

Decoding Students' Purchase Logic of Fast-Moving Consumer Goods Based on TPB

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Abstract: Under the background of economic development and changes in consumption concepts, students, as a special consumer group, pay much attention to their FMCG purchasing behavior. Based on the theory of planned behavior, a questionnaire was designed to sample 1379 students in some schools in Shaanxi Province. Based on the core elements of TPB, the five-point Likert scale was used to quantify students' agreement degree, and the reliability and validity analysis showed that the questionnaire was reliable and effective. The research shows that behavioral attitude, subjective norms, perceived behavioral control and post-purchase behavior have significant positive effects on students' purchasing behavior, among which subjective norms have the greatest impact. In terms of personal characteristics, income level and region have a significant driving effect on purchasing behavior, high-income groups consume frequently, and coastal and inland areas have different preferences; Age and education level followed, 18-24 years old group and bachelor's degree or above have their own consumption characteristics. In addition, family members, friends, colleagues, stars, and Internet celebrities have significant but different effects on students' purchasing behavior. Based on this, it is suggested that enterprises should pay attention to consumers' social environment and group norms when formulating market strategies, enhance their purchasing confidence and sense of control, and strengthen the positive impact of brand attitude and post-purchase services. At the same time, implement the "three-dimensional adaptation" strategy, build a three-dimensional marketing network, balance social communication and rational consumption decisions, in order to enhance market competitiveness, meet the diversified consumer demand of students, and promote the development of FMCG industry.

Keywords: fast-moving consumer goods; purchase behavior; theory of planned behavior; optimal scale regression

1. Introduction

In the current booming economy, fast moving consumer goods are an important part of people's lives. As a special consumer group, students' FMCG purchasing behavior is unique and regular, and their needs and choices change with the changes of social economy and consumption concepts. FMCG covers food, beverages, personal care products, stationery, etc., and has a huge market scale due to its short use cycle, fast consumption speed, and high repeat purchase rate. Due to the special age, lifestyle and economic sources of students, their consumption behavior is different from that of other groups, and the Implementation Opinions on Promoting Consumption Expansion, Improving quality and Accelerating the Formation of a Strong Domestic Market^[1] also emphasizes tapping the consumption potential of different groups.

Data from the Ministry of Education show that there are more than 40 million students in higher education in China, which has a significant impact on the FMCG market. Students' consumption behavior is affected by personal economy, social culture, peers and other factors, and they are in the critical period of growth and learning, and their consumption concept is influenced by family, school and society. Most students rely on their families financially and have limited consumption budgets, but they pursue fashion, trends and personalization, and are keen to try new brand products to meet their social and psychological needs. The popularization of the Internet and the development of e-commerce make online shopping an important way for students to buy FMCG.

The promotion of education in China has expanded the size of the student group and highlighted the potential of the consumer market, but there are few special studies on the purchase behavior of students' FMCG, and the lack of precision in corporate marketing makes it difficult to meet the diversified needs. This study aims to deeply explore the characteristics of student groups' FMCG purchasing behavior, collect first-hand data through questionnaire survey and analyze it with statistical methods, hoping to reveal the characteristics and trends, provide references for enterprises to meet the needs of students, add content perspectives to academic research.

2. Research background

As a unique group in the FMCG market, students' purchasing behaviors are characterized by high frequency, brand sensitivity and social drive ^[2-4]. Daily needs drive high consumption of goods such as food and stationery, while brand image and packaging design significantly affect choice preferences. Peer recommendation and social sharing play a prominent role in decision-making, reflecting the shaping power of group identity on consumer behavior. Age and gender differences further divide demand: younger students prefer snack toys, and older students switch to electronic products and personal care; In the gender dimension, girls tend to focus on cosmetics, while boys focus on sports digital products ^[5]. The concept of consumption presents duality, rational consumption-oriented cost-effective priority, and those who pursue individuation are easily attracted by brand premium ^[6].

Household income influences consumption behavior through the dual path of economic capital and values. Students from high-income families show the characteristics of high-end and diversified consumption, while low-income groups pay more attention to practicality and price sensitivity ^[7]. The sense of frugality transmitted by family education significantly inhibits impulse consumption and forms a prudent consumption decision-making model ^[8]. In the school environment, the academically oriented campus culture reduces the proportion of entertainment consumption ^[9], while group pressure prompts students to strengthen their sense of belonging through homogenized consumption ^[10]. At the social level, advertising creativity and promotion strategies directly stimulate the desire to buy ^[11], while social media reconstructs consumption cognition through the recommendation and evaluation content of Internet celebrities ^[12].

