



Customer Segmentation and Precision Marketing of LNNU Students Under Duoduo Maicai's Next-day Delivery Model

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Abstract

The community group-buying sector has witnessed vigorous development in recent years. Leveraging low-price products and next-day delivery services, Duoduo Maicai has attracted a large number of college student users. As consumption demands among campus students become increasingly diversified, conventional one-size-fits-all marketing strategies fail to accommodate differentiated market needs. This study selects undergraduate students from LNNU as research subjects and collects data on user profiles, consumption characteristics and platform usage via questionnaire surveys. Through data collation and classification, this paper conducts customer segmentation for campus users and categorizes respondents into three groups: Price-Sensitive users, Convenience-Driven users, and Quality-Experience users. Significant disparities are observed across the three groups in terms of shopping frequency, product selection preferences and consumption behaviors. Targeted precision marketing strategies are formulated from the perspectives of product portfolio, pricing design, pickup site layout and promotional campaigns. The research outcomes can facilitate the optimization of Duoduo Maicai's campus operations and provide practical references for refined management of peer community group-buying platforms.

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1. Introduction

1.1. Background

Characterized by pre-ordering, order consolidation and self-pickup, community group buying has rapidly emerged as a pivotal business format within the new retail industry. Duoduo Maicai adopts a next-day delivery mechanism featuring order placement on the current day and goods collection on the following day, which enables low-cost and efficient operations and gradually expands its service coverage to segmented scenarios in first-tier and second-tier cities (Liu & Zhao, 2024) ^[1]. Intensified market competition has led to prominent homogenization across the industry, highlighting the practical necessity of optimizing the existing operational model (Li & Wang, 2025) ^[2] (Zhang, 2024) ^[3]. University campuses represent typical incremental markets for community group-buying platforms due to concentrated customer groups; stable consumption demands and relatively closed operational environments. College students have fragmented daily schedules and fixed lifestyles, accompanied by diverse consumption needs. They attach equal importance to cost performance, product quality and shopping convenience. Under the next-day delivery model, matching differentiated student demands, improving terminal order fulfillment experience and enhancing user loyalty have become core priorities for platforms pursuing sustainable growth in campus scenarios. Against this backdrop, this paper carries out an empirical study on student customer segmentation and precision marketing taking Lingnan Normal University (LNNU) as the research setting, which delivers substantial practical value and application significance (Zhao, 2024) ^[4].

1.2. Problem Statement

Current marketing practices in this field suffer from severe homogenization, and platforms lack hierarchical operational strategies tailored specifically for college students, resulting in unmet personalized consumption demands. Customer segmentation remains rudimentary: most platforms classify users merely based on behavioral indicators such as total consumption and shopping frequency, while overlooking core factors including consumption motivations and psychological preferences. Furthermore, the next-day delivery system requires further improvement, with prominent pain points in pickup site planning, goods collection efficiency and product fresh-keeping management.

1.3. Objectives and Significance

This study takes LNNU as the research object to construct a customer segmentation model for community group buying in university contexts through empirical analysis, and develops corresponding precision marketing strategies.

Theoretically, this research applies customer segmentation and precision marketing theories to the emerging community group-buying industry, with a particular focus on the vertical campus market. It enriches relevant empirical research and fills research gaps in scenario-specific studies. Practically, the findings provide data support and decision-making references for Duoduo Maicai to optimize product selection, pricing, channel layout, promotional activities and order fulfillment services on campus, so as to improve operational efficiency and user satisfaction. Meanwhile, the conclusions offer actionable insights for similar platforms seeking to penetrate the university market.

1.4. Research Innovations

This research adopts a scenario-oriented perspective. It targets the closed campus environment and explores the compatibility between the next-day delivery model, campus management rules and students' daily routines. It expands the dimensionality of customer segmentation. On the basis of conventional behavioral data, three psychological dimensions—Price Sensitivity, demand for convenience and pursuit of quality experience—are incorporated into the segmentation framework. Third, the proposed marketing strategies feature high practicability. Differentiated strategies based on the 4P marketing framework are formulated strictly in accordance with empirical segmentation result.

2. Literature Review

2.1. Community Group Buying and the Next-day Delivery Model

Overseas community agricultural operation models primarily adopt direct transactions between merchants and consumers without intermediate service platforms. By contrast, domestic community group buying relies heavily on e-commerce platforms and integrates social promotion mechanisms, forming a business model distinctly different from its overseas counterparts (Li & Wang, 2025) ^[2]. Existing domestic studies indicate that most community group-buying platforms operate with pre-ordering and unified self-pickup modes. Sound operation of such modes depends on integrated supply chains and well-established offline distribution networks (Zhang, 2024) ^[3].

