

Market Analysis of Cloud Education in China

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Abstract

This study examines cloud-based education platforms in China, focusing on the role of big data and AI in providing personalized learning resources and their impact on the smart education market. It finds that government support, societal focus on education, and technological progress are key factors driving the growth of online education. User service metrics are crucial for market development, and competition centers on diverse course offerings and personalized services. However, Chinese cloud education platforms face challenges such as uneven user distribution and domestic institutional limitations. The study concludes that companies must focus on emerging trends, innovate service systems, and pursue sustainable development through strategic enhancements.

Keywords

Distance education, Wisdom education, PEST analysis, Countermeasure research.

1. Introduction

In the current surge of digital transformation, education, which serves as the pivotal impetus for societal advancement, is experiencing significant upheavals. Specifically, China's cloud education platform [1], bolstered by its cutting-edge technology and robust capacity for resource integration, has been instrumental in innovating educational models, optimizing the allocation of educational resources, and fostering equitable and personalized educational development. As digital transformation progresses, the platform has not only broadened its functionalities and service scope but also now supports a diverse array of terminal devices and has developed a suite of tools, such as teacher preparation tools, personal resource libraries, live broadcast zones, and activity areas. These features offer capabilities like online test paper creation and offline practice, thereby greatly enhancing the utilization of educational resources. Moreover, the application scope of the platform has been substantially extended, particularly in the training of rural teachers, thereby augmenting their proficiency and awareness in utilizing the platform. In accordance with the directives of the Party Leadership Group of the Ministry of Education of China, the platform has also introduced resources for physical education, aesthetic education, and labor education, supported schools in implementing the national curriculum and organizing relevant extracurricular activities, and provided a wealth of high-quality digital educational resources for the independent learning of teachers and students, the improvement of teaching by teachers, and collaborative education between home and school.

On a global scale, the successful practice of smart education platform has brought us profound enlightenment. The modernization of education is not only the application of technology, but also the renewal of educational ideas. The student-centered and ability-oriented educational concept has been better realized with the support of digital technology. The success of the smart education platform not only provides valuable experience for the modernization of global education, but also depicts a diversified future education blueprint for optimizing the allocation of educational resources. In this blueprint, education is no longer simply imparting knowledge,

but stimulating the potential of each learner and cultivating their innovative ability and ability to adapt to the future through technological empowerment.

2. Correlation Background

2.1. Development Status of Smart Education Industry in China

Driven by policy support, technological progress and market demand, China's smart education industry has shown a trend of rapid development in recent years. Since 2012, the market size has increased from 223.3 billion yuan to 1,015.7 billion yuan in 2022, with a significant annual growth rate, especially after 2017. This is thanks to the Chinese government's efforts to promote the development of Education technology through the "Education Informatization 2.0 Action Plan" and other measures, while the application of artificial intelligence, big data and cloud computing technologies has promoted the popularization of personalized learning and intelligent teaching tools [2]. The utilization efficiency of educational resources is improved, students can customize learning plans according to their own conditions, and teachers can manage teaching more effectively. The demand for online education market continues to increase, especially during the epidemic, online education has become one of the main teaching methods, accelerating the expansion of online education market. However, with the development of the industry, it also faces some challenges, such as data security and privacy protection, uneven distribution of educational resources between urban and rural areas [3], and teachers' adaptability to new technologies. These problems need to be solved by strengthening the construction of laws and regulations, optimizing resource allocation and providing professional training. In general, China's smart education industry has a broad prospect, but problems such as technical resources and training need to be solved to achieve sustainable development.

2.2. Background Introduction of Cloud Education Platform

With the rapid development of digital technology, China's cloud education platform has made remarkable achievements in technological innovation, education mode reform and optimal allocation of educational resources, but it also faces many challenges [4]. With its strong technological advantages and resource integration capabilities, cloud education platforms are profoundly changing the traditional education model and promoting the fair and personalized development of education. Take the National Smart Education Platform as an example. By 2024, the platform had connected 519,000 schools, reaching 18.8 million teachers, 293 million school students and social learners. Users covered more than 200 countries and regions around the world, and the total number of visits to the platform exceeded 33 billion. This platform not only gathers massive educational resources, but also realizes accurate push of educational resources and customization of personalized learning paths through artificial intelligence, big data and other technologies.

However, some problems have also been exposed in the development process of cloud education platform, such as strong network dependence, insufficient teaching resources of some platforms, and simple interactive interface design. These problems affect user experience and educational effects to a certain extent. Nevertheless, the success of cloud education platform is driven by technological innovation, market demand and strong policy support [5]. In the future, cloud education platforms will continue to deepen technological innovation and promote the digitalization and personalized learning of educational resources, and cloud computing, big data, artificial intelligence and other technologies will play a more important role in the field of education. At the same time, the cloud education platform will pay more attention to the integration of online and offline [6], forming a hybrid learning model to meet diversified educational needs. In addition, the cloud education platform will also carry out more

cross-border cooperation and integration with other industries, promoting product diversification and the improvement of competitive advantages.

