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Perceived factors of online shopping, purchase intention, and online purchasing behavior of international students studying in China: the moderating effect of cultural differences

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Abstract: With the rapid advancement of the internet and mobile technology, the global e-commerce industry is experiencing unprecedented growth. As the largest e-commerce market in the world, China has made significant progress in e-commerce infrastructure, payment methods, and logistics systems in recent years. However, international students in China may face challenges and opportunities in the online shopping environment that differ from those in their home countries. As a unique consumer group, the online shopping behavior of international students is influenced not only by personal characteristics, technology acceptance, and other factors but also by their cultural backgrounds. This study aims to explore the behavior patterns of international students in China's online shopping environment, particularly how online shopping perceptions, cultural differences, and purchase intentions jointly influence their online shopping behavior. Through a questionnaire survey, this research selects foreign students from Chongqing and Chengdu as subjects, establishing an empirical model covering e-commerce perception factors, cross-cultural adaptation characteristics, consumption decision tendencies, and cross-border online shopping behavior. The study systematically analyzes the interactive effects of multiple factors on international students' online consumption behavior. The introduction chapter outlines the research's value and practical significance, clarifies the academic objectives and research approach, and summarizes the innovative dimensions and academic breakthroughs of this study. The theoretical foundation chapter integrates consumer decision-making mechanisms, rational behavior frameworks, technology adoption models, risk perception theories, and cross-cultural adaptation theories, constructing a multi-dimensional academic analysis framework. The model construction chapter clearly defines the observed and latent variables in the empirical study, establishes a quantifiable indicator system, and deduces a series of testable hypotheses based on theoretical reasoning. In the research implementation section, the focus is on data collection standards and quality control processes, detailing the dimensional division and scale selection criteria for the questionnaire design, as well as sampling strategies and the effective response rate of the questionnaires. The data analysis module uses statistical software to systematically process the sample data, conducting internal consistency tests, structural validity verification, multicollinearity diagnostics, and hierarchical regression analysis, ultimately completing the empirical validation of the research hypotheses. The core objective of this study is to explore the consumption characteristics of foreign students on Chinese e-commerce platforms, with a focus on how online consumption perception dimensions (including perceptions of shopping convenience, ease of use, transaction risks, and platform trust) influence actual purchasing behavior through the mediation of purchase intentions. The study also examines the moderating effects of cross-cultural dimensions (involving individual value orientations, class cognition differences, and risk aversion tendencies) in the consumption decision-making chain, providing empirical evidence for optimizing international user service experiences on cross-border e-commerce platforms. Through in-depth data analysis and hypothesis testing, this research aims to provide targeted marketing strategy recommendations for e-commerce platforms, helping them better understand and serve this important international consumer group, thus promoting the development of cross-border e-commerce.

Keywords: Online shopping perception factors; Purchase intention; International students studying in China; Cultural difference.

1. Introduction

With the rapid development of the Internet and mobile technology, the global e-commerce industry is growing rapidly. Especially nowadays, China, as the world's largest e-commerce market, has made tremendous progress in recent years in terms of e-commerce infrastructure, payment methods, and logistics systems. Chinese e-commerce is mainly driven by two major companies, Alibaba and Tencent. After coming to China, many foreigners will find a different environment for online shopping, after all, there are some countries where the Internet and logistics are not as developed as in China. The research group of this thesis focuses on international students coming to China, and studies the factors influencing international students' online purchasing behavior in China's e-commerce environment.

According to recent years statistics, by the end of the 2024 academic year, Chinese higher education institutions had received 374,000 international students, which average annual growth rate of about 10%. From the point of view of the geographical distribution of student sources, three continents, Asia, Africa and Europe, constitute the main source of students, of which Asia has the highest proportion of the study group, followed by Africa and Europe in terms of the size of the students [1].

In order to enhance the attractiveness of international education, China has established a multi-level funding system. A typical example is the Government Scholarship Program (CGS), which has been implemented since 1950. Through

financial allocations, this special funding program continuously provides foreign students with excellent academic backgrounds with comprehensive support for their studies and research in China. Online shopping, as a convenient and economical way of shopping, has become an important part of international students' daily life in China. The online shopping behaviors of international students in China may be influenced by a variety of factors, including cultural background, language ability, familiarity with Chinese e-commerce platforms, and social relationships [2]. Studying the online purchasing behavior of this group not only helps to understand consumption patterns, but also helps to develop targeted marketing strategies for e-commerce platforms. Therefore, it has become a hot research issue of social concern to study the online purchasing status and consumption behavior of international students, and to clarify the problems that exist in international students' online purchasing and consumption.

