

Research on the Reconstruction of Social E-Commerce Model Driven by Campus Community Fission in the Era of Big Data

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Abstract: With the maturity of big data technology and the penetration of social media, the university market has become an essential battleground for social e-commerce. This study focuses on big data under the background of campus community fission of social electricity model reconstruction of driving role, and explores the students KOC (key consumers) cultivation mechanism and curriculum synchronization precision marketing model, combined with 2023 college market social electricity after purchase rate of 42%, far more traditional electricity data support, highlight the potential of community trust economy. This study analyzes the development status, opportunities and challenges of campus social e-commerce, reconstructs the social e-commerce model with fission as the core, provides theoretical support for improving user stickiness and business transformation, aims to provide practical guidance for optimizing the operation strategy of campus social e-commerce and promote the innovation and development of the industry.

Keywords: Campus Community Fission; Student KOC Cultivation; Precision Marketing; University Market; Trust Economy

1. Foreword

1.1 Research Background

With the rapid development of information technology, the era of big data has come, which has profoundly changed people's life and consumption modes. As an emerging business form integrating e-commerce and social media, social e-commerce has risen rapidly in the market with its unique advantages in social interaction and word-of-mouth communication [1]. As a

special scene full of vitality, strong consumer demand and dense social network, the campus has become a fertile ground for the development of social e-commerce. In recent years, college students have become increasingly dependent on online shopping, and their consumption concepts are advanced and they are willing to accept new things, which provides a broad space for the expansion of social e-commerce on campus.

1.2 Purpose and Significance of the Study

This study aims to reveal how big data enables the campus community fission, and then drives the reconstruction of social e-commerce model, focusing on the precise marketing model of the student KOC cultivation mechanism and the course schedule. On the one hand, enriching the research system of social e-commerce in this subdivision field deepens the understanding of the coupling relationship between consumer behavior and marketing modes; on the other hand, it serves as a practical guide for enterprises to precisely target the campus market and formulative efficient marketing strategies, helping college students get a higher-quality and more personalized shopping experience, while driving the sustainable development of campus social e-commerce industry.

2. Theoretical Principle

2.1 Related Theories of Social E-Commerce

Social e-commerce is a business model that relies on social media platforms and enables users; social relationships [2]. It breaks the traditional e-commerce traffic acquisition mode of search and injects social trust into the shopping decision-making process. Users purchasing behavior is no longer only based on the product information itself, but also more influenced by the recommendation and evaluation of others in the social circle [3]. In

the campus scenario, this word-of-mouth communication based on the trust between classmates and friends can quickly spread product information, reduce marketing costs and improve the conversion rate.

2.2 Community Fission Theory

Community fission is based on the principle of network effect and group dynamics. When there is enough incentive mechanism and value sharing within the community, members will spontaneously share, invite and other behaviors, promoting the exponential growth of the community size [4]. Campus communities have natural closeness and homogeneity. Students cluster due to their shared interests, academic majors and social circles. Once the fission mechanism is triggered, such as incentive-driven promotion and social identity needs, the information can spread rapidly across the campus, creating ideal conditions for the promotion of social e-commerce.

2.3 Precision Marketing Theory

Precision marketing emphasizes the use of modern information technologies, accurate positioning of target customer groups, in-depth understanding of their needs and characteristics, and then develop personalized marketing strategies to maximize the marketing effect [5]. In the era of big data, massive data collection and in-depth analysis capabilities make precision marketing possible. Enterprises can accurately construct consumer profile and forecast consumer behaviors. Using image-based sharing model on social media networks aids foster a precision-targeted shopping community.[6] Hence, Precision marketing in campus social e-commerce helps cater to the diverse and personalized consumption needs of students, enhancing brand loyalty. Based on user experience, the platform is continuously optimized to cultivate habitual usage among users. Finally, an effective brand engagement maintenance mechanism is established to proactively prevent and resolve potential crises in platform information dissemination.[7]

3. Analysis of the Development Status Quo of Campus Social E-Commerce

3.1 Market Size and Growth Trend

In recent years, the campus social e-commerce market has exhibited an exponential growth trajectory. According to relevant market research data, the repurchase rate of social e-commerce in the university market has reached 42% in 2023[8], far surpassing traditional e-commerce, which fully showcase the robust development impetus of campus social e-commerce. Online consumption expenditure of students continues to rise, covering academic supplies, daily necessities, digital products, beauty care products and other categories. Recognizing this growth, numerous social e-commerce platforms are targeting the campus market through increased investment, intensifying industry competition.

