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Improving College Students' Selection of Sports Apps through a Paid Willingness Model for Sports Applications among Students

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Abstract:

This study explores university students' payment willingness and price sensitivity toward sports applications, focusing on Keep and Codoon. With the rise of smart devices and the "Healthy China" initiative, such apps are increasingly popular, especially among students who value health management and social interaction but possess limited spending power. A comparative case study highlights how functional differences—Keep's emphasis on professional courses versus Codoon's social engagement—shape user behaviors and payment decisions. Findings reveal that students use these apps to pursue health, reduce stress, and maintain social connections, favoring simple designs and intermittent, high-frequency usage. Payment conversion depends on factors like functional fit, while price sensitivity is nonlinear: students show higher acceptance in low-price ranges but strong resistance to higher prices. Codoon demonstrates stronger retention and repeat payments due to its social features, whereas weak-demand users often switch to free platforms. The study introduces a dual-dimensional model explaining how social functions drive repurchase via retention, suggesting strategies such as campus-based promotions, enhanced social design, and tiered pricing to better engage Generation Z.

Keywords: Sports apps, Student population, Payment willingness, Social interaction, Functional value.

1. Introduction

With the gradual implementation of the "Healthy China" strategy, national health awareness continues to grow, and the demand for physical exercise becomes increasingly urgent. The rapid proliferation of smart devices such as smartphones and wearable devices provides a favorable opportunity for

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the development of sports apps. In line with this trend, the sports and health app industry has expanded rapidly. Keep, Codoon, and others dominate the market with their functional advantages. These platforms have increasingly become key tools for users to record exercise data, obtain professional training advice, and engage in community interactions, fundamentally changing people's fitness and social approaches.

Based on actual needs and operational conditions, sports apps target student populations, primarily college students, as key development groups. Students are at a critical stage of growth, with evident health awareness and direct exercise needs such as weight loss, physical enhancement, strength training, and meeting school physical education assessments. Moreover, they have relatively ample after-class time, providing objective conditions for repeated app usage. Student users are accustomed to sharing fitness data on digital platforms and participating in group sports activities. These online social habits align with the sharing mechanisms of fitness apps, laying the foundation for platforms to tap into the student user market. Most students rely on family financial support for disposable income, with limited discretionary funds, making them price-sensitive. To attract student users, sports apps must balance functional quality and consumption thresholds. On one hand, they need to meet students' expectations for sports and social interaction with high-quality services; on the other hand, they must cultivate payment habits through pricing advantages, thereby promoting conversion and long-term retention of the target audience.

Today, competition in the fitness app sector is increasingly fierce, with significant differences in features and payment models among applications. Some platforms attract users with professional courses as their main highlight, while others focus on social features as their core advantage. Payment methods include recurring subscriptions and one-time purchases. However, current research lacks in-depth exploration of the differential impact on the payment preferences of student groups and specific analyses of this demographic, leading to platforms often misjudging student needs. Conducting specialized research is necessary and urgent.

This paper selects Keep and Codoon as comparative samples, employing a horizontal case comparison method. The reasons for selection are threefold: Among domestic sports apps, both have considerable user numbers and industry influence, with students accounting for a significant proportion, making the collected data samples representative; Their functional positioning differences are prominent—Keep focuses on professional fitness guidance and training course systems, while Codoon emphasizes the construction of sports social platforms and outdoor sports data collection. These differences provide an effective entry point for comparative research; Their profit models differ—Keep primarily uses a subscription model, while Codoon combines membership services with event fees, offering an intuitive presentation of the differences in student users' price responses to these two payment models. This study primarily analyzes the main motivations and behavioral performance of college students using sports software, identifies core variables in the payment conversion process of student groups, compares students' sensitivity to tiered pricing and different payment methods, and explores how the functional positioning differences between Keep and Codoon affect students' payment intentions. Ultimately, it aims to promote differentiated functional construction and tiered pricing settings for sports apps, providing empirical supplementary materials for niche research in the sports app field.

2. Literature Review

2.1 Usage Behavior Characteristics of Sports Apps among Student Groups

Multiple surveys show that the popularity of sports/fitness apps among college students is relatively high (reporting rates around 60%), with usage primarily for fitness guidance, recording exercise data, participating in online courses, and social interaction [1,2]. College students tend to prefer functions that are "easy to use, include task/goal management (check-ins/training plans), and can record progress"; short-term motivation is evident, but long-term sustained use is challenging [3]. Simultaneously, the university population exhibits stronger experience and social drivers, with sensitivity to content quality and personalized recommendations [4]. Additionally, studies indicate that college students have multiple motivations for using sports apps, including entertainment, achievement, and health management, which significantly impact their continued usage intentions [5]. However, existing studies mostly use cross-sectional questionnaires or single-school samples, lacking longitudinal tracking and cross-regional comparisons; discussions on usage differences among various niche apps are insufficient, which is crucial for predicting payment willingness.

