

## **Analysis of Factors Affecting Information Resource Quality on Knowledge Payment Platforms from a User Perception Perspective (Postprint)**

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### **Abstract**

[Purpose/Significance] How current knowledge payment platforms can provide users with the most valuable information with maximum efficiency has become a significant concern for all stakeholders. Analyzing the factors that influence the quality of information resources on knowledge payment platforms is of great importance for promoting the healthy development of the knowledge payment industry. [Method/Process] This study takes major knowledge payment platforms such as “Zhihu” and “Dedao” as research subjects. From the perspective of online users’ perception of knowledge payment, and based on online surveys and literature collection, it employs data analysis to explore the main factors influencing knowledge payment platforms’ improvement of knowledge and information resource quality, and proposes feasible measures to enhance information resource quality on these platforms. [Results/Conclusion] The analysis reveals that the focus of future knowledge payment platforms will shift from content development to user group competition, develop along vertical domains, further integrate with other major commercial platforms, and video will become a new economic growth point for platforms. Diversified, high-efficiency, and streamlined content will become the core driving force for knowledge payment platforms to provide users with high-quality information resources.

### **Full Text**

#### **Preamble**

#### **Analysis of Factors Influencing Information Resource Quality of Knowledge Payment Platforms from the Perspective of User Perception**

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## Abstract

**[Purpose/Significance]** Currently, how knowledge payment platforms can provide users with the most valuable information with maximum efficiency has become a major concern for all stakeholders. Analyzing the factors that influence the quality of information resources on knowledge payment platforms is of great significance for promoting the healthy development of the knowledge payment industry. **[Method/Process]** Taking major knowledge payment platforms such as “Zhihu” and “Dedao” as research objects, and from the perspective of online users’ perception of knowledge payment, this study employs data analysis based on online surveys and literature collection to explore the main factors affecting knowledge payment platforms’ ability to improve knowledge and information resource quality. It proposes feasible measures to promote the improvement of information resource quality on knowledge payment platforms. **[Result/Conclusion]** The analysis reveals that the future focus of knowledge payment platforms will shift from content development to competition for user groups, developing along vertical fields and further integrating with other major commercial platforms. Video will become a new economic growth point for platforms. Diversified, efficient, and streamlined content will be the core driving force for knowledge payment platforms to provide users with high-quality information resources.

**Keywords:** user perception; knowledge payment platform; information quality; factors

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## 2 Literature Review and Research Methods

### 2.1 Literature Review

**2.1.1 Research on Development Characteristics of Knowledge Payment Platforms** The year 2016 marked the beginning of knowledge payment development. Despite the relatively late launch of knowledge payment platforms, they have attracted widespread attention from scholars. Currently, there are few valuable research findings on knowledge payment. Searching CNKI for journals, newspapers, and news with the keyword “knowledge payment” yields 13 documents from 2016, 197 from 2017, and 466 from 2018. After sorting, 70 reference-worthy documents were obtained, of which 38 focused on knowledge payment platforms, indicating that academic research on knowledge payment platforms remains relatively weak.

Domestic research on knowledge payment platforms mainly concentrates on platform business models, market mechanisms, and strategies. For example, Li Wu et al. argue that current online paid Q&A platforms have two primary user payment models: payment for asking questions and payment for onlooking [1].

Wang Zheng et al. believe that in the past two years, the knowledge production mechanism of mainstream online knowledge payment platforms in China has shifted from early reliance on “user-generated content” (UGC) to focusing on “professional user-generated content” (PUGC). Typical platforms in this regard include “Zhihu” and “Ximalaya”; or they have adopted the PUGC model from the start to ensure quality and user reputation, with “Dedao” being a typical example. In traditional research on online knowledge platforms, the UGC model remains the default assumption, but its motivational mechanisms for knowledge production (such as reputation acquisition, hobby satisfaction, altruism, and mutual benefit) have shown explanatory limitations when applied to current online knowledge payment platforms. Research reports indicate that under the PUGC model, most knowledge producers are knowledgeable individuals, online influencers, and key opinion leaders. For such producers, market mechanisms simplify the value chain of the content industry, returning content creation to a user value orientation that can bring them systematic benefits and thus encourage creation [2]. Regarding issues of irrelevant answers and copyright-related legal problems in knowledge payment, Zhao Zhanling, a special researcher at the Intellectual Property Center of China University of Political Science and Law, believes that pricing is a primary concern for online users. Some consumers may spend thousands of yuan asking questions to a well-known figure, only to receive irrelevant answers. This situation indicates that the contract between the questioner and answerer has not been fulfilled, and online users can protect their rights. Zheng Ning, Deputy Director of the Law Department at Communication University of China, suggests that the knowledge payment industry could establish a user evaluation mechanism like Taobao, where low-rated knowledge payment products would affect future sales [3].