The next-day delivery model aggregates bulk orders for centralized procurement and distribution. Although its delivery speed cannot compete with instant retail services, it

achieves lower operational costs and supports a broader product portfolio (Zhao, 2024) ^[4]. Current academic research mainly focuses on the overall development of the community group-buying industry. Research dedicated to campus scenarios remains insufficient, and quantitative studies on students' preferences for delivery lead time, product acceptance and self-pickup service experience are still lacking.

2.2. Theories of Consumer Behavior and Marketing

Studies on consumer behavior demonstrate that cultural, social, personal and psychological factors jointly shape individual purchasing decisions. Within the internet and social e-commerce ecosystem, community recommendations and word-of-mouth exert growing influences on consumer choices. The 4P and 4C marketing theories establish marketing frameworks from the perspectives of enterprise operation and consumer demands respectively. For community group buying operations, product, price, place and promotion strategies need to be aligned with consumer demands, cost control, service convenience and interactive communication (Chen & Li, 2025) ^[5].

Perceived value theory posits that consumers perceived functional value, convenience value and quality value collectively affect their platform usage willingness and repurchase behavior (Wu & Zheng, 2024) ^[6]. The Technology Acceptance Model (TAM) also verifies that perceived usefulness and perceived ease of use significantly influence users' platform selection and continuous usage intention (Sun, 2025) ^[7]. The above research confirms that consumers choose community group-buying platforms driven by multiple factors including price, convenience, service quality and commodity quality.

2.3. Customer Segmentation and Precision Marketing

Scientific consumer segmentation serves as the fundamental prerequisite for implementing precision promotion and rational allocation of enterprise resources (Huang, 2025) ^[8]. Consumption demands vary significantly among individuals. Enterprises can divide consumer groups from multiple dimensions based on demand differences and formulate solutions matching the consumption habits of diverse user groups ^[7]. Refined marketing tactics help platforms retain existing users and steadily expand market share (Zheng, 2025) ^[9].

The KANO model can classify basic service demands and potential consumption intentions of university users and provide theoretical support for platforms to design differentiated operational plans (Lin, 2024) ^[10]. Continuous optimization of fresh food delivery routes effectively improves the operational efficiency of next-day community group-buying services (Liu & Chen, 2025) ^[11]. Differentiated competition strategies under the new retail background can address the pervasive homogenization of products and services across the industry (Chen & Li, 2025) ^[12]. The TAM model is widely applied in research on user trust, and relevant conclusions help platforms optimize services and reduce user churn (Zhang, 2024) ^[13]. Exploration of factors affecting repeat purchases also provides practical references for platforms to further explore the campus market (Wang & Yang, 2024) ^[14].

2.4. College Students' Online Consumption Behavior

College students have fragmented daily schedules and limited

disposable income, which makes them highly Price-Sensitive and inclined to select cost-effective products. They are accustomed to mobile shopping and demonstrate high acceptance of online group buying and social interaction within communities. Their consumption behaviors are easily influenced by platform promotions and peer recommendations, while user loyalty to a single platform is generally low (Li & Wang, 2025)^[2].

A number of existing studies have investigated community group buying on university campuses, yet most focus on macro-level issues such as industrial development status and user adoption intention. Empirical research combining the next-day delivery model, user segmentation and differentiated precision marketing remains inadequate^[1].

3. Research Design and Methodology

3.1. Research Framework and Technical Route

This research is framed by perceived value theory, and incorporates consumer behavior theory and precision marketing theory. Users' perceived value is divided into three core dimensions: Price Sensitivity, demand for convenience and pursuit of quality experience, so as to establish a theoretical model for customer segmentation of campus community group-buying users. Questionnaires are distributed to LNNU students for data collection. SPSS 26.0 is employed to conduct reliability and validity tests, descriptive statistical analysis and K-Means clustering analysis. Combined with the 4P marketing theory, differentiated precision marketing strategies are formulated based on clustering results.

3.2. Questionnaire Design and Variable Definition

The questionnaire adopts a three-part logical structure. The first part involves sample screening and collection of basic demographic information. Questions regarding the frequency of using Duoduo Maicai are set to screen valid respondents with practical platform usage experience. Demographic information including gender, academic grade and monthly living expenses is collected to analyze demographic differences across user groups. The second part constitutes the core measurement scale of this research. Based on perceived value theory (Sweeney & Soutar, 2001)^[15], five latent variables are defined: Price Sensitivity, Convenience Sensitivity, Quality Sensitivity, Social Interaction Willingness and Next-day Delivery Perception. The third part investigates users' product preferences and key decision-making factors.