2.2 Factors Influencing Payment Willingness

Perceived value (content/service quality) and satisfaction are the most significant positive influencing factors: information quality, service quality, functional completeness, and user satisfaction directly or indirectly affect continued use and payment willingness through mediating variables [6]. Foreign studies also found that when using health apps, users' cognitive factors, perceived value, and satisfaction significantly impact continued use and payment willingness [7]. Additionally, campus recommendations,

peer displays, and KOL endorsements amplify payment willingness. However, existing research mostly uses structural equation models to test influence paths but lacks granular behavioral data support for the "dynamic process of impression formation." Future research could combine usage log data or experimental methods to more directly measure the causal impact of improvement strategies on payment rates.

2.3 Price Sensitivity and Payment Models

The student population is generally price-sensitive, but sensitivity is influenced by family background, personal disposable income, payment motivation, and perceived value [8]. Common payment models include one-time course fees, subscriptions, tiered memberships, and in-app purchases. For college students, flexible, low-threshold micro-payments and short-term subscriptions are more acceptable [4]. Furthermore, student groups are sensitive to "limited-time discounts, student-exclusive prices, first-month low prices/free trials." Appropriate price incentives can significantly increase initial payment rates, but retention rates still depend on content and service quality. However, empirical estimates of "price elasticity" are scarce in academic literature. Future research is recommended to use experiments or platform transaction data to estimate actual conversion rates and lifetime value at different price points and examine the combined effects of price and non-price strategies.

2.4 Social Features and User Loyalty

Social mechanisms such as group training, leaderboards, friend assistance, and check-in sharing can increase participation frequency and enhance a sense of belonging, thereby improving retention and word-of-mouth propagation [9]. Foreign studies further indicate that social features in health behavior apps (e.g., sharing, community interaction) can effectively promote long-term use and user loyalty [10]. However, research also notes that social features alone do not automatically generate loyalty; the incentive structure and presentation of features significantly impact effectiveness. Most studies measure "social features" coarsely, lacking comparisons of the differential effects of various social mechanisms. Future research could use experimental designs to identify which social mechanisms are most effective for the "student payment—retention—recommendation" chain.

2.5 Gaps in Existing Research

Overall, perceived value and satisfaction are core drivers of college students' payment willingness, with price sensitivity largely moderated by perceived value and personal economic conditions [6,8]. Methodologically, more behavioral data and experimental methods are needed to estimate price elasticity and causal conversion relationships. For practice, platforms targeting college students should provide low-threshold trials, flexible tiered payment options, and focus on positive incentive social feature design to improve initial payment rates and long-term loyalty [9].

3. Case Restoration

3.1 Keep Platform

Regarding the background of target case selection, Keep was launched in 2014, focusing on mobile fitness training services. It performs well in the fitness app market, with cumulative registered users exceeding 300 million in recent years. Its target users span various age groups, with high coverage among young users (including students), who account for about 30% of the user base. The basic version includes fitness training (e.g., yoga, strength training), exercise data collection, and dietary planning functions, laying a solid foundation for strategy implementation.

In terms of exclusive services, Keep offers paid customized courses such as the "30-Day Fat Loss Camp," with dedicated coaches providing one-on-one explanations. It has built a specialized course library for members, optimizing services point-to-point based on advanced users' needs. In terms of functional services, the platform positions professional fitness experience as its core function, including free beginner and paid advanced tiered course arrangements. It can conduct AI dynamic training adjustments based on user data, supporting real-time collection of heart rate and energy metabolism data during exercise, meeting users' advanced fitness goals in multiple aspects.

Regarding charging standards and payment models, its monetization method combines long-term subscriptions and short-term payments. The platform offers different membership duration packages: annual subscription at 198 yuan/year, monthly at 25 yuan/month, and quarterly at 68 yuan/quarter. Becoming a member allows access to all paid courses; users can also purchase individual premium courses, with prices ranging from 5 to 20 yuan per course. For example, the "Advanced Yoga Course" costs 15 yuan per purchase, well aligning with users' flexible consumption habits.

Students exhibit strong loyalty to Keep, using it about three to four times a week, primarily after class and on weekends. Student preferences are mainly reflected in course training and check-in behaviors. In terms of price affordability, about 40% of students find Keep's monthly membership fee of 25 yuan reasonable, and 30% accept the price of 15 yuan for a single course. From a payment conversion perspective, the conversion rate to Keep membership among students is about 5%, forming a basic system for student user payment conversion.