Based on the literature review, it is rare to find research from the perspective of knowledge payment platforms themselves on how to provide high-quality knowledge and information resources to online users with maximum efficiency. This study therefore uses questionnaires to investigate the operation models and mechanisms of major domestic platforms, the main forms and content of information resources provided to users, and legal issues arising in pricing or payment processes. By analyzing the supply side of knowledge information resources, it aims to identify bottleneck factors affecting knowledge payment platforms’ ability to provide high-quality information resources and achieve sustainable development.

**2.1.2 Research on Online Users’ Perception of Knowledge Payment Platform Product Quality** Searching CNKI yielded 19 research documents related to knowledge payment users’ payment intention, 9 related to user perceived value and payment intention, 9 related to payment intention and perceived risk, 13 related to payment intention and perceived quality, and 1 related to quality perception and platform improvement of information resources.

Wang Daqing believes that users’ perception of knowledge payment products

mainly involves perceived cost, quality, and popularity, where perceived cost is a negative influencing factor, while perceived quality and popularity significantly positively influence payment intention. Perceived quality includes not only perceived content quality but also perceived service quality. Users' perceived quality of content and service significantly affects their payment intention through the mediation of payment attitude. Perceived popularity reflects users' perception of product popularity, which significantly affects payment intention through the mediation of subjective norms [4]. Que Danyi et al. argue that "platform product quality" can significantly affect users' "perceived usefulness," which in turn significantly affects "perceived value." "Perceived risk" and "platform audio-visual experience" can significantly affect "perceived trust." "Perceived usefulness" is a mediating variable through which "platform product quality" affects payment intention. The higher users' evaluation of "platform product quality," the higher their perceived usefulness and trust, demonstrating that "platform product quality" is an important situational variable affecting product usefulness and user perceived trust [5].

Through literature review, it is found that scholars mostly study knowledge payment from factors such as perceived quality, perceived price, and service experience to examine their correlation with payment intention. There is little literature studying the correlation between users' perception of knowledge payment content quality and platform improvement of information resources in the context of mobile internet.

This study starts from the mobile internet background, distributing online questionnaires through WeChat or QQ groups to survey the basic characteristics and consumption demand features of different knowledge payment user groups, their payment willingness, payment drivers, preferred information resource content, and platform service requirements. This aims to understand online users' perception characteristics of paid knowledge information resource content quality and platform service quality. Through investigation and analysis, it identifies factors affecting knowledge payment platforms' ability to improve online user experience, thereby providing reasonable suggestions for platform enterprises to enhance user experience, improve information resource quality, and promote benign development.

## 2.2 Research Methods

This study employs literature research, questionnaire surveys, and mathematical statistics from two perspectives: knowledge payment platforms and online user demand. When selecting survey objects, the study emphasizes choosing leading platforms that represent current market trends in the knowledge payment industry and have development prospects while encountering bottlenecks restricting their development. Based on these criteria, "Zhihu," "Zaihang Yidian," and "Dedao" were selected as primary survey objects in the knowledge payment field.

The main literature sources are domestic papers on knowledge payment from 2016-2018 and information, news comments, or reports about knowledge payment from various media.