The purchasing channels show the characteristics of "dual-track parallel" : in the offline scene, convenience stores meet the immediate demand ^[13], while supermarkets support bulk purchasing ^[14]. Online channels rely on e-commerce platforms to achieve category comparison and price advantage ^[15], and social e-commerce enhances purchase transformation through UGC content ^[16]. This omni-channel layout reflects the student group's dual pursuit of consumption efficiency and experience.

The current research has three limitations: at the methodological level, questionnaire survey leads to subjective bias, and big data tracking and experimental research need to be introduced to improve validity ^[17]; The research vision is limited by the region and cross-cultural comparative research is lacking ^[18]. Research content lags behind market innovation and pays insufficient attention to emerging categories such as smart wear and environmental protection products. Future research should build a dynamic analysis framework, combine the theories of consumer psychology and market ecology, and pay attention to the reconstruction of students' behavior patterns in emerging scenarios such as live streaming e-commerce and meta-universe shopping.

3. Data sources and descriptive analysis

3.1. Questionnaire design

To deeply study students' purchase behavior of fast-moving consumer goods, this paper designs a detailed questionnaire based on the Theory of Planned Behavior (TPB). This questionnaire uses a five-point Likert scale to quantify the degree of agreement of respondents, so as to better understand the psychological motivation and decision-making process of students when purchasing fast-moving consumer goods. The design of the questionnaire strictly follows the core elements of TPB, namely attitude, subjective norm and perceived behavioral control, to ensure that the proposed questions can fully cover these three key dimensions.

3.2. Descriptive statistics

The data in this paper is obtained through sampling surveys in some schools in Shaanxi Province. By distributing questionnaires through online platforms, 1379 valid questionnaires were collected. In the process of data collection, the randomness and representativeness of the questionnaire are ensured to improve the reliability and validity of the data. Table 1 shows the numerical characteristics of demographic variables, reflecting the distribution of the surveyed objects this time. The table covers four key variables: gender, age, educational level and location.

Table 1: Descriptive Statistics of Sample Characteristics.

	N	Minimum (M)	Maximum (X)	Total	Mean (E)	Standard Error	Standard Deviation	Variance
Gender	1379	1	2	2491	1.81	.011	.395	.156
Age	1379	1	6	4032	2.92	.008	.313	.098
Education	1379	1	5	4590	3.33	.016	.601	.362
Location	1379	1	3	2120	1.54	.022	.810	.657

3.3. Reliability and validity analysis

3.3.1. Reliability Analysis

The purpose of reliability analysis is to test the credibility of the scale measurement results. The higher the reliability of the scale, the more credible the measurement results. Based on the collected data, a reliability analysis was conducted on a questionnaire containing 1,379 participants, which included 41 items. As shown in Table 2, by calculating the Cronbach's α coefficient, a result of 0.972 was obtained, indicating that the questionnaire has a high level of internal consistency. According to traditional standards, a Cronbach's α coefficient above 0.7 is considered to have high reliability. Therefore, the results of this paper significantly exceed this threshold, indicating that the questionnaire has high reliability and consistency in measuring the variables it covers.

Table 2: Overall Reliability Analysis.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
0.972	0.972	41

As shown in Table 3, the Cronbach's alpha coefficients for all variables based on standardized items are at a high level. The Cronbach's alpha for behavioral attitude reaches 0.929, which strongly indicates that the items used to measure behavioral attitude have extremely high internal consistency and reliability. The Cronbach's alpha for subjective norms is 0.933, fully demonstrating that the items used to measure subjective norms have excellent consistency and good reliability. The Cronbach's alpha for perceived behavioral control is as high as 0.949, highlighting the extremely high reliability of the items used to measure this variable. The Cronbach's alpha for post-purchase behavior is 0.889, which, although slightly lower than other variables, is still within a good range, indicating that the items used to measure post-purchase behavior have good internal consistency. Overall, these data clearly reflect that in this study, the items used to measure each variable present a high level of reliability, providing solid and reliable data support for subsequent related research and analysis.

Table 3: Reliability Analysis of Scales for Behavioral Attitude, Subjective Norm, Perceived Behavioral Control, and Post-Purchase Behavior.

