**						
PEOU	0.454	**0.763**					
PE	0.213	0.285	**0.792**				
ATT	0.376	0.268	0.148	**0.802**			
BI	0.496	0.310	0.150	0.599	**0.880**		
IQ	0.334	0.476	0.163	0.159	0.201	**0.815**	
TTF	0.669	0.317	0.174	0.378	0.483	0.287	**0.742**

Note: The diagonally listed value is the AVE square roots of the variables
Source: Created by the author.

4.3 Structural Equation Model (SEM)

Anderson (2010) noted that the SEM had validated the correlation between the proposed model's variables and incorporated the structural coefficients' measurement accuracy. The goodness of fit results of the obtained structural equation model (SEM) are shown in Table 6, and

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the values in the table can be seen to meet the requirements of the indicators.

Table 6: Goodness of Fit for Structural Model

Index	Acceptable	Statistical Values
CMIN/DF	<5.00（Al-Mamary & Shamsuddin, 2015; Awang, 2012）	4.610
GFI	≥0.85 (Sica & Ghisi, 2007)	0.866
AGFI	≥0.80 (Sica & Ghisi, 2007)	0.830
NFI	≥0.80 (Wu & Wang, 2006)	0.873
CFI	≥0.80 (Bentler, 1990)	0.898
TLI	≥0.80 (Pedroso et al., 2016)	0.881
RMSEA	<0.08 (Pedroso et al., 2016)	0.079
Model Summary		**In harmony with Empirical data**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, NFI = Normed fit index, TLI = Tucker-Lewis index and RMSEA = Root mean square error of approximation

4.4 Research Hypothesis Testing Result

A structural model considers the relationships between various potential factors and establishes a way to determine how these affect the changes in the model's values (Byrne, 2016). The path coefficient can describe the direct relationship between dependent and independent variables. Changes in dependent variables can also be linked to independent ones. This is a crucial part of the correlation test (Lefcheck et al., 2021). The significance of each variable in this study is shown in Table 7. Among the hypotheses in this paper, H2 and H8 are not supported, while all other hypotheses are supported.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Result
H1: PE→PU	0.246	6.598*	Supported
H2: PE→PEOU	0.080	1.683	Not Supported
H3: PEOU→PU	0.687	8.245*	Supported
H4: PU→ATT	0.181	2.306*	Supported
H5: PEOU→ATT	0.314	5.902*	Supported
H6: ATT→BI	0.464	10.756*	Supported
H7: TTF→BI	0.279	5.612*	Supported
H8: IQ→BI	0.055	1.638	Not Supported

Note: * p<0.05
Source: Created by the author

As shown in Table 7, the standardization coefficient between PE and PEOU is 0.080, the T-value is 1.683, and the P-value is greater than 0.05, indicating that PE has no significant positive impact on PEOU, which does not support this hypothesis. This may be due to the characteristics of language learning because the mastery of language needs to be completed through a lot of boring repeated practice and correction, which shows no significant positive correlation between perceived enjoyment and perceived ease of use. The normalization coefficient between IQ and BI is 0.055, the T-value is 1.638, and the P-value is greater than 0.05, so there is no significant positive correlation between IQ and BI, and this hypothesis is not supported. This point is like H2, that is, students may need help to judge the quality of materials when using apps due to their limited professional degree, and there is no way to have a significant positive impact on the behavioral intention of using apps.

From the value of the standardization coefficient, the standardization coefficient between PE and PU is 0.246. The standardization coefficient between PEOU and PU is 0.687, the standardization coefficient between PU and ATT is 0.181, the standardization coefficient between PEOU and ATT is 0.314, the standardization coefficient between ATT and BI is 0.464, and the standardization coefficient between TTF and BI is 0.279. Both showed significant positive effects, revealing a positive correlation between the two, indicating that the hypotheses of these influencing factors in previous studies are valid.

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This study aimed to investigate the influencing factors of Japanese language major students' behavioral intentions when using Japanese language learning apps in Chengdu, Sichuan Province, China. Therefore, this paper combines three theoretical frameworks, adopts seven variables, and puts forward eight hypotheses to explore the influencing factors when users adopt the product. After collecting enough interviewee data through the website, the data was analyzed. CFA was used to test the validity and reliability of the research model. After passing the test, an SEM matrix was used to analyze the influencing factors.