### 3 Research Design

#### 3.1 Questionnaire Design

Based on research needs, two online questionnaires were designed:

- (1) The first questionnaire aims to investigate the current development status of knowledge payment platforms and factors affecting their provision of high-quality information resources, with major platforms like Zhihu, Dedao, and Zaihang Yidian as primary survey objects. It includes six aspects: user scale and market size; core platform operation models; main forms of information resources provided to users; platform screening and promotion mechanisms; core issues in policy supervision and copyright protection [6]; defects in operation models.
- (2) The second questionnaire mainly surveys different online knowledge payment user groups' perception characteristics of knowledge payment platform product quality in the mobile internet context to understand platform users' basic characteristics and consumption demand status. It includes six aspects: basic characteristics of user groups; preferred forms of knowledge information products; preferred content of knowledge information products; payment drivers; matching degree between paid content and online users' personal knowledge demand management [7]; online users' suggestions for platform service improvement.

#### 3.2 Survey Process

- (1) Two survey groups were established and corresponding questionnaires were distributed: Based on familiarity with typical platforms, the first group consisted of 6 typical representatives selected from platform users, responsible for conducting one-on-one surveys with construction personnel of leading platforms like Zhihu, Dedao, and Zaihang Yidian through WeChat, QQ, or phone calls. The second group consisted of 5 typical representatives selected from different online user groups, responsible for distributing online questionnaires to various knowledge payment user groups through WeChat or QQ groups. These online user groups mainly included university teachers, research institution staff, government civil servants, enterprise personnel, college students, and other industry personnel. From June 1 to October 1, 2018, the first group collected 100 valid questionnaires, and the second group collected 200 complete online questionnaires.
- (2) Data sorting and analysis. Teachers from both groups classified, summarized, sorted, and analyzed the collected valid questionnaires according to content to provide data for this study.

## 4 Survey Results Analysis

Through statistical analysis of survey data, as paid knowledge and information resources continue to increase, online users gradually develop payment habits, and consumer income gradually rises, the user scale for knowledge payment is expanding, knowledge payment platforms are developing more rapidly, market size is gradually expanding, and users' demand for high-quality information and knowledge resources is becoming stronger. However, the survey found that current knowledge payment platforms mainly focus on recreational learning knowledge dissemination, lacking practical and systematic intensive learning content. The information resource content provided by platforms is seriously homogenized, lacking vertical and segmented high-quality information resources. How to promote knowledge payment platforms to provide higher-quality knowledge and information resources and facilitate benign platform development is an urgent issue for the current knowledge payment industry.

### 4.1 Development Characteristics of Knowledge Payment Platforms

**4.1.1 User Scale and Market Size** The user scale and market size of the knowledge payment industry are gradually expanding, indicating continuously improving profit margins. Based on statistics of public revenues from leading players like Dedao, Zaihang Yidian, and Zhihu Live, the overall market size of knowledge payment in 2017 was 4.91 billion yuan, with a user scale reaching 188 million people. According to sensitivity analysis of market size and research on average customer unit price, user scale, and industry penetration rates of major knowledge payment platforms, the market size is projected to be 8-24 billion yuan by 2020. The specific forecasting process is as follows:

Knowledge Payment Market Size = User Group Scale × Payment Conversion Rate × Annual ARPU Value

Regarding ARPU (Average Revenue Per User), the term comes from English and is often used by telecom operators as an important indicator to measure user value. Regarding payment conversion rate, Dedao announced its data as 30%, while Ximalaya, with a larger user scale, publicly showed that only 3% of its users have participated in knowledge payment. Therefore, assuming possible payment rates for 2020 are 10%, 12%, 14%, 16%, 18%, and 20%; assuming possible annual ARPU values are 400 yuan, 450 yuan, 500 yuan, 550 yuan, and 600 yuan, sensitivity analysis of market size using the above formula yields a projected knowledge payment market size of 8-24 billion yuan by 2020. See .

**4.1.2 Main Operation Models and Operation Methods** The core operation model of knowledge payment platforms is to facilitate users paying for knowledge information resources and take a commission from user payment income, which is the core operation model for platforms to obtain main revenue. Simultaneously, platforms also provide tools or training support services to knowledge producers and take commissions, such as providing production

technology training or product agency, IP packaging, marketing and incubation; providing tools for knowledge sorting, lesson preparation, and community management. In addition to obtaining main revenue from commissions on user payment income and service fees from producers, knowledge payment platforms can also obtain advertising income through traffic monetization, obtain membership fees through community operation, and achieve further traffic monetization by directing traffic to malls and online activities. The main business models of knowledge payment platforms can be summarized into four types, as shown in .