	Behavioral Attitude	Subjective Norm	Perceived Behavioral Control	Post-Purchase Behavior
Cronbach's Alpha Based on Standardized Items	0.929	0.933	0.949	0.889

3.3.2. Validity Analysis

Validity refers to the validity of questionnaire and whether the setting of questionnaire questions can reflect the purpose and demand of measurement. The validity test table of each part of the questionnaire was tested through factor analysis, and the results were shown in Table 4: the KMO sample appropriateness measure was 0.974. Generally speaking, the closer the KMO value was to 1, the stronger the correlation between the variables. In Bartlett's sphericity test, the chi-square value is 45280.791, the degree of freedom is 820, and the significance is 0.000. A significance of 0.000 means a strong statistical rejection of the null hypothesis that the correlation matrix between the variables is not an identity matrix, that there is a significant correlation, and that factor analysis or other multivariate statistical analysis is supported.

Table 4: KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.974
Bartlett's Test of Sphericity	Approx. Chi-Square	45280.791
	Degrees of Freedom	820
	Significance	0.000

3.3.3. Correlation between Standardized Variables

To explore whether there is a correlation relationship and its degree between each pair of research variables, this paper uses the SPSS25.0 data analysis tool to conduct Pearson correlation analysis. The correlation coefficients are used to determine the correlation relationship and degree between behavioral attitude, subjective norms, perceived behavioral control, and post-purchase behavior dimensions, laying the foundation for subsequent analysis. The specific results of the correlation analysis are shown in Table 5.

Table 5: Correlations Between Standardized Variables.

	Behavioral Attitude	Subjective Norm	Perceived Behavioral Control	Post-Purchase Behavior
Behavioral Attitude	1			
Subjective Norm	.743**	1		
Perceived Behavioral Control	.660**	.788**	1	
Post-Purchase Behavior	.541**	.685**	.788**	1

Note:**The correlation is significant when the confidence (double measure) is 0.01.

As shown in Table 5, there is a significant positive correlation between the four key dimensions of behavioral attitude, subjective norms, perceived behavioral control, and post-purchase behavior. Among them, the correlation coefficient between subjective norms and behavioral attitude is as high as 0.743, indicating that social norms have a particularly significant impact on individual behavioral attitudes. Perceived behavioral control shows a strong correlation of more than 0.660 with the other three dimensions, highlighting the high confidence consumers have in their control ability during the purchase decision-making process. The correlation coefficient between post-purchase behavior and behavioral attitude is 0.541, indicating the feedback effect of consumers' behavior after purchase on their initial attitudes. These findings suggest that the purchasing behavior of the student population is a complex process influenced by multiple dimensions, with social and cultural factors, personal perceptions, and behavioral outcomes collectively shaping their consumption decisions.

4. Optimal Scale Regression Analysis of Purchase Intention

Consumer purchasing behavior is influenced by numerous factors, which often have different data types. For example, consumer age segmentation, gender, education level, income level, etc., belong to categorical variables, while satisfaction ratings for products or services, and classification of purchase frequency belong to ordinal variables. Optimal scale regression analyzes these non-quantitative variables through appropriate coding and transformation, making them better fit the assumptions of linear relationships, thereby improving the fitting effect and explanatory power of the model. Its core idea is to find an optimal coding method for each variable to maximize the revelation of the relationship between variables. This coding method is not a simple numerical assignment, but is determined based on the characteristics of the data and the potential structure between variables.

4.1. Goodness-of-Fit Test

As shown in Table 6, the multiple R is 0.983, indicating a very strong positive correlation between the independent variables and the dependent variable. The model determination coefficient R-squared is 0.966, meaning the model can explain 96.6% of the variation in the dependent variable, indicating that the model fit is very good. The mean prediction error is 0.034, which means only 3.4% prediction error, indicating that the model's predictive accuracy is very high.

Table 6: Model Summary.

Multiple R	R Square	Adjusted R Square	Standard Error of the Estimate
.983	.966	.965	.034

4.2. Significance Test

From Table 7 analysis, it can be seen that the regression sum of squares is 1331.593, indicating that the independent variables have a significant explanatory power for the dependent variable. The F-test value is 1815.074, and the significance $P=0.000<0.05$, which means that the regression effect of the model is significant, and at least one independent variable has a significant impact on the dependent variable.

Table 7: ANOVA Variance Analysis.