All core measurement scales are adapted from authoritative mature scales published domestically and internationally, and revised to fit three specific scenarios: community group buying, university campus operation and Next-day Delivery Perception. All items adopt a 5-point Likert scale, where 1 represents Strongly Disagree and 5 represents Strongly Agree. Detailed definitions of variables and scale items are presented as follows:

Price Sensitivity: Corresponding to consumers' functional value, this variable measures users' responses to commodity price fluctuations and platform promotional activities. The scale is revised based on mature scales measuring price perception in community group buying contexts.

Quality Sensitivity: Corresponding to commodity quality value, this variable measures users' requirements for product quality and overall shopping experience. The scale is adapted from classic service convenience scales.

Convenience Sensitivity: Corresponding to shopping service convenience (Seiders & Grewa, 2002)^[16], this variable measures user's demands for delivery timeliness and self-pickup convenience. The scale is revised with reference to the quality dimension of perceived value scales and existing research on fresh food e-commerce.

Social Interaction Willingness: These variable measures the influence of community atmosphere and peer recommendations on students' purchasing decisions. The scale is adapted from scales for community interaction willingness and social attribute measurement in community group buying.

Next-day Delivery Perception: These variable measures users' evaluation of delivery timeliness and overall fulfillment services under the next-day delivery model. The scale is revised based on satisfaction scales for community group-buying fulfillment services.

3.3. Data Collection and Sample Selection

The research population consists of all full-time undergraduate students at LNNU. Questionnaires were distributed both online and offline over a period of 30 consecutive days. A total of 250 questionnaires were distributed, 246 were retrieved, and 200 valid samples were finally obtained, with an effective response rate of 81.30%. As the target respondents were Chinese college students, the questionnaire was originally designed in English and then translated into Chinese using a standard back-translation procedure to ensure linguistic equivalence and cultural appropriateness. All samples are collected from a single university. Although the data can generally reflect the consumption characteristics of students at local undergraduate institutions, the generalizability of research conclusions should take into account the differences among universities of different tiers and geographical regions. The sample size meets the standard requirements for multivariate statistical analysis.

3.4. Analytical Methods

SPSS 26.0 statistical software was used for data processing. K-Means clustering analysis is adopted as the core analytical method to classify users according to inter-group characteristic differences. Since this study does not explore causal relationships between variables, regression analysis is not applied. One-way Analysis of Variance (ANOVA) and Chi-square test are used to verify the validity of clustering results and inter-group differences. The specific applications of each method are detailed below.

Reliability and Validity Test: Reliability tests assess the internal consistency of the questionnaire scale. Cronbach's α coefficient is adopted as the core evaluation indicator. In accordance with industrial standards, a Cronbach's α coefficient above 0.7 indicates acceptable scale reliability. Validity tests are mainly conducted via exploratory factor analysis. The KMO test and Bartlett's Test of Sphericity are used to judge whether the dataset is suitable for factor analysis and to verify the structural validity of the questionnaire.

Descriptive Statistical Analysis: Frequency statistics are used to organize sample demographic characteristics such as gender and grade distribution, so as to clarify the basic composition of research samples. On this basis, the mean value and standard deviation of all core variables are calculated to reflect the overall status and data dispersion of

college students in terms of Price Sensitivity and quality preference, laying a foundation for subsequent in-depth data analysis.

Clustering Analysis: The K-Means clustering algorithm is used to group samples with similar characteristics based on users' scores on perception dimensions, so as to complete customer segmentation. Prior to formal clustering, all five latent variables are included in pre-clustering for variable screening. One-way ANOVA is applied to test inter-group differences of each variable. Variables with insignificant inter-group differences and low clustering contribution are eliminated. Finally, three core dimensions (Price Sensitivity ; I, Convenience Sensitivity ; II and Quality Sensitivity ; III) are retained for user classification. Detailed clustering results and difference verification are presented in Chapter 4. One-way ANOVA and

Chi-square Test: One-way ANOVA is used to compare the differences in scores of core psychological dimensions across user groups and verify the statistical significance of classification results. The Chi-square test is applied to analyze the distribution differences of demographic variables (e.g., gender, grade) among segmented groups, so as to construct accurate user portraits and provide data support for the formulation of precision marketing strategies.

4. Results

4.1. Reliability and Validity Test

First, reliability and validity tests are performed on the initial scale covering five dimensions: Price Sensitivity, Convenience Sensitivity, Quality Sensitivity, Social Interaction Willingness and Next-day Delivery Perception. All test indicators meet the research standards. Following the rules for clustering variable screening, two dimensions with poor clustering performance are excluded. This section only presents test results of the three retained core dimensions.