According to the Ministry of Education (MOE) 2024 Statistical Bulletin, the total number of international students in China reached 543,000 in the academic year 2023-2024, an increase of 8.5% year-on-year, and the proportion of academic students among them increased to 76.2%, indicating that the quality of China's higher education and international recognition have significantly improved (MOE, 2024). The number of students from countries along the 'Belt and Road' has further diversified, with the proportion of students from countries along the 'Belt and Road' reaching 67.4%, and the growth rate in Africa and South Asia is particularly outstanding (CSCSE, 2024) [3][4].

This study takes the influencing factors of online purchasing behavior of international students in China as an entry point, and explores the influencing factors of online purchasing behavior of international students through a combination of theoretical and empirical methods.

2. Literature Review

2.1. International Students in China

Online Shopping Behavior of International Students mainly refers to the frequency of online shopping, overall satisfaction, consumption amount and online shopping expenditure of international students in China. In 2010, China explicitly announced its ambition to become a preferred destination for international education. The Outline of the National Medium- and Long-Term Education Reform and Development Plan (2010-2020) clearly stated that China should further increase the number of international students. In the same year, the Ministry of Education of China launched the "Study Abroad Program in China", with the goal of attracting 500,000 international students by 2020 and becoming the largest study abroad destination in Asia [5]. Literature analysis found that with the advancement of the "Belt and Road" initiative, the number of international students from developing countries has increased significantly. In this context, the cultural differences and adaptation of international students have become key influencing factors, which provides a basis for further exploring their behavior on China's online shopping platforms [6].

At present, research on the online shopping behavior of international students in China is still relatively limited, but some scholars have focused on the relationship between their consumption patterns and cross-cultural adaptability. For example, Sun & Wang (2021) showed that the degree of cultural adaptation significantly affects the online shopping preferences of international students, especially in terms of payment security and logistics service satisfaction, and there are significant differences among international students from different cultural backgrounds [7].

These studies provide references for further analysis of the key influencing factors of international students' online shopping in China.

Existing studies generally focus on the consumption behavior characteristics of this group and its economic impact. Meisha (2023) pointed out through empirical analysis that about 67.3% of international students in China have high-frequency cross-border purchasing behavior, with an average annual consumption of more than 12,000 yuan. It is worth noting that the risk perception specificity shown by this group in the consumption process has not yet formed a systematic research framework [8].

2.2. Cultural Differences

Cultural differences or differences in national environments may lead to different user behaviors. Different countries have different intrinsic values, which may lead to differences in the behaviors of Internet users in different countries and their willingness to buy on e-commerce websites. Cultural differences play a moderating role in the online shopping behavior of international students. It not only affects the shopping preferences of international students, but also directly or indirectly affects their willingness to buy. Hofstede et al. [9] proposed that the five dimensions of national culture are power distance, uncertainty avoidance, individualism, masculinity, and long-term orientation.

Cultural differences in the purchasing behavior of international students in China refer to the differences in values, beliefs, and behavioral norms among international students from different countries and cultural backgrounds, which lead to different habits and preferences when shopping online. Cultural differences affect international students' perceptions of products, services, and online shopping risks, and thus affect their purchasing decisions. For example, international students from different cultural backgrounds may have significant differences in trust in online shopping platforms, choice of payment methods, and shopping frequency. Cultural differences can be measured by measuring users' individualism, power distance, and uncertainty avoidance on shopping platforms.

3. Research Hypothesis

This study proposes a multi-factor integrated model to explain the online shopping behavior of international students in China by referring to relevant literature and personal thinking. Based on the Technology Acceptance Model (TAM), Perceived Risk Theory and Hofstede Cultural Dimensions Theory, this study constructs a theoretical model to explore the online shopping behavior of international students in China. The model contains four core variables: online shopping perception factors (perceived usefulness, perceived ease of use, perceived risk, network trust), purchase intention, cultural differences (individualism, power distance, uncertainty avoidance) and online shopping behavior of international students in China. Among them, the cultural difference variable is used to examine the moderating role of international students in different cultural backgrounds in the online shopping process. The main variables of this model are

online shopping perception factors, cultural differences, purchase intention and online shopping behavior of international students in China. Specific hypotheses are formulated to test the relationships between these variables.

The concepts of perceived usefulness and perceived ease of use were first proposed by Fred Davis, who created the Technology Acceptance Model (TAM) in his 1989 study to explain users' acceptance of new technologies and information systems [10]. He believed that perceived usefulness and perceived ease of use are key factors affecting users' willingness to use technology. According to Davis' research, perceived usefulness has a significant positive impact on users' attitudes, while perceived ease of use not only directly affects users' attitudes, but also indirectly affects users' behavioral intentions by enhancing perceived usefulness. According to the Technology Acceptance Model (TAM), an individual's perception of the usefulness and ease of use of a technology is a key factor affecting their willingness to use it. These perceptual factors are still valid in the context of online shopping, especially usefulness, ease of use and risk, which directly affect purchasing behavior. For international students, these factors not only determine the convenience of online shopping, but are also directly related to the sense of security in shopping, thus affecting their purchasing decisions [11]. When using an e-commerce platform or online shopping system, international students need to consider whether online shopping on this platform can improve shopping efficiency, save time or obtain better product selection. Whether the operation interface, payment system, product search function, etc. of the e-commerce platform are simple and easy to use will affect whether international students are willing to use the platform for a long time.