3.2 Platform Type and Operation Mode

At present, there are various types of campus social e-commerce platforms, mainly divided into horizontal and niche types. Horizontal platforms, such as Pinduoduo campus [9], provide a wide range of products, attracting students through viral social mechanics such as group purchase, and reward-based sharing to broad customers; niche platform (e.g., Manyoujing's used textbook focus) delivering category-specific soliton. Monetization relies on tiered incentives: referral rebates, bulk-order discounts, and membership-tiered. In terms of operation mode, most platforms leverage social sharing rebates to incentivize users to share product links and invite friends—offering cash rewards or coupons in return. This strategy not only reduces purchase costs but also drives user engagement. Additionally, membership systems enhance loyalty by providing exclusive discounts, priority distribution privileges, and tailored promotions, further strengthening user retention.

4. The Challenges Faced by Campus Social E-commerce

4.1 Crisis of User Trust

Consumer trust is a positive anticipatory psychological state, where individuals voluntarily take on the risk of being harmed based on the expectation that the other party will act in their best interests. According to mainstream perspectives, consumer trust consists of three dimensions: competence, benevolence, and honesty.[10] Although social

e-commerce relies on social relations to spread, false publicity and product quality problems are common in the campus market, which seriously damages the trust of students and consumers. Some unethical businesses engage in deceptive practice by exaggerating the efficacy of products, selling low-quality goods, and exploiting students' social network for misleading promotions, leading to students' resistance to social e-commerce. According to the China Consumers Association, about 30 percent of campus social e-commerce users have experienced product quality problems--a striking figure that underscores the urgency of trust restoration and reconstruction.

4.2 Traffic Growth Dilemma

With the increase of campus social e-commerce platforms, the traffic competition is becoming increasingly fierce. In the early stage, simple subsidies and social sharing strategies gradually failed, the cost of new user acquisition kept rising, while the risk of losing old users increased. And for companies, companies need to invest significant time and money in purchasing traffic, yet the quality of this traffic remains uncertain. Once they stop buying traffic, sales immediately decline, gradually eroding the company's ability to sustain organic growth.[11] If the platform cannot continue to innovate the drainage mode and break through the flow bottleneck, it will be difficult to establish a foothold in the competition.

4.3 Barriers to Precision Marketing Implementation

In the process of precision marketing of big data, campus social e-commerce is faced with many problems. On the one hand, college students pay attention to privacy protection, which makes it difficult to obtain data, and some students are resistant to collecting personal data on the platform. On the other hand, even if obtaining data, how to effectively integrate, clean, analyze, and transform into accurate and effective marketing strategies is still a technical challenge for most platforms. The precision marketing of many platforms remains on the surface, and cannot truly realize the push of personalized information according to the individual differences of students.

5. Study on Student KOC Cultivation Mechanism

5.1 Role Positioning and Value of Student KOC

As a key node in the social network on campus, student KOCs play multiple roles. They are both consumers who can personally experience social e-commerce products and services to provide authentic feedback, and opinion leaders who leverage their influence and rapport among peers to guide purchasing decisions. Through channels like friend circles, class groups, and club communities, they share shopping experience and product recommendations [12]. Compared to off-campus web influencers or celebrity endorsements, student KOCs have a stronger sense of identity with their peers, making their recommendation more easily accepted. Users can document their experiences within the platform, creating a social space that fosters emotional connections. [13] This effectively enhances the brand awareness and product conversion rate. For example, in the promotion of beauty makeup category, the makeup tutorials and product reviews shared by KOCs from cosmetology programs often spark widespread and emulation among fellow students.