**4.1.3 Main Forms and Typical Business Models for Providing Knowledge Information Resources** From a product form perspective, knowledge payment platforms mainly provide information resource products in five forms: online live streaming, column subscriptions, paid communities, paid Q&A, and micro-courses, with typical platforms and characteristics shown in .

## 4.2 Consumer Demand Characteristics of Online Knowledge Payment User Groups

**4.2.1 Basic Situation of Online User Groups** Analysis of survey data shows that users who pay for information resources on knowledge payment platforms are mainly urban middle class, mostly located in China's first- and second-tier cities, with age distribution concentrated between 20-34 years old, and males slightly outnumbering females. The vast majority have college degrees or above, with occupations mainly as enterprise employees or managers, and monthly income concentrated between 3,000-8,000 yuan. These urban middle-class user groups have strong self-improvement needs. They are usually well-educated, possess professional knowledge and skills, mostly engaged in mental labor, and rely mainly on wages and salaries for livelihood, but they also experience obvious anxiety. This anxiety makes their need to quickly and effectively obtain valuable knowledge stronger than other socio-economic groups: compared with low-income groups, they have higher-level spiritual needs, namely the need for self-improvement and development, but due to work pressure, they lack sufficient time for systematic learning and urgently need to learn the latest information, knowledge, and skills through knowledge payment platforms to understand the latest social changes [8].

**4.2.2 Payment Willingness of User Groups** Urban middle-class users have strong knowledge payment willingness. On the one hand, they have strong needs for self-improvement; on the other hand, they have good consumption capacity. As shown in [Figure 1: see original paper], 42% of users believe that knowledge payment is a development trend and that valuable content should be paid for.

**4.2.3 Drivers of Online User Payment** The main drivers for users to pay for knowledge resources are shown in [Figure 2: see original paper]: "obtaining

targeted professional knowledge/insights” accounts for 74.2%, “accumulating experience to improve oneself” accounts for 47.3%, “saving time and energy costs” accounts for 50.8%, and “expanding network and making friends” accounts for 12%.

**4.2.4 Preferred Knowledge Information Resource Content** Users’ preferred knowledge resource product content mainly concentrates in four areas: health and wellness, education and parenting, cultural reading, and finance and entrepreneurship. Users’ preferred content and willingness choices are shown in [Figure 3: see original paper]: “knowledge/experience that can improve work efficiency or income” accounts for 63.3%; “professional advice on career/academic choice and development” accounts for 39.2%; “methods and skills that can improve quality of life” accounts for 32.2%. Users purchase these “utilitarian” and “investment” knowledge to help improve their work skills and expand their knowledge. However, these knowledge resources are very scarce in the market, making acquisition costs high.

### **4.3 Online User Groups’ Perception of Knowledge Payment Platform Information Resource Quality**

Online users’ perception of knowledge payment quality includes two aspects: perception of content quality and perception of service quality. Users judge product quality and value based on these perceptions, which directly affect their payment attitude and willingness.

**4.3.1 Overall Quality Perception Characteristics** The survey found that online users believe the biggest problem in the current knowledge payment field is uneven product quality, obvious product homogenization, serious plagiarism, and even many big Vs being exposed for theft and infringement. Since knowledge payment product quality cannot be predicted in advance and is difficult to judge in the short term after purchase, this opens marketing space for low-quality products, such as excessive packaging, relying on celebrities or internet celebrities for extensive promotion, turning knowledge payment into induced consumption while the product itself lacks quality assurance. Moreover, unlike offline training that requires teacher qualification assessment, online knowledge sharing and skill training allow everyone to become a teacher, making supervision impossible [9].