Reliability Test: This study tests the internal consistency of the three core dimensions and the overall questionnaire scale. As shown in Table 1, the Cronbach's α coefficient of the Price Sensitivity (I) is 0.814, the Convenience Sensitivity (II) is 0.798, the Quality Sensitivity (III) is 0.805, and the overall scale reaches 0.826. The results prove that the questionnaire is rationally designed with satisfactory data stability and internal consistency.

Table 1: Results of Questionnaire Reliability Test

Dimension	Cronbach's α Coefficient	Evaluation
I	0.814	Good
II	0.798	Good
III	0.805	Good
Overall Scale	0.826	Good

Validity Test: The KMO test and Bartlett's Test of Sphericity are conducted to verify the structural validity of the questionnaire. As shown in Table 2, the KMO value is 0.783, indicating strong partial correlation between research variables and suitability for factor analysis. The approximate Chi-square value of Bartlett's Test of Sphericity is 426.35, with a degree of freedom of 68 and a significance value of 0.000 ($p < 0.05$). The questionnaire presents good structural validity, and the dataset is qualified for subsequent clustering

analysis.

Table 2: Results of KMO and Bartlett's Test of Sphericity

Inspection item	Numerical value
KMO Measure	0.783
Approximate Chi-Square	426.35
Degrees of freedom df	68
Significance Sig.	0.000

4.2. Descriptive Statistical Analysis

Statistical results show that students with a monthly living expense ranging from 801 to 1200 RMB account for the largest proportion at 42%. In terms of gender distribution, female respondents account for 70% and male respondents account for 30%, which is consistent with the overall gender ratio of LNNU students. Sophomores and juniors constitute the main user groups of the platform on campus, accounting for 36% and 31% respectively (see Table 3).

Table 3: Demographic Characteristics (n=200)

Variable	Category	Frequency	Proportion (%)
Gender	Male	60	30.00
	Female	140	70.00
Grade	Freshman year	26	13.00
	Sophomore year	72	36.00
	Junior year	62	31.00
	Senior year	40	20.00
Monthly living expenses	≤800 RMB	38	19.00
	801–1200 RMB	84	42.00
	1201–1800 RMB	52	26.00
	>1800 RMB	26	13.00

In terms of consumption behavior and platform usage, students' monthly shopping frequency is mainly concentrated between 5 and 8 times. Most students spend 50 to 100 RMB on the platform each month. More than 80% of respondents regularly use the next-day delivery service. The average score of overall platform satisfaction is 3.8 out of 5 points (see Table 4).

Table 4: Consumption Behavior and Platform Usage Status

Indicator	Distribution
Monthly consumption frequency	Mainly 5–8 times (Avg. 6.5)
Monthly spending	50–100 RMB (Dominant)
Next-day delivery utilization	> 80%
Platform satisfaction	Average score: 3.8 /5

4.3. Clustering Variable Screening and One-way ANOVA

Clustering Variable Screening
The initial scale covers five perception dimensions: Price (I), Convenience (II), Quality (III), Social Interaction (IV), and Next-day Delivery Perception (V). Pre-analysis reveals that Social Interaction Willingness ($F=1.372$, $p=0.256>0.05$) and Next-day Delivery Perception ($F=1.195$, $p=0.304>0.05$) exhibited insignificant inter-group differences and low clustering contribution, and were therefore excluded. Finally, Price Sensitivity, Convenience Sensitivity, and Quality Sensitivity are selected for K-Means clustering to classify campus users and summarize core consumption characteristics of each group (Table 5).

Table 5: One-way ANOVA Results by Dimensions

Dimension	F Value	p-value	Decision
I	183.61	<0.001	Retain
II	126.73	<0.001	Retain
III	152.95	<0.001	Retain
IV	1.372	0.256>0.05	Remove
V	1.195	0.304>0.05	Remove

Clustering Results and User Group Characteristics:

Formal K-Means clustering analysis is conducted using the scores of the three screened core dimensions as clustering variables. Based on the optimized dual-dimensional framework of psychological perception and consumption behavior, multiple tests confirm that the silhouette coefficient reaches 0.726 when K=3, indicating optimal clustering performance with significant inter-group differences and minor intra-group differences. Three distinct user groups are extracted. As detailed in Table 6 and Table 7, Price-Sensitive users constitute the largest segment (42%) and exhibit the highest sensitivity to price (M=4.35) rather than quality. They prioritize cost performance and are easily stimulated by promotions, corresponding to lower living allowances and moderate shopping frequencies. Convenience-Driven users account for 35% and are distinctly characterized by their highest score in Convenience Sensitivity (M=4.21), prioritizing time-saving and accessible self-pickup during fragmented schedules, which drives their highest monthly shopping frequency (7-10 times). Quality-Experience users represent the smallest proportion (23%) but demonstrate the highest Quality Sensitivity (M=4.52) with the lowest Price Sensitivity (M=2.15), focusing intensely on product excellence and after-sales services. Typically possessing

higher living allowances, their purchase decisions are highly susceptible to peer reviews, resulting in the lowest shopping frequency due to rigorous quality screening.