Consumer behavior theory points out that purchase intention plays a key mediating role between perceived factors and final behavior (Dodds, 1991) [12]. Previous studies have shown that perceived usefulness, perceived ease of use, perceived risk, and trust all affect final shopping behavior through purchase intention (Pavlou, 2003) [13]. Therefore, the following hypothesis are proposed:

Table 1. Statistical Table of Research Hypotheses

No.	Hypotheses
H1	Online shopping perception factors significantly influence international students' online shopping behavior in China.
H1a	Perceived online shopping usefulness positively influences international students' online shopping behavior in China.
H1b	Perceived online shopping ease of use positively influences international students' online shopping behavior in China.
H1c	Perceived online shopping risks negatively influence international students' online shopping behavior in China.
H1d	Online trust positively influences international students' online shopping behavior in China.
H2	Online shopping perception factors significantly influence purchase intention.
H2a	Perceived online shopping usefulness positively influences purchase intention.
H2b	Perceived online shopping ease of use positively influences purchase intention.
H2c	Perceived online shopping risks negatively influence purchase intention.
H2d	Online trust positively influences purchase intention.
H3	Purchase intention significantly influences international students' online shopping behavior in China.
H4	Cultural differences moderate the relationship between online shopping perception factors and purchase intention.
H4a	Individualism moderates the relationship between perceived online shopping usefulness and purchase intention.
H4b	Individualism moderates the relationship between perceived online shopping ease of use and purchase intention.
H4c	Individualism moderates the relationship between perceived online shopping risks and purchase intention.
H4d	Individualism moderates the relationship between online trust and purchase intention.
H4e	Power distance moderates the relationship between perceived online shopping usefulness and purchase intention.
H4f	Power distance moderates the relationship between perceived online shopping ease of use and purchase intention.
H4j	Power distance moderates the relationship between perceived online shopping risks and purchase intention.
H4h	Power distance moderates the relationship between online trust and purchase intention.
H4i	Uncertainty avoidance moderates the relationship between perceived online shopping usefulness and purchase intention.
H4j	Uncertainty avoidance moderates the relationship between perceived online shopping ease of use and purchase intention.
H4k	Uncertainty avoidance moderates the relationship between perceived online shopping risks and purchase intention.
H4l	Uncertainty avoidance moderates the relationship between online trust and purchase intention.
H5	Purchase intention mediates the relationship between online shopping perception factors and international students' online shopping behavior in China.
H5a	Purchase intention mediates the relationship between perceived online shopping usefulness and international students' online shopping behavior in China.
H5b	Purchase intention mediates the relationship between perceived online shopping ease of use and international students' online shopping behavior in China.
H5c	Purchase intention mediates the relationship between perceived online shopping risks and international students' online shopping behavior in China.
H5d	Purchase intention mediates the relationship between online trust and international students' online shopping behavior in China.

4. Research Method

The main research methods used in this paper are literature analysis, questionnaire survey and data analysis. Finally in order to validate the hypotheses in the research model, this paper validates the results by moderating the effect test with on each hypothesis.

A questionnaire survey was conducted among international

students in Chongqing and Chengdu and questionnaire design is the key link in the study of exploring the influencing factors of online shopping behavior of international students coming to China. In this research there are 37 questionnaire questions on the characteristics of online shopping behavior, and these questions can be divided into the following categories: online shopping perception factors, cultural differences, purchase intention and online shopping behavior of international students coming to China. A total of 306 questionnaires were distributed, of which 36 were invalid. After removing the questionnaires that were not completed or filled out irregularly, 270 valid questionnaires were finally obtained.

The demographic profile describes the various relevant features of International Students, studying in China, categorized by age, gender, region of origin, program of study, monthly spending amount, number of years respondents have been staying in China and Chinese language proficiency. These categories are detail described in the Table 2.