First, if users think that using an app is a pleasant experience, they will think that the APP is useful and continue to use it. In the context of e-learning, Abdullah and Ward (2016) found through research that perceived enjoyment positively impacts perceived ease of use. Users perceive that the ease of use of Japanese learning apps affects their overall learning experience and feel more useful. Researchers have found a significant correlation between PEOU and perceived usefulness (Salloum et al., 2019). When the user perceives that the Japanese learning APP is useful to him, the user will be motivated to use it more positively. Chawla and Joshi (2019) point out that the existing literature shows a positive direct relationship

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between PU and attitude. When users find that the usability of an app is higher, the adoption attitude of users will be positively affected. Some researchers (Mailizar et al., 2021) found that e-learning, which is easy to use, is a positive factor influencing users' attitudes towards mobile learning. The user's attitude will affect their learning motivation, and a positive attitude may stimulate the user's stronger willingness to learn and positive behavior. Fong and Wong (2015) believe that ATT is the most significant factor affecting the behavioral intention of technology use. Suppose users believe that the task technology of a Japanese learning app is suitable for their learning needs. In that case, there may be a positive correlation with their behavioral intention to choose the product. Lee et al. (2007) found that the better the adaptability of task technology, the higher the user's willingness to use technology; the worse the adaptability of task technology, the lower the user's willingness to use technology.

In this study, due to the particularity of Japanese learning, the analysis results of respondents' data show that users' perceived enjoyment of Japanese learning apps may not have a significant positive correlation with the ease of use of Japanese learning apps. Users are more likely to continue using apps helpful to Japanese learning according to their judgment and cognition. In addition, foreign language learning needs to be gradual. When users' professional level is limited, and they cannot judge the quality of information provided by Japanese learning apps, the quality of materials has no significant positive impact on users' adoption intentions.

Considering the above factors, users' behavioral intentions when using Japanese learning apps will be affected by the following factors: perceived enjoyment, perceived usefulness, perceived ease of use, attitude, task technology adaptation, etc. Understanding these factors will help develop more targeted strategies to improve the attractiveness and effect of Japanese learning apps to meet users' learning needs better.

5.2 Recommendation

According to the questionnaire survey conducted on Japanese majors in this study, it is found that PE and PEOU have a significant positive correlation with PU, PU has a positive impact on ATT, and ATT has a positive impact on BI. TTF has a significant positive effect on BI.

In this study, unlike previous studies, PE has no significant positive correlation with PEOU, and IQ has no significant positive correlation with BI, which some characteristics of Japanese language learning should determine. When there is no significant positive correlation between Perceived Enjoyment and Perceived Ease of Use, there is no strong correlation between users' enjoyment of using a product, service, or system and their perception that the product, service, or system is easy to use. Therefore, when Japanese language majors use Japanese language learning apps, even though they think the products are easy to use, they feel they need to feel more strongly about the pleasant experience. Although this situation is due to various factors, it comes back to language learning. It may be because it requires a lot of repeated practice, so it is more boring than other knowledge-acquisition processes. Therefore, although users think that the use of the product has a certain pleasant feeling, it is not easy to use, so no significant positive correlation has been formed.

Another feature is that most of the students majoring in Japanese are starting from scratch. Before entering the university, they only have a superficial understanding of Japanese or Japan because of their interests and need a foundation in language mastery. In learning Japanese, it takes a lot of classroom practice time to master standard pronunciation, intonation, idiomatic special tone, oral features, etc., and the improvement of professional level is not achieved overnight. Therefore, it is difficult to judge the quality of language materials of various Japanese learning apps regarding content, pronunciation, and intonation and whether they are idiomatic. Because Japanese majors cannot judge the information quality when using Japanese learning apps, they cannot positively correlate with behavioral intention. Therefore, it is necessary to consider the specific characteristics of various professional learning when developing products, suggesting that designers and developers need to have a deeper understanding of user needs, consider the balance between user-perceived enjoyment and perceived ease of use, and add more elements that can trigger user pleasure to create a better user experience. At the same time, according to the characteristics of language learning, in the production and selection of language practice materials, it is necessary for native speakers or practitioners with high professional ability to conduct a quality review, selection and sequence adjustment, etc., to improve the quality of APP materials, to improve users' satisfaction and willingness to use.

5.3 Limitation and Further Study

This study's data source is limited because the researchers only investigated the adoption of Japanese language learning apps among Japanese language majors in Chengdu, Sichuan Province, China. Users in different regions may have differences in culture, learning habits, etc., which may affect the generality of the study results. For example, in the coastal areas of China, due to the large number of Japanese enterprises, there are many more jobs and part-time opportunities for Japanese learners than those in the mainland, and the feelings of Japanese speakers are more

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complex and changeable. For example, the videos and audio used on the website are often from the news, Japanese dramas, anime, and other formal media in Japan, but Japanese users in real life will have dialect accents, incorrect conversational grammar, many omissions, and the accompanying tone of actions, so their understanding of some lectures and explanations in Japanese learning apps will also be biased. This study only captures the respondents' intention to use Japanese learning apps at a certain stage, and it is difficult to fully capture the effect and influence of students in different learning stages. Therefore, future research can improve the objectivity and comprehensiveness of the research from different needs such as region, survey period, and subjective factors.

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