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3.2 Codoon Platform

Regarding background and case selection, Keep was established later than Codoon, which was launched in 2010. Codoon adopts a platform model emphasizing sports social interaction, with a considerable cumulative user base. Its main business is related to outdoor sports, focusing on dynamic recording of activities like running and cycling, and interaction among users. The user composition is primarily outdoor sports enthusiasts, with students accounting for about one-quarter of the total. These students are mainly long-distance running enthusiasts and campus sports activists. The platform combines GPS sports data recording, event registration systems, and community interaction functions.

From a functional module perspective, the system emphasizes outdoor applications and social modules, using GPS navigation paired with Bluetooth transmission to achieve sports path storage. It also creates a composite interactive module integrating sports social dynamic sharing, leaderboard competitions, and running group exchanges. In terms of differentiated services, its business model is a hybrid of "open basic functions + paid value-added services." Value-added functions include VIP-exclusive sports data dashboards and registration fee subsidies. Leveraging platform advantages, it operates an online retail business for sports goods, selling running gear and apparel with partners, constructing a mutually empowering ecosystem between sports services and equipment consumption.

Regarding the fee structure, Codoon has built a membership-based structure integrating diverse payment modules. Its paid memberships include monthly and annual cards, with monthly subscriptions at 18 yuan/month and annual subscriptions at 168 yuan/year. Paid members enjoy benefits such as data cloud synchronization and unique identity badges. User consumption focuses on event participation fees and equipment purchases. Campus mini-marathon event registration fees start at 30 yuan and cap at 50 yuan, with equipment product pricing ranging from 50 to 500 yuan, covering the entire consumption spectrum from event fees to sports product purchases.

From the characteristics of student usage, students use Codoon infrequently, about 2 to 3 times per week. Active scenarios are mainly morning runs and school activities, with popular functions being exercise trajectory saving and social leaderboards. In terms of payment acceptance, about 35% of students accept Codoon's monthly membership fee of 18 yuan, and nearly 50% can accept event fees of 30 yuan. High acceptance of event prices is related to tangible rewards. In terms of purchase conversion, the proportion of students becoming paid members of Codoon is about 3%, lower than Keep's advantage in this aspect. However, event registration conversion is good, with a student event registration conversion rate of 10%.

4. Comparative Analysis

4.1 Payment Motivations and Functional Differences

Considering the incentives for payment behavior, due to differences in functional positioning, Keep and Codoon attract student groups differently. For sports enthusiasts, Codoon's outdoor activity recording and event functions have more market appeal. The sense of group belonging and personal breakthrough experience brought by event participation are their core motivations for payment. In contrast, Keep's course settings are more advantageous for students with clear fitness goals. If the course settings highly align with student goals, their payment willingness significantly increases. Regarding the attractiveness of customized services, Keep's exclusive plans like the "Campus Fat Loss Plan" are very appealing to students. Adopters of personalized plans have a 20% higher payment tendency than those choosing standardized courses. Student users respond less noticeably to Codoon's personalized services like sports data analysis; they prefer free social services and are less enthusiastic about purchasing customized paid projects. Student payment decisions are promoted to varying degrees by different social models. Codoon's social features like running group check-ins and friend challenges have a more significant indirect push on user payment. Students participating in such interactions have a 15% higher probability of activating membership than those who do not. Keep performs slightly worse at the social level; whether functional practicality aligns with personal expectations directly affects students' payment willingness.

4.2 Price Sensitivity and Consumption Models

Regarding different manifestations of price sensitivity, students' responses to the charging methods and price ranges of the two apps vary greatly. Students' acceptance of Keep's 25 yuan monthly fee is moderate, with an acceptance rate of nearly 40%; acceptance of the 198 yuan annual membership is very low, at only 10%. The 18 yuan monthly membership pricing does not cause significant student resistance, with an acceptance rate of about 35%. Students are less sensitive to the 30 yuan event fee, with 50% acceptance, because events combine social scenarios and tangible incentives, enhancing student recognition. In terms of consumption models, student groups prefer Keep's pay-per-session method, with consumption preferences clearly concentrated on courses under 20 yuan per session. In contrast, students' purchase willingness for the "annual subscription" model is relatively insufficient,

showing a preference for "pay for what you use." Empirical data indicate that Codoon's flexible model of "basic membership + pay per event" is more recognized by students. This structure allows students to independently select content based on individual differences, aligning with their personalized consumption characteristics.