**4.3.2 Content Quality Perception Characteristics** Online users crave high-quality information resource content. Their perception of product content quality provided by knowledge payment platforms is the core of competition. Online users typically perceive content quality from product names, prices, product introductions, and product experience. The survey found that most users believe current knowledge payment platforms lack sufficient high-quality content construction, with serious one-off transactions. Especially in the process of vertical field development, some platforms lack sustained development

momentum, so they use celebrities to attract traffic, squeezing the space for high-quality content creators, resulting in a lack of high-quality content and low product repurchase rates [10]. Online users hope that information resource content provided by platforms should have added value, convenience, necessity, and payment security, and content should be vertical and segmented.

#### **4.3.3 Service Quality Perception of Knowledge Payment Platforms**

Online users hope that knowledge payment platforms can provide comprehensive and thoughtful services. Before making decisions, users are accustomed to browsing the service forms provided by knowledge payment platforms, such as how products are updated, how to interact and leave messages, time limits for reading, etc., and then consider whether to pay based on these service forms. From this perspective, knowledge payment platforms are also service providers of knowledge information products. Online users hope that current knowledge payment platforms can open some free zones, message zones, learning record zones, learning discussion groups, and other service functions, while scientifically developing step-by-step learning plans and schedules for online users, guiding learning methods, providing opportunities to communicate with creators, increasing mutual communication among student circles, ensuring smoother and more efficient learning for users, enhancing user learning experience, increasing user satisfaction, and thereby improving platform service quality [11].

Additionally, most users hope that the state can strengthen legal construction and supervision of the knowledge payment industry and improve the intellectual property system to promote the healthy development of the knowledge payment industry [12].

#### **4.3.4 Trust Perception of Knowledge Payment Platform Product Quality**

Through the survey, 90% of online users believe that knowledge payment is a transaction of knowledge as a commodity, but knowledge transactions are different from ordinary commodity transactions. Knowledge payment product transactions lack clear quality standards for reference and lack protected return and exchange mechanisms. Users believe that without these protection mechanisms, their payment behavior involves more uncertainty and greater risk, and they hope platforms can establish such protection mechanisms as soon as possible [13].

Most studies show that trust in the popularity, professionalism, and interactivity of knowledge product creators can eliminate these uncertainties. The greater the trust level, the more uncertainties are reduced. When deciding whether to pay for knowledge products, users consider whether the creators have certain popularity and professional ability and whether they actively interact with users. Users hope platforms can cooperate with opinion leaders [14] and have good interaction with users, which will promote users' trust in platform products and enhance their perceived quality of products.

**4.3.5 Perception of Knowledge Payment Marketing Methods** Online users believe that compared with the difficulty of evaluating product quality, what is more criticized is the marketing methods of knowledge payment. When there are enough paid products and serious homogenization, using social relationship chains for distribution becomes a new marketing approach. For example, in early 2018, the new media platform “New World” launched the “New World Marketing Course,” whose sales links were widely forwarded in WeChat Moments. Users could obtain corresponding commissions after sharing QR codes to attract friends to purchase courses. New World’s method of promoting online courses through multi-level commissions and “pulling heads for rebates” was suspected of pyramid schemes and sparked heated discussion before being banned soon after. Regarding this distribution screen-swiping incident, users believe that true knowledge payment should not be for marketing purposes. The rational approach is restraint, and more effective marketing methods and tools must be used to focus on returning to product service and community management, and doing a good job in the knowledge delivery undertaking system [15].

#### **4.4 Conclusions on Online Users’ Perception of Paid Information Resource Quality**

The current knowledge payment market has a series of problems such as knowledge infringement, false courses, and illegal marketing, which affect knowledge payment platforms’ ability to improve information resource quality and pose hidden concerns for the sustainable development of the knowledge payment industry. Through investigation and analysis of online users’ perception of knowledge payment, conclusions on online users’ perception of paid product quality can be summarized as follows:

**4.4.1 Lack of Screening and Promotion Mechanisms for Paid Content on Knowledge Payment Platforms** Knowledge payment platforms lack standardized screening and promotion mechanism evaluation systems for paid content. Users find it difficult to evaluate and understand content before payment, making the establishment of reasonable content screening and promotion mechanisms a new problem. As knowledge payment content continues to increase, this problem will become more acute [16]. Currently, knowledge payment platforms mainly solve the screening of paid content through IP-based approaches and user evaluation, but both IP-based approaches and user evaluation will create head effects, dampening the enthusiasm of late-entering knowledge producers. In the future, as knowledge IP prices further increase, how platforms achieve high-quality content push, screening, promotion, and incubation of new IP will directly determine the effectiveness of subsequent knowledge payment [17].