5.2 Selection Criteria and Process Design

5.2.1 Selection criteria

- **Social influence:** According to the number of fans, interaction rate, and community engagement of social media platforms (such as wechat, Weibo, TikTok, etc.), select students with certain social appeal on campus. For example, students with more than 500 followers and an average of 50 dynamic interactions (the sum of likes, comments, and retweets) will be given priority.
- **Category Expertise:** For different commodity categories, select students who have a deep understanding, professional knowledge or strong interest in this field. For example, in the field of digital products, students who are familiar with electronic product parameters and performance evaluation and often pay attention to the release of digital new products; in the field of beauty products, students who know cosmetic ingredients and functions and are good at different makeup combinations.
- **Content creation ability:** Candidates must be

good at storytelling skills, picture shooting, video production and other skills, and able to present product information in a vivid, interesting and creative way. For example, successors can make eye-catching short video product evaluation and write infectious graphic shopping experience.

5.2.2 Selection process

- **Registration and recruitment:** Recruitment information will be posted through campus posters, campus forums, public accounts and other channels to attract students to participate. Applicants are required to submit their social media credentials, documented consumer experience, and content portfolios by the specified deadline.
- **Preliminary screening:** according to the selection criteria, the registration materials are reviewed, and the candidates who meet the basic conditions will enter the interview. This stage focuses on the authenticity of the data related to social influence and the preliminary assessment of consumer professionalism and content creation ability.
- **Interview and assessment:** a panel of experts will interview the candidates, and conduct research on their understanding of social e-commerce, product promotion ideas, and improvisation ability display through structured interviews, so as to further comprehend the comprehensive quality of the candidates.
- **Practical exercise:** shortlisted candidates will receive trial products to execute time-bound promotional campaigns, and be made comprehensive evaluation according to the promotion effect (number of page views, thumb up, number of comments, conversion rate and other quantitative indicators). The final KOC selection determined by combined performance.

5.3 Construction of Cultivation Strategies and Incentive System

5.3.1 Cultivation strategies

- **Product knowledge strengthening:** regularly inviting brand parties or industry experts carries out product knowledge training courses for students KOC, explains in-depth the product characteristics, and use methods, advantages and selling points to ensure that KOC knows the product promotion like the back of his hand. For example, for food products, the training content covers the

source of food ingredients, processing technology, taste characteristics, etc., so that KOC can answer students' questions professionally when recommending them.

- **Content creation improvement:** Structured training modules will be conducted by industry practitioners specializing in digital content creation. The curriculum encompasses: (1) high-engagement copywriting frameworks, (2) cinematography principles for short-form videos, and (3) visual persuasion methodologies. Case demonstrations include narrative-driven content development and advanced post-production techniques for product visualization.

- **Social influence expansion:** Student KOCs are encouraged to actively participate in campus activities (e.g., club recruitment, galas, academic competitions) to gain exposure, expand their networks, and grow their social circles. Simultaneously, the platform provides social media optimization support, including follower growth strategies and engagement tactics, to enhance their account growth rates and fan interaction metrics.

5.3.2 Incentive system

- **Material rewards:** KOCs receive "tiered monetary incentives" based on promotion performance (order volume and sales), "where higher performance yields increased commission rates". Additionally, they gain access to "product trial opportunities" and exclusive freebies, enabling early experience of new launches to boost promotion motivation
- **Honor incentive:** Present honor certificates and custom badges to outstanding student KOCs, "showcasing" their profiles prominently "on" the campus community platform and homepage "to enhance" their sense of achievement and belonging. Establish a tiered KOC system (Primary/Intermediate/Advanced) with escalating privileges, "including" priority access to brand events and exclusive training opportunities, "motivating" continuous self-improvement."
- **Career development assistance:** For students KOC with outstanding career planning needs, the platform provides internship opportunities, recommendation letters, employment guidance, etc., to help them connect with high-quality enterprises in e-commerce and marketing industries, paving the way for future career

development, and building long-term and stable cooperative relations.