Table 6: Clustering Centers

Customer	I	II	III	Proportion
I	4.35	2.86	2.15	42%
II	3.12	4.21	3.05	35%
III	2.15	3.28	4.52	23%

Table 7: Student Customer Segmentation

Customer	Proportion	Expenses	Demand
I	42%	800-1200 RMB	Low Price & Value
II	35%	Intermediate level	Fast & Reliable Delivery
III	23%	>1800 RMB	Quality & Premium Experience

To more intuitively compare the differences in sensitivity among the three groups across different dimensions, this study has converted these sensitivity differences into contour contrast results. As shown in Figure 1, the radar profiles of the three groups exhibit a distinct “unipolar prominence” feature: The Price-Sensitive users (blue line) show a ray that clearly extends outward along the Price Sensitivity dimension, scoring significantly higher than the other two groups, yet it shrinks inward on the Quality Sensitivity dimension. The Convenience-Driven users (orange line) have a profile that forms a sharp angle in the Convenience Sensitivity dimension, highlighting its core emphasis on the efficiency and timeliness of pickup. The Quality-Experience users (Gray line) stand out uniquely in the Quality-sensitivity dimension, while scoring lowest on the Price dimension.

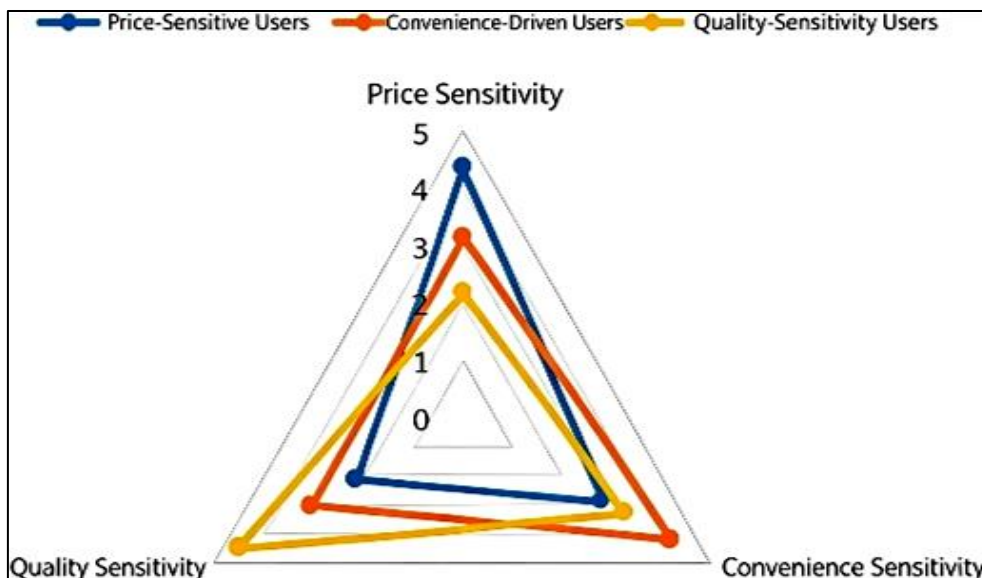


Fig 1: User Group Sensitivity Radar Chart

This clearly confirms the effectiveness of our study’s clustering approach based on the three core dimensions, as well as the significant differences among clusters.

The radar chart of dimension comparison presents an obvious single-peak distribution in Figure 2, which fully verifies the validity of clustering. In terms of monthly shopping frequency, the overall ranking is: Convenience-Driven users > Price-Sensitive users > Quality-Experience users.

Convenience-Driven users have the highest average monthly shopping frequency (8.5 times) due to strong demand for ready-to-eat products. Price-Sensitive users mainly purchase daily fresh food and necessities, with an average monthly frequency of 5.5 times. Quality-Experience users conduct rigorous quality screening and make rational purchase decisions, resulting in the lowest monthly frequency of 3 times.