**4.4.2 Serious Homogenization of Paid Content** The homogenization of knowledge payment content is relatively serious, especially in popular knowledge

areas of the knowledge payment industry, such as investment and financial management, time management, document writing, and skill training [18]. These popular knowledge areas attract more attention, are easily welcomed, and are easy to monetize, making them key recommended paid content for most knowledge payment platforms. Therefore, the content is mostly similar. When users become familiar with this similar content and lose the head effect, it will seriously dampen the enthusiasm of new knowledge producers and long-tail knowledge production. Content homogenization has caused the knowledge payment industry to lose its driving force for long-term development.

**4.4.3 Lack of Policy Supervision and Copyright Protection Laws** The knowledge payment industry is currently a new 风口 (hot trend), and policy orientation plays a decisive role in the development of China's internet economy. In the development process of knowledge payment platforms, piracy is a bottleneck restricting the development of the knowledge payment industry. The ambiguity of intellectual property rights and the lack of online copyright protection laws make some infringement behaviors difficult to define. Additionally, text and audio paid content can be easily copied and disseminated. For example, in 2017, the Zhihu platform, together with Xianyu and Taobao, investigated over 200 knowledge piracy incidents. Some platforms even sell content from other platforms as their original content. The amount of some infringing content is small, and infringed parties do not pursue due to high 维权 (rights protection) costs or cannot pursue due to lack of evidence. The above reasons have caused the knowledge payment industry to face serious piracy problems. Moreover, as knowledge payment users increase and further 下沉 (sink) in the future, these problems will become more serious. For these reasons, strict government supervision of the knowledge payment industry in the future is almost inevitable [19].

**4.4.4 Defects in Operation Models and Marketing Methods of Knowledge Payment Platforms** Knowledge payment platform enterprises face difficulties in development models, including insufficient sustained development momentum, single profit models, platform-type enterprises dominating the market, and low product repurchase rates, which affect users' long-term use and platforms' continuous customer acquisition and profit, ultimately leading to insufficient development momentum for the knowledge payment industry. Specific situations are shown in .

**4.4.5 Service Quality of Knowledge Payment Platforms Needs Improvement** Currently, knowledge payment platforms lack service functions, and platform service quality needs significant improvement. They lack service functions such as free zones, message zones, learning record zones, and learning discussion groups for users. They also lack scientific guidance for online users' learning plans and schedules, and do not provide opportunities to communicate with creators. Users' audio-visual experience needs improvement. Knowledge

payment platforms should strengthen the introduction of information about knowledge payment products to help users understand knowledge product content more comprehensively, ultimately creating a learning depth scenario that integrates personal scenes, social interaction, and segmented content.

## 5 Recommendations for Knowledge Payment Platforms to Improve Information Resource Quality

In response to online users' perception characteristics and conclusions regarding knowledge information resource quality provided by knowledge payment platforms, and in the face of various 乱象 (chaotic phenomena), the following measures are recommended to promote platforms to improve paid product quality, enhance user experience, and facilitate benign development:

### 5.1 Use Big Data and Cloud Computing to Provide Vertical and Fractionalized Content

In the future, knowledge payment will be a mass behavior participated in by most people. Competition for new high-quality segmented fields among knowledge payment platforms will become increasingly fierce. Providing vertical and fractionalized paid content to users will be the basic trend in the future knowledge payment field. Knowledge payment platforms should use big data and cloud computing technologies to conduct sufficient user research, timely grasp users' preferred knowledge payment content, actively take measures to avoid homogenization of paid content, provide vertical and fractionalized high-quality knowledge information resources, and increase user dependence and stickiness [20].