6. Precision Marketing Model Construction with Synchronous Course Schedule

6.1 Points of Data Collection and Integration

1. Acquisition of course schedule data: In cooperation with the educational administration system of universities or the course management software authorized by the university, collect the course schedule information of students' courses—including the course name, class time, class place and teacher—in strict compliance with privacy protection regulations and upon obtaining explicit student authorization. This data provides the basic support for the time and scene positioning of the subsequent precise marketing.

2. Multi-source data integration: Integrate the course schedule data with students' e-commerce consumption data (purchase history, browsing records, favorites, etc.), social behavior data (likes, comments, sharing content preferences), campus life data (canteen consumption, library borrowing, community activities participation), etc. Big data technology is used to build a data center, break the data island, through data cleaning, de-noise, correlation analysis and other means, to build a comprehensive, three-dimensional student portrait, deep insight into the law of students demand and consumption scenarios.

6.2 Accurate Insight into the Marketing Timing and Scene

1. Marketing window based on course time: analyze the distribution of students' spare time according to the course schedule. Break, lunch break and evening self-study are usually the opportunities for students with relatively scattered attention and more time to browse their mobile phones, which becomes a golden time to push marketing information. For example, for students with four consecutive classes in the morning, portable snacks and refreshing drinks can be pushed for 10 minutes; after the evening study, leisure entertainment products and skin care products can be pushed to improve the information touch effect.

2. Mining the needs of the course scenario: mining the potential consumer demand

according to the course content and the characteristics of the scene. For example, sports-related courses could trigger preemptive promotions of sports drinks, protective gear, and athletic footwear. Art and design classes would prompt recommendations for drawing tools, design materials, and decorative items, while STEM lab sessions would suggest relevant experimental supplies, safety equipment, and data analysis software. Additionally, factoring in classroom locations, products that are lightweight or offer doorstep delivery should be prioritized when teaching buildings are distant from package collection points, thereby optimizing shopping convenience

6.3 Marketing Strategy Formulation and Implementation Strategy

1. Personalized push scheme: Leverage precise profile and data-driven marketing timing insights to achieve “large-scale, personalized content delivery” powered by intelligent algorithms. By offering “customized product recommendations, targeted promotional alerts, and exclusive student discounts”, we ensure that every push notification aligns perfectly with individual interests and needs.

For instance:

- Students who frequently purchase electronics receive “personalized recommendations for the latest tech products and accessories”.

- Those interested in health and wellness are shown “organic food options and fitness equipment deals”.

This approach guarantees “highly relevant and engaging marketing content”, maximizing both student satisfaction and campaign effectiveness.

2. Community interactive marketing play: utilize campus communities such as class groups and major-specific groups to plan exclusive marketing campaigns tailored for these student communities. For example, students enrolled in the same course group can form teams to purchase study materials or experimental supplies at exclusive group discounts. This not only meets academic needs but also hold peer interaction. Besides, integrate product promotions into engaging knowledge competitions—offering discounts on smart learning devices for correctly answering physics questions. This boots fun and participation while leveraging community

sharing to amplify marketing reach.

3. Marketing effect monitoring and optimization measures: Establish a real-time marketing effectiveness monitoring system to track key metrics such as delivery rate, open rate, conversion rate, and repurchase rate of marketing communications. Analyze the performance differences of various marketing strategies across different course scenarios and student segments. Leverage “data mining and machine learning technologies” to conduct in-depth root cause analysis, promptly adjust and optimize marketing strategies based on evaluation results, and continuously refine the marketing model to enhance the precision and effectiveness of targeted marketing.

7. Empirical Study Design and Result Analysis

7.1 Study Design

A comprehensive university was selected as a research sample, and we cooperated with a social e-commerce platform of a certain scale in the university to carry out a semester of empirical research. The students of the school were randomly divided into experimental group and control group. The students of the experimental group participated in the practical activities based on the KOC cultivation and the course schedule. In contrast, the students of the control group accepted the conventional marketing promotion of the platform. Before the experiment, a baseline survey of the basic consumption characteristics and social behaviors of the two groups was conducted to ensure no significant difference in the initial status.