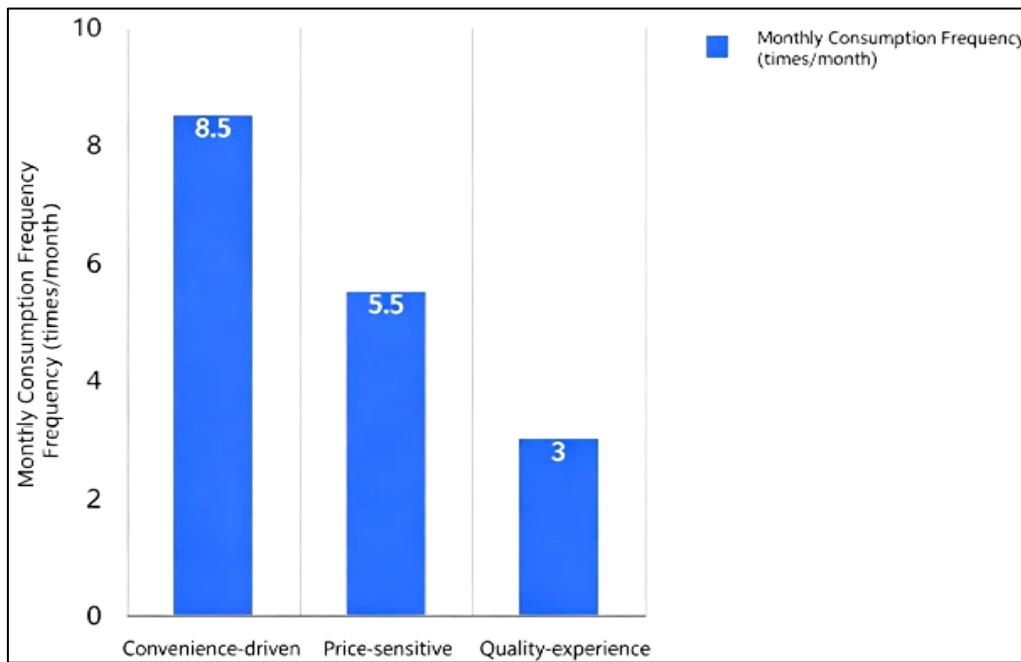


Fig 2: Monthly Consumption Frequency by User Group

4.4. Difference Analysis

Inter-group differences in the three perception dimensions have been verified in the above clustering analysis. This section focuses on differences in consumption behaviors. The

results show that all p-values for consumption frequency (Freq), product preference and decision-making factors are less than 0.001, indicating highly significant inter-group differences (see Table 8).

Table 8: Differential Analysis by Customer Type

Item	Indicator	Value	Sig.Diff./ Preference
Freq	F-value	72.45***	II > I> III
Category	Chi-sq	136.72***	-
I		-	Fresh produce, daily necessities
II		-	Ready-to-eat food, beverages, fast food
III		-	Premium fruits, branded snacks
Decision		112.38***	-
I		-	Promotions, low prices
II		-	Timeliness, convenience of pickup
III		-	Quality, reputation, social recommendations

Note: *** p < 0.001

4.5. Discussion

Contrary to the prevailing assumption that campus consumers are overwhelmingly price-driven, the clustering results paint a far more fragmented picture. What emerges from the data is not a uniform discount-chasing crowd, but a market stratified by competing value hierarchies.

Perhaps the most counterintuitive finding is the structural dominance of the convenience-driven segment. Posting the highest shopping frequency (M=8.5 times/month), this group essentially underwrites the platform’s daily active traffic. This behavior is less about cheap goods and more about the temporal constraints of university life—fragmented schedules and absent cooking infrastructure make pickup efficiency a non-negotiable priority. In the context of next-day delivery, minimizing logistical friction functions as a primary engagement driver. Platforms that blindly burn capital on subsidies while ignoring pickup bottlenecks are, ironically, neglecting their most reliable user base.

The quality-experience cohort, while diminutive in size, operates as the platform’s margin engine. Driven by peer validation rather than promotions, and exhibiting strikingly low-price sensitivity (M=2.15), these users treat the platform

as a premium curation channel rather than a mere logistical utility. The stark inverse correlation between Price Sensitivity and Quality Sensitivity across the clusters suggests a zero-sum psychological calculus: consumers are either trading up for quality or trading down for price, rarely both. This finding compels a theoretical adjustment—convenience and quality must be modeled as orthogonal, competing priorities, not mere sub-indices of a generalized value construct.