To adapt to the needs of different online user groups, platforms should provide diversified, systematic, and in-depth content systems. It is recommended that knowledge payment platforms provide more high-quality information resources on education and training, medical health, etc., based on user characteristics and perceived content preferences. They should use advanced internet technology to provide convenient and fast operation conditions, use big data and cloud computing technologies to deeply analyze users' search themes and keywords, pay attention to users' browsing habits, 挖掘 (excavate) users' work and life practice scenarios, identify users' individual knowledge needs, and build a platform for them to conveniently obtain high-quality scarce information resources with vertical and fractionalized characteristics. The knowledge payment industry chain will be further segmented, with Q&A, courses, and consulting subdividing into more course forms [21]. By providing vertical and fractionalized paid content, knowledge payment platforms can attract and 挖掘 (excavate) more users to participate and provide them with good learning experiences.

## 5.2 Establish Strict Content Evaluation, Segmentation, Audit, and Recommendation Mechanisms

In the knowledge payment industry, content is king, but users find it difficult to understand and evaluate paid content before payment. Strict mechanisms for content evaluation, segmentation, audit and recommendation, pricing, and follow-up services should be established. These mechanisms are the most important sustainable development mechanisms for knowledge payment platforms, directly affecting consumers' psychological expectations of purchased content before payment and user experience during use. They are the main factors affecting whether knowledge payment users can trust knowledge payment platforms.

Knowledge payment platforms should establish content production audit teams. Audit team members should combine the characteristics of fragmented learning, identify positioning, increase content richness, develop vertically and deeply, and achieve small but beautiful results. They should avoid 强行蹭热点 (forcibly riding hot topics) and adding marginal content. They should highly condense and 二次整合 (secondarily integrate) knowledge to achieve efficient output.

Improve the segmentation and recommendation mechanism of knowledge products to help users find the most suitable products with the least time. The distinction between products and users should be more detailed. As content increases, in addition to adding information, recommendation algorithms need to be further improved. At the same time, producers should be encouraged and supported to maintain communities. The maintenance of post-class communities and interactions will directly affect users' subsequent consumption and purchase willingness, which is a completely new challenge for platforms.

## 5.3 Create Learning and Communication Zones, Improve Product Information Introduction, and Enhance Platform Service Quality

Knowledge payment platforms are not only producers of knowledge information resources but should also play the role of service providers. According to users' perception and requirements for platform service quality, platforms should better provide services for sold knowledge information resources to promote benign development.

- (1) Platforms should create many zones, such as free zones, message zones, learning record zones, and learning discussion groups. They should scientifically develop step-by-step learning plans and schedules for online users, guide learning methods, provide opportunities to communicate with creators, increase mutual communication among student circles, ensure smoother and more efficient learning for users, and enhance user learning experience.
- (2) Platforms should 重视 (attach importance to) the impact of "product audiovisual experience," "product usefulness," and "perceived risk" on users' payment willingness. They should do a good job in functional design for

product audio-visual experience, improve product trial experience services, and enhance user audio-visual experience.

- (3) Knowledge payment platforms should strengthen the introduction of information about knowledge payment products to ensure detailed and rich product information. High-quality knowledge information product introductions can help users understand knowledge product content more comprehensively, enhance users' perception of product usefulness, and increase users' trust in products.
- (4) Knowledge payment platforms should also continuously improve their system security, reduce users' risk assessment of product purchases, help users make more rational purchase decisions, provide users with safer consumption experiences, and enhance users' perception of service quality.

#### **5.4 Strengthen Cooperation with Hot-Spot Platforms to Make Knowledge Payment a Standard Feature**

Knowledge payment platforms should strengthen cooperation with e-commerce platforms like Taobao and JD.com and even live streaming platforms as soon as possible to make knowledge payment services a standard feature of these major platforms: Under the background of strategic importance from major platforms, knowledge payment content will become 头部内容 (head content) and a focus for all parties; Knowledge payment industry enterprises should effectively enhance users' payment awareness and promote users' payment attempts;

Knowledge payment industry enterprises should accumulate large amounts of user voting data with money, which is greatly beneficial for enterprises to understand users more deeply and establish higher business barriers.