Table 2. Demographic profile of respondents

Variables	Category	Frequency	Percentage (%)
Age	Under 24 years old	67	24.81
	24-35	183	67.7
	Over 35 years old	22	8.14
Gender	Male	114	42.2
	Female	156	57.7
Region of origin	Europe	109	40.37
	Asia	128	47.4
	Africa	26	9.62
	America	5	1.85
	Australia and Oceania	2	0.74
Monthly spending amount	< 2000 RMB	79	29.25
	2000-5000 RMB	161	59.62
	5000-10000 RMB	22	8.14
	> 10000 RMB	8	2.96
The number of years respondents have been staying in China	Less than 1year	38	14.07
	1-3years	104	38.51
	3-5 years	91	33.7
	More than 5 years	37	13.7
Chinese language proficiency	None	23	8.51
	HSK2-HSK3	43	15.92
	HSK4	115	42.59
	HSK5-HSK6	91	33.7

The data from the questionnaire in this research, with a total of 270 respondents, covered basic information such as age, gender, region, consumption amount, length of residence and Chinese language ability. Respondents were mainly concentrated in the age group of 24 to 35 years old, accounting for 67.7%. 24.81% of the respondents were under 24 years old, while only 8.14% were over 35 years old, indicating that the study group was mainly composed of young people, which is in line with the characteristics of the age structure of the international students coming to China. Male respondents accounted for 42.2% and female respondents accounted for 57.7%. The nationality composition of the respondents is dominated by Asia (47.4%) and Europe (40.37%), followed by Africa (9.62%), America (1.85%) and Australia and Oceania (0.74%). This shows that Asian and European students are the main groups of students coming to China to study, reflecting the diversity of countries of origin of international students coming to China.

5. Results and Discussion

At present, there are limited studies on international students' consumption behavior in the existing literature, and there are even fewer specialized studies on international students' online purchasing behavior. Few scholars have focused on studying the online purchasing behavior of foreign students in China, and they have not been able to closely link the cultural differences, purchasing intention, and perceived factors of online purchasing among foreigners in China. From a cross-cultural perspective, this study analyzes the influence of cultural background, technology acceptance, and social influence on international students' online purchasing behavior, and explores how e-commerce platforms can optimize their services to meet the needs of this group.

The results of this research paper indicate that online shopping perception factors (usefulness, ease of use, risk, and trust) significantly influence Chinese international students' online shopping behavior and purchase intention (H1, H1a-H1d, H2, H2a-H2d supported). Additionally, purchase intention positively impacts actual shopping behavior and cultural differences play a moderating role. However, their moderating effect on perceived risk is weak (H4g not supported), indicating partial support for H4. This suggests that power distance may lead students to rely more on platform rules and seller reputation rather than personal risk assessment in purchase decisions. High power distance students are likely to trust platform recommendations and security guarantees, reducing the moderating effect of risk on purchase intention. Moreover, cultural differences shape the definition of “risk” in online shopping; high power distance individuals prioritize transaction security over abstract risks like personal privacy, explaining the lack of a moderating effect.

Furthermore, purchase intention mediates the relationships between perceived usefulness, ease of use, risk, trust, and shopping behavior.

Demographic factors like age and gender do not significantly impact the results, confirming that shopping perception and cultural differences are the key drivers of online shopping behavior.

6. Conclusion

6.1. Key Findings

This study investigates the factors influencing the online purchasing behavior of international students in China. The findings indicate that perceived usefulness, ease of use, perceived risk, and online trust significantly affect purchasing intention and behavior. Perceived usefulness and ease of use positively impact purchase intention, while perceived risk has a negative influence. Online trust plays a crucial role in strengthening purchase intention and behavior.

Cultural differences, including individualism, power distance, and uncertainty avoidance, act as moderators in the relationship between perceived online shopping factors and purchase intention. For instance, students from high uncertainty avoidance cultures tend to prefer well-established brands, whereas those from low uncertainty avoidance cultures are more willing to explore new platforms. Similarly, in cultures with high power distance, trust in authoritative

recommendations enhances purchasing intention.

The study highlights that purchase intention mediates the effects of perceived usefulness, ease of use, and online trust on purchasing behavior, emphasizing that fostering trust and usability is key to improving online shopping engagement among international students.

6.2. Recommendations for E-commerce Platforms

To optimize the online shopping experience for international students, the following strategies are proposed:

Enhancing Multilingual Support: Providing multiple language options (English, French, Arabic, Russian) and AI-powered customer support to reduce language barriers.

Improving Identity Verification and Payment Systems: Supporting international phone numbers and payment methods (Visa, Mastercard, PayPal, Apple Pay) to increase accessibility.

Cultural Adaptation Strategies: Implementing personalized recommendations, organizing culturally relevant promotions, and establishing student communities to enhance engagement and trust.

6.3. Limitations and Future Research

This study is limited by its sample scope, focusing on students in Chongqing and Chengdu. Future research should expand geographic coverage and integrate qualitative methods for a deeper understanding of international students' online shopping behavior. Additionally, exploring the impact of emerging digital marketing strategies, such as AI-driven recommendations and social commerce, would further enrich the research insights.

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