A critical methodological nuance arises from the exclusion of Social Interaction Willingness and Next-day Delivery Perception. Their statistical insignificance in the clustering phase does not equate to conceptual irrelevance. In a closed campus ecosystem, these attributes likely suffer from a ceiling effect—pervasive social recommendation and next-day punctuality have become normalized baselines, or hygiene factors. They fail to differentiate because the baseline expectation is uniformly high, leaving price, convenience, and quality to act as the sole axes of differentiation.

The practical implication of this tri-polar structure is the imperative of operational decoupling. Routing premium

discounts to quality-focused users destroys margin; conversely, pushing curated labels to price-sensitive users yields zero conversion. The unipolar dominance within each cluster dictates a shift away from monolithic marketing funnels toward modular, trigger-based promotional architectures.

5. Precision Marketing Strategies

Based on clustering analysis and variance test results, this chapter combines the operational characteristics of Duoduo Maicai's next-day delivery service on campus and constructs a differentiated precision marketing system for the three user groups under the 4P marketing framework, see the Table 9.

5.1. Product Strategy

For Price-Sensitive users, the product portfolio is positioned as basic daily supplies. Small-sized and low-priced fresh food bundles are launched to reduce trial costs. The SKU portfolio of daily necessities is streamlined, focusing on high-turnover standard products to lower procurement costs via bulk purchasing.

For Convenience-Driven users, the product line is tailored for instant consumption. The platform enriches SKUs of ready-to-eat meals, self-heating food and beverages, and launches scenario-based combination packages for breakfast and afternoon tea. Sufficient inventory is maintained to meet the demand of high-frequency consumption.

For Quality-Experience users, high-end consumer goods are the core product orientation. The platform introduces origin-sourced agricultural products, popular branded snacks and organic fresh food, and sets up a dedicated Platform Selection section to match users' demand for high-quality and high-value products.

5.2. Pricing Strategy

For Price-Sensitive users, penetration pricing and bundled discount strategies are adopted. Daily special-price commodities are launched to consolidate the low-price brand image. Tiered full-reduction rules (e.g., Full 29 RMB minus 5 RMB) are implemented to encourage combined orders and increase average order value.

For Convenience-Driven users, combined package pricing is applied. The total price of set meals (fast food plus drinks) is lower than the sum of individual items to save users' matching time. Pickup service fees are fully waived as an

implicit benefit to maintain high repurchase rates.

For Quality-Experience users, skimming pricing and quality premium strategies are adopted. High profit margins are set for premium products. After-sales service costs (e.g., compensation for damaged goods, instant refunds) are incorporated into product pricing. Pricing acts as a signal of quality assurance to eliminate purchase concerns.

5.3. Place Strategy

For Price-Sensitive users, private domain community channels are fully utilized. Discount information and promotional posters are regularly released in class groups and dormitory groups to realize accurate information exposure and expand user scale via group fission.

For Convenience-Driven users, the physical network of pickup stations is expanded on campus. Pickup points and self-service lockers are added near teaching buildings, canteens and dormitories. The sorting system is optimized to categorize goods by dormitory building and pickup time, shortening goods collection time to less than 2 minutes.

For Quality-Experience users, offline experience activities and circle marketing are developed. Regular fresh food tasting and snack sampling events are held on campus. Cooperation with campus opinion leaders is conducted to build word-of-mouth endorsement and achieve high-quality user conversion.

5.4. Promotion Strategy

For Price-Sensitive users, short-term incentive campaigns are carried out, including time-limited flash sales and evening clearance promotions to create a sense of urgency. Large-scale full-reduction activities are launched at the beginning and end of each semester to stimulate immediate consumption.

For Convenience-Driven users, habit-forming promotions are designed. Discounts for consecutive orders and point redemption for service fees are provided to cultivate long-term consumption habits and convert rigid demand into platform loyalty.

For Quality-Experience users, rights-based promotions and fission mechanisms are adopted. Exclusive privileges such as new product trial priority and member-only shopping days are offered to satisfy users' sense of identity. A sharing reward mechanism is launched to encourage word-of-mouth communication and user referral.