	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance
Regression	1331.593	21	63.409	1815.074	.000
Residual	47.407	1357	0.035	—	—

4.3. Multicollinearity Test

From the correlation and tolerance Table 8, it can be seen that zero-order correlation shows the simple correlation between independent variables and dependent variables. Partial correlation indicates the correlation between each independent variable and the dependent variable after controlling for other variables. Tolerance measures the degree of collinearity of a particular independent variable with other independent variables in the model. The lower the tolerance, the higher the collinearity between the variable and other variables, which may affect the stability and explanatory power of the model. Among all variables, tolerance is generally high (all above 0.2), indicating that the problem of multicollinearity in the model is not significant, and each variable independently affects the dependent variable.

Based on the above analysis, it can be seen that consumer purchasing behavior is strongly influenced by factors such as behavioral attitude, subjective norms, perceived behavioral control, and post-purchase behavior. Among these, behavioral attitude and subjective norms are particularly critical, showing the importance of social and psychological factors in purchasing decisions. The high accuracy and low prediction error of the model further indicate that these factors are sufficient to reliably predict

consumer purchasing behavior. Therefore, marketing strategies should focus on how to promote purchase intentions by positively influencing these key factors, such as by strengthening the perception of the social benefits of products, enhancing brand attitude and satisfaction, etc.

Table 8: Correlation and Tolerance.

Variable	Correlations			Importance	Tolerance	
	Zero-order	Partial	Part		After Transformation	Before Transformation
Behavioral Attitude	.803	.647	.157	.189	.480	.465
Subjective Norm	.922	.767	.221	.385	.301	.326
Perceived Behavioral Control	.910	.689	.176	.331	.251	.273
Post-Purchase Behavior	.789	.358	.071	.095	.374	.382

4.4. Model Prediction

Table 9 shows the test results of the coefficients in the model. Since standardization of scores was also performed during the transformation, the standardized coefficients are directly provided here. It should be noted that the standard error estimates provided here are based on 1000 Bootstrap samples, while the F-test is still the result of a traditional variance decomposition method, so there may be inconsistencies between the two. From the standardized coefficients column in the regression coefficient table, the regression equation is sorted according to the importance of the influence of different factors:

$$Y = 0.403X_2 + 0.352X_3 + 0.227X_1 + 0.116X_4$$

Table 9: Regression Coefficients.

Variable	Standardized Coefficients		Degrees of Freedom	F	Significance
	beta	Bootstrap (1000) Estimate of Std. Error			
Behavioral Attitude	.227	.014	4	276.362	.000
Subjective Norm	.403	.019	6	447.648	.000
Perceived Behavioral Control	.352	.017	6	446.599	.000
Post-Purchase Behavior	.116	.011	5	118.757	.000

The beta coefficients of all predictors are positive and high, and the effect on buying behavior is positive and strong. Among the four predictive variables, subjective norms have the greatest influence, followed by perceptual behavioral control and behavioral attitude, and the influence of post-purchase behavior is relatively small. The behavioral attitude beta coefficient is 0.227, and the purchase intention increases by 0.227 units for each unit increase, which has a relatively small impact. The highest beta coefficient of subjective norm is 0.403, which indicates that consumers' purchase decision is greatly influenced by social group norms and expectations. The perceived behavioral control beta coefficient of 0.352 has a significant positive effect on purchase intention, reflecting the promotion effect of consumers' confidence and sense of control on purchase behavior on purchase intention. The beta coefficient of post-purchase behavior is 0.116, which has a small effect but a positive impact on the

overall average, reflecting the effect of post-purchase experience on future purchase intention. Based on this, enterprises should pay attention to consumers' social environment and group norms when formulating market strategies to enhance consumers' confidence and sense of control. At the same time, strengthen the positive impact of brand attitude and improve post-purchase service, so as to enhance consumer purchase intention and satisfaction, and enhance market competitiveness.

5. Influencing Factors of Consumer Purchase Intention

5.1. The influence of personal characteristics on purchase behavior

Table 10 shows that income level and region have the most significant driving effect on purchasing behavior, and high-income groups show the characteristics of high-frequency consumption, while regional differences are reflected in the preference for imported brands in coastal areas and the preference for cost-effective products in inland areas. Age and education level followed, 18-24 years old group due to social needs to drive consumption activity, bachelor's degree or above pay more attention to health attributes. The effect of gender is relatively weak, but there are still differences in subcategories.

Table 10: The influence of personal characteristics on purchase behavior.