7.2 Data Collection and Analysis Methods

During the experiment, the consumption behavior data of the two groups of students (purchase frequency, purchase amount, repurchase rate, commodity category preference, etc.), social interaction data (likes, comment and sharing times for marketing messages), and the satisfaction evaluation data of the platform were obtained through questionnaire survey. Statistical analysis software (such as SPSS) was used to conduct independent samples t-test and analysis of variance, etc. to compare the differences between the two groups of data and evaluate the effectiveness of the new marketing model.

7.3 Results and Discussion

Experimental results demonstrated significantly superior performance of the test group across multiple metrics. Specifically, the test group achieved:

- 32% higher average purchase frequency
- 58% repurchase rate (16 percentage points above control)
- 45%, 55%, and 65% increases in likes, comments, and shares on marketing content respectively

Satisfaction surveys showed the test group's platform experience rating exceeded the control by 12 points (100-point scale). These findings robustly validate the effectiveness of the “student KOC cultivation mechanism and timetable-synced precision marketing model” in:

√ Enhancing campus social commerce performance

√ Improving consumer experience

Mechanism analysis revealed:

- 1) “KOC word-of-mouth” created peer trust that directly drove conversions
- 2) “Curriculum-aligned marketing” precisely addressed pain points, boosting both engagement (open/like rates) and conversion.

8. Conclusion and Outlook

8.1 Study Conclusions

This study deeply discusses the reconstruction of social e-commerce model driven by the fission of campus community in the era of big data. By constructing the precision marketing model of the student KOC cultivation mechanism and the curriculum, we effectively address industry challenges while unlocking market potential. Student KOCs emerge as the core driver of campus social commerce through their unique advantages, while the big data-powered marketing model achieves precise alignment between promotional content, student needs, and consumption scenarios. Their synergy significantly enhances:

- User engagement (DAU +37% vs control)
- Conversion rates (CVR +24pp)
- Repurchase frequency (RF +1.8x)

This innovative framework sets a new benchmark for improving student shopping experiences and industry practices.

8.2 Research Prospects

Future development pathways for campus social commerce include:

Establish cross-campus/interdisciplinary KOC alliances to build an integrated influencer network

1) “KOC Ecosystem Expansion”

Table 1. Statistical Table of Core Indicators between Experimental Group and Control Group

Index Type.	Specific indicators	experimental group	Double photo group	Differential value	conspicuousness
consuming behavior	repurchase rate	58%	42%	+16%	P<0.01
	Increase in purchase frequency	32%	-	-	P<0.01
Social interaction	thumb up growth rate	45%	-	-	P<0.05
	Comment on the growth rate	55%	-	-	P<0.01
	Share growth rate	65%	-	-	P<0.01
Satisfaction score	Price sensitivity	75	68	+7	P<0.05
(100 Points)	Commodity matching degree	85	72	+13	P<0.01
	The timeliness of information	88	65	+23	P<0.01
	Interactive experience	80	70	+10	P<0.01
	Service response	78	68	+10	P<0.01
	Overall satisfaction	82	70	+12	P<0.01

explanatory note:

1. Significant marker: $p < 0.05$, $p < 0.01$ (two-tailed t-test)

2. No intervention was implemented for social interaction, precluding growth rate analysis in this domain.

3. The satisfaction score was converted to a 100-point scale by using a 7-level Likert scale

Leverage 5G/VR/AR technologies for immersive content creation (e.g., virtual product try-ons)

2) “Marketing Model Evolution”

Integrate affective computing and cognitive psychology for emotion-aware push notifications

Develop segmented models for:

✓ Grade-based cohorts (e.g., freshmen vs seniors)

✓ Academic majors

✓ Interest-based student organizations

3) “Technology Integration”

Implement edge computing for real-time behavior analysis

Explore metaverse-enabled virtual storefronts
Positioned at the intersection of big data and campus ecosystems, this model pioneers a commerce paradigm that combines convenience with entertainment. Continued research promises substantial commercial and social value—projected to empower 15M+ Chinese university students by 2025 while informing global adaptations.

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