Table 9: Precision Marketing Strategy

Dimension	Price-Sensitive ; I (42%)	Convenience-Driven ; II (35%)	Quality-Experience ; III (23%)
Data Profile	M=4.35; Prefers fresh produce; Driven by promotions	M=4.21; High frequency; Prefers ready-to-eat; Driven by time	M=4.52; Prefers premium products; Driven by word-of-mouth
Product	Positioning as basic daily supplies; Launching small-portion, low-priced fresh produce bundles; Streamlining essential items SKUs.	Tailoring for instant consumption; Enriching ready-to-eat and self-heating food SKUs; Launching scenario-based meal packages.	Focusing on high-end consumer goods; Introducing origin-sourced and branded products; Featuring curated premium labels.
Pricing	Adopting penetration and bundled discount pricing; Implementing tiered full-reduction rules to increase order value.	Applying combined package pricing; Waiving pickup service fees to encourage repurchase.	Adopting skimming and quality premium pricing; Incorporating after-sales guarantee costs into pricing to signal quality.
Place	Utilizing private-domain community channels; Distributing discount information via class and dormitory groups.	Expanding physical pickup networks on campus; Optimizing sorting systems to shorten goods collection time.	Developing offline experience activities; Leveraging campus opinion leaders for word-of-mouth endorsement.
Promotion	Implementing short-term incentive campaigns (e.g., time-limited flash sales, evening clearances).	Designing habit-forming promotions (e.g., consecutive order discounts, point redemption).	Adopting rights-based promotions and referral mechanisms (e.g., priority trials, sharing rewards).

6. Strategy Implementation Suggestions

The core objective of the following suggestions is to transform the three-dimensional user segmentation model based on perceived value theory into standardized operational procedures (SOP). Coordinated support from organizational management, order fulfillment and supply chain ensures that the differentiated 4P marketing strategies can steadily deliver functional value, convenience value and quality value to target student users.

6.1. Organizational and Data Support

A dedicated campus operation team should be established to manage daily campus operations, promotional activities and pickup station operators. The team implements hierarchical management for the three types of student users and rationally allocates operational resources according to user demands to avoid resource waste. A dynamic user label system is built based on background consumption data, recording users' shopping frequency, product preferences and price acceptance. Targeted coupons and product recommendations are pushed according to user labels. User labels are updated monthly to correct portrait deviation caused by static questionnaire data, realizing the transition from static sample portraits to dynamic behavioral portraits.

6.2. Fulfillment and Service Support

Current students and dormitory administrators are prioritized for recruitment as pickup station operators. Regular professional training is provided covering goods storage, order verification, after-sales handling and community maintenance. The performance appraisal system for operators is optimized: assessment indicators include on-time delivery rate, user satisfaction and repurchase rate in addition to sales volume, and graded bonuses are set accordingly. Delivery schedules are adjusted to avoid class hours. A dedicated rapid after-sales channel is established to handle complaints about damaged goods and delayed delivery, shortening problem processing time and improving overall pick up experience.

6.3. Supply Chain Support

The procurement structure is adjusted in accordance with differentiated product preferences of the three user groups. Bulk procurement of affordable fruits, vegetables and daily necessities is arranged to meet the demands of Price-Sensitive users. Sufficient inventory of best-selling ready-to-eat food and beverages is guaranteed for Convenience-Driven users. Long-term cooperation with formal brands and origin farmers is established to supply high-quality products for Quality-Experience users. Inventory volume is dynamically adjusted based on real-time campus order data to reduce overstock and product loss, matching inventory with actual consumption demands.

7. Conclusion and Prospect

7.1. Conclusions

Taking LNU students as research samples and focusing on Duoduo Maicai's next-day delivery service in campus scenarios, this study systematically analyzes college students' consumption behaviors and completes user segmentation and precision marketing research. The core conclusions are as follows: consumption demands of campus community group-buying users present obvious three-polar differentiation centered on price, convenience and quality. Convenience-Driven users constitute the core traffic group of

the platform due to the highest shopping frequency, which challenges the traditional view that college student consumers only pursue low prices. The differentiated 4P marketing system formulated based on user segmentation can effectively satisfy diversified campus consumption demands. The research findings provide empirical support and operational references for Duoduo Maicai to optimize campus services, retain student users and further explore the university market.

7.2. Limitations

This study has several limitations. First, the sample scope is limited. Only students from a single local undergraduate university are selected. Although the conclusions are referential for similar institutions, the segmentation results may vary when applied to top-tier universities and vocational colleges in different regions. Second, this research adopts cross-sectional data, and the results are affected by academic semesters, seasonal changes and platform promotional activities. Third, the research mainly relies on questionnaire surveys and fails to conduct in-depth exploration of underlying consumption motivations.

7.3. Future Research Directions

Further research can be carried out in two directions based on this study. First, explore the dynamic evolution of user perceived value. Longitudinal tracking data can be introduced to analyze the changing trends of students' demands for price, convenience and quality at different academic stages, such as freshman adaptation period and examination preparation period. Second, conduct cross-scenario comparative analysis. Compare the next-day delivery model in closed campus scenarios with retail models in open community scenarios, and verify the applicability of perceived value dimensions under different fulfillment modes and operational environments, so as to improve and enrich the theoretical system of customer segmentation for community group buying.

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