#### **5.5 Improve Relevant Policies and Systems to Guide, Regulate, and Supervise Knowledge Payment Platforms**

Improving laws and regulations on intellectual property rights adapted to the sharing economy is an important issue urgently needed to regulate and guide the sustainable development of the knowledge payment industry and improve information resource quality. Government departments should formulate and release a series of policies and systems as soon as possible to guide and regulate the knowledge payment industry, strengthen intellectual property protection and supervision of undesirable content. They should timely supervise and regulate problems such as industry unhealthy competition, false content propaganda, and intellectual property infringement in the development process. For example: regulate the power, interest, and responsibility relationships among knowledge producers, consumers, and platforms; approve and record paid content; standardize the qualifications of knowledge sharers, proposing industry requirements for certified employment; stipulate that income should be taxed according to a certain proportion, etc. At the same time, knowledge payment

platforms should actively adopt advanced technical means and innovative product models for copyright protection of paid content.

### **5.6 Shift to Team-Based Industrialized Operation Models and Use Video as a New Growth Point**

Currently, the operation and dissemination models of knowledge payment platforms are mainly UGC-based, with forms mainly including online lectures, Q&A, and columns, and production subjects mainly being individuals. Most platforms invite public figures and opinion leaders in certain fields to settle in, using their large fan base to attract huge attention, rapidly acquire users, and complete monetization. However, this model can only serve as the production model for the early development of the knowledge payment industry. In the future, the production 环节 (link) of the knowledge payment industry will rapidly shift to team production models, especially for head knowledge payment content. The knowledge payment industry should actively create an industrialized operation model of assembly-line production that integrates personal scenes, social interaction, and segmented content.

In the mobile internet era, future video-form knowledge payment content will be a new growth point for the knowledge payment industry. Knowledge payment emphasizes socialization and interaction more than traditional online education. Instant, high-frequency interaction can bring users better learning experiences. From this perspective, live streaming will become the most potential method, especially short videos will be the most welcomed and readily accepted form by consumers. The reason is that paying users can use video for learning without any restrictions, anytime and anywhere. More importantly, much paid learning content can only be expressed more clearly through video. At the same time, for knowledge payment producers, video forms can better present their products and enhance their competitiveness in the market.

## **6 Conclusion**

Based on literature review, this study proposes to identify factors affecting knowledge payment platforms' improvement of information resource quality and provide suggestions for improving knowledge information resource quality and platform benign development by analyzing development characteristics of knowledge payment platforms and online users' perception of product quality. Through questionnaire design and distribution, questionnaire collection, and statistical analysis of survey data, the study analyzes development characteristics of knowledge payment platforms and perception characteristics of online user groups regarding high-quality knowledge and information resources, and summarizes online users' perception characteristics of knowledge payment product quality.

The study finds that the main factors affecting knowledge payment platforms' improvement of information resource quality include: lack of screening and pro-

motion mechanisms for paid content, content homogenization, poor platform service quality experience, lack of policy supervision and copyright protection laws, and single marketing and profit models. These factors cause knowledge payment platform enterprises to face problems such as insufficient development momentum and low product repurchase rates during operation, affecting the improvement of information resource quality and sustainable platform development.

Based on these findings, the study proposes recommendations for knowledge payment platforms to improve information resource quality: knowledge payment platforms should use big data and cloud computing technologies to provide vertical and fractionalized high-quality content to attract more users; establish strict content evaluation, segmentation, audit, and recommendation mechanisms; create learning and communication zones, improve product information introduction, and enhance platform service quality; strengthen cooperation with hot-spot platforms to make knowledge payment a standard feature; industry authorities should accelerate the formulation of relevant policies and systems to guide, regulate, and supervise knowledge payment platforms; platform enterprises should actively adopt advanced technical means and innovative product models for copyright protection of paid content, actively create industrialized operation models of assembly-line production that integrate personal scenes, social interaction, and segmented content, provide users with better learning and safe consumption experiences, enhance users' perception of service quality, and promote sustainable platform development.

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