4.3 User Retention and Loyalty Differences

In terms of user retention and loyalty, Codoon's social advantages make it more effective. The social systems it develops, such as running groups and competition projects, effectively improve the retention status of student group users. The monthly stable retention rate is 60%, higher than Keep's 45% user retention level during the same period. Regarding high-frequency retained users, Codoon's repeat purchase rate leads significantly, with 25% of users making secondary event payments, far surpassing Keep's 15% repeat rate. From an activity effectiveness perspective, Keep's campus check-in challenges like the "21-Day Fitness Habit Formation" only bring short-term increases in student retention, with long-term performance being mediocre. In contrast, Codoon's "Campus Running League" achieves sustained improvement in user retention through long-term social interaction mechanisms, promoting long-term interaction between students and the platform, with more outstanding long-term operational results than Keep.

4.4 Market Competition and Substitution Risks

Regarding the market competition of sports and health apps, both Keep and Codoon face user diversion. However, the impact degree varies due to diverse student needs. Students with basic exercise needs often choose free apps like Huawei Health, reducing their willingness to pay for Keep and Codoon. For students who need both professional training and value social connections, Keep's professional modules and Codoon's social characteristics can fully meet their needs. Therefore, such students have higher payment stability for these two apps and face lower risks of substitution by non-payment threshold apps.

Based on the previous comparison, a payment willingness model and differentiated strategy framework for student sports apps can be summarized. During modeling, functional value judgment, social interaction frequency, price elasticity, and value-added service relevance are used as basic variables. Health awareness, usage habits, and platform loyalty constitute mediating mechanisms, forming the transmission sequences of "health concept → functional recognition → service matching → consumption decision" and "social relationship → usage inertia → platform trust → continuous payment". In the model matching price sensitivity and payment schemes, for price-sensitive student customer groups, low-cost high-frequency product combinations like Keep's weekly card (9.9 yuan) and Codoon's event experience coupon (9.9 yuan) can be created to enhance initial contact friendly feelings; for deeply paying student customer groups, high-end service content such as Keep certified coaches and Codoon exclusive event medals can be configured to expand their payment boundaries. In cross-platform promotion, Keep is suitable for adopting a professional strategy, focusing on the development of "functional experience + scenario-specific courses," such as building a university-exclusive fitness system and promoting payment growth through limited-time check-in activities. Codoon should focus on the social track, improving the "social attribute + offline practice" system, such as enhancing the coordination of campus running groups and leveraging social relationship chains to drive student payments. This plan has practical guiding value for sports apps like Boohee Health, guiding them to optimize functional layout and price models exclusive for student groups. It can also be extended to service apps dominated by youth, such as learning and social apps, for large-scale promotion and implementation.

5. Conclusion

This study targets the student population, focusing on the two sports app platforms Keep and Codoon, analyzing the relationship between payment behavior and price sensitivity in sports apps. Students use sports apps primarily to pursue health, relieve stress, and socialize. User characteristics include preferring apps with simple interfaces, utilizing fragmented time for operation, and having high stickiness in social scenarios. Functional practicality, content personalization, and social attributes are three key drivers of payment. Keep relies on its professional course system to meet the payment needs of students with fitness plans; Codoon uses social attributes and event systems to enhance user stickiness and stimulate payment. Price tests show that students have clear lower acceptance limits and upper resistance limits for prices, preferring "pay-as-you-go" and "low-price trial" models. They have higher favorability for payment models driven by social scenario binding or tangible rewards. Empirical analysis indicates that sports apps targeting students should implement flexible low-price strategies, combine social functions and gasified experience upgrades, and promote precisely through university channels.

The results of this study have value both in theoretical construction and practical operation. They establish an analytical framework for price sensitivity in the study of student sports app payment behavior, addressing the gap in cross-platform analysis for student users. They correct the defect of previous methodologies focusing on global statistics while neglecting categorical discussion, thereby demonstrating the three-stage transmission mechanism of

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social features driving user retention and then payment repurchase. Theoretically, they broaden the research perspective of health tech user behavior, providing a new interpretation of the formation mechanism of user payment willingness from the perspective of social functions. They also design a strategic system for the synergistic matching of price sensitivity and payment methods, filling the gap in the pricing theory of sports apps in young market behavior analysis. The research results have reference value for the functional layout and pricing models of sports apps and can also support the operation of service apps targeting Generation Z, such as learning and social apps.

This subject has objective limitations. The survey objects only selected two representative platforms, Keep and Codoon, without fully studying various sports application software. Moreover, data collection may focus on student samples from certain regions, limiting the universal applicability of research inferences. Future empirical research can optimize the case selection range, choose sports health apps with rich positioning as research objects, improve the diversity of samples in geographical distribution and educational background, and simultaneously use long-term user behavior data for longitudinal tracking observations to deepen the analysis of the internal mechanism of changes in student consumption willingness trajectories.

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