Chi-square Test	Variable	Pearson Chi-square	Likelihood Ratio (L)	Linear-by-Linear Association
Value	Gender	9.647 ^a	9.08	6.331
Degrees of Freedom		4	4	1
Asymptotic Significance		0.047	0.059	0.012
Value	Age	33.367 ^a	24.831	1.916
Degrees of Freedom		16	16	1
Asymptotic Significance		0.007	0.073	0.166
Value	Education Level	37.271 ^a	36.361	6.473
Degrees of Freedom		16	16	1
Asymptotic Significance		0.002	0.003	0.011
Value	Income Level	60.851 ^a	56.177	13.675
Degrees of Freedom		24	24	1
Asymptotic Significance		0.000	0.000	0.000
Value	Region	45.609 ^a	52.027	35.73
Degrees of Freedom		8	8	1
Asymptotic Significance		0.000	0.000	0.000

It is found that income and region constitute the core constraint conditions of consumption behavior: high income people are less price sensitive and more likely to pay premium for quality; Regional culture shapes consumption pattern through product preference and channel choice. The interaction

effect of age and culture is significant, and young educated groups become early adopters of innovative products, and their consumption decisions are more dependent on social media evaluation. It is suggested that enterprises implement the "three-dimensional adaptation" strategy. At the same time, it is necessary to dynamically monitor the evolution of personal characteristics and predict the turn of consumption trend.

5.2. The influence of different groups on students' purchasing behavior

The results in Table 11 show that the five groups of family, friends, colleagues, stars and Internet celebrities can all have a very significant impact on students' purchasing behavior, but their action paths and intensity are different. Therefore, the following marketing strategies are proposed: In the operation of the core social circle, it is necessary to strengthen the deep bonding between family and peers. Through the development of family sharing points system, the design of "parent-child learning set" and other co-branded products, to achieve intergenerational consumption linkage; At the same time, the campus fission mechanism is established to encourage students to spread consumption behavior through strong relationship network. For the weak relationship source, the KOL grading strategy should be implemented: head influencers carry out special brand live broadcast, waist influencers carry out dormitory scene assessment, and cultivate local campus influencers to carry out local content creation such as canteen visit, forming a "cognition-experience-transformation" communication chain. At the technical level, it is necessary to establish a social graph analysis system, identify key opinion leaders by using campus social platform data, and target seed products for dissemination testing. Build a DMP data platform to track the transformation effect of each influence source and dynamically optimize budget allocation. In terms of risk prevention and control, a marketing filtering mechanism should be set up to block exaggerated propaganda content in real time, and a family intervention early warning model should be established to balance family influence and student autonomy. Finally, the three-dimensional marketing network of "strong relationship fission - weak relationship penetration - intelligent regulation" is formed, which ensures the health and rationality of consumption decisions while activating the social communication efficiency.

Table 11. Influences of different groups on students' purchasing behavior.

Chi-square Test	Variable	Pearson Chi-square	Likelihood Ratio (L)	Linear-by-Linear Association
Value	Family	75.149 ^a	73.389	23.515
Degrees of Freedom		16	16	1
Asymptotic Significance		0.000	0.000	0.000
Value	Close Friends	73.594 ^a	71.26	21.131
Degrees of Freedom		16	16	1
Asymptotic Significance		0.000	0.000	0.000
Value	Colleagues	72.242 ^a	69.495	23.289
Degrees of Freedom		16	16	1
Asymptotic Significance		0.000	0.000	0.000
Value	Celebrities	74.759 ^a	69.481	27.98
Degrees of Freedom		16	16	1
Asymptotic Significance		0.000	0.000	0.000
Value	Internet Celebrities	78.410 ^a	71.854	23.429
Degrees of Freedom		16	16	1
Asymptotic Significance		0.000	0.000	0.000

6. Conclusions

Based on TPB, this paper deeply analyzes the key factors that affect students' FMCG purchasing behavior. It is found that students' attitude, subjective norms and perceived behavior control significantly affect their purchase intention. The study revealed the association between personal characteristics such as gender, age, educational level and personal monthly income level and purchasing behavior. In addition, reviews from social influencers such as family, friends, colleagues, celebrities and influencers have a significant impact on purchasing decisions. The research results provide targeted market strategies for FMCG enterprises, emphasize the integrated role of sociocultural factors, individual perception and behavioral results in consumers' purchasing decisions, and provide a new perspective and research direction for follow-up research.

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