3. PEST Analysis of China Unique Cloud Education Platform Market

3.1. Political Environment

China's Ministry of Education recently launched the "double reduction" policy [7], aiming to reshape the education ecology by reducing the academic burden of students. The policy requires online training platforms to obtain official approval and hold a school license before they can operate. Meanwhile, primary and secondary schools have begun to offer free after-school tutoring and activities, a shift that has had a profound impact on traditional tutoring institutions and online education platforms. For example, the market value of education giant New Oriental fell sharply due to the policy adjustment, falling by more than 92%. For enterprises hoping to enter China's education market, how to provide unique and attractive online courses in addition to free school courses and avoid homogenization competition has become an urgent challenge. At the same time, the Chinese government attaches great importance to the development of cloud education platforms, viewing them as the key to promoting education modernization and balanced allocation of resources. The government has issued a series of policies, such as the New Generation Artificial Intelligence Development Plan, to encourage and support the innovation and development of cloud education platforms. These policies not only promote the digitalization and intelligentization of educational resources, but also ensure the healthy and orderly development of cloud education platforms by strengthening supervision, thus protecting the rights and safety of students. Looking ahead, with the continuous improvement of policies and the continuous development of the market, China's cloud education platform market is expected to usher in broader development prospects. The government will continue to introduce relevant policies to provide solid support for the development of cloud education platforms. Cloud education platforms will also continue to innovate and make greater contributions to education modernization and balanced allocation of resources.

3.2. Economic Environment

The rapid growth of China's economy provides a solid foundation for the development of the cloud education platform market. The remarkable growth in per capita annual disposable income of households, from 909 yuan in 1990 to 36,883 yuan in 2022, not only demonstrates the country's increasing economic strength, but also provides a solid material foundation for education spending. Chinese families invest particularly heavily in education, spending an average of 3,426 yuan per child on education, accounting for more than 20% of the average annual household income. This high percentage of willingness to spend on education, coupled with the huge number of students in China, has opened up a broad space for the development of the cloud education platform market. With the increase of household income and the improvement of savings rate, a large amount of savings are used for education investment, which further promotes the development of cloud education platform market.

In addition, the relaxation of the Chinese government's anti-epidemic policies and the launch of a series of economic stimulus packages have contributed to the sustained economic recovery, as shown in Figure 1 [8], with the GDP growth rate remaining high. The ratio of government expenditure on education to GDP has remained at around 4% for many years, indicating that the education industry will continue to receive subsidies and financial support from the government, providing a strong policy guarantee for the development of the cloud education platform market. At the same time, China's unique cloud education platform market is facing a good economic environment and has broad development prospects.

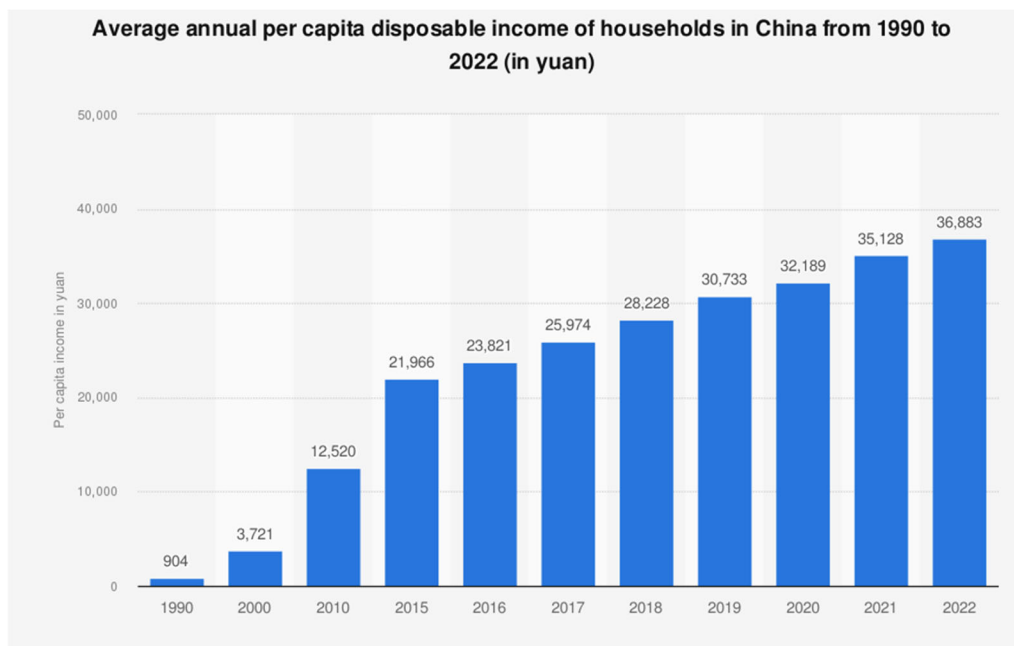


Figure 1. Average annual per capita disposable income of Chinese households from 1990 to 2022 (unit: Yuan)

3.3. Social Environment

(1) Cultural level: China's educational culture is deeply influenced by the imperial examination system, which has shaped the societal value placed on education. This cultural emphasis on academic achievement creates a fertile ground for the growth of online education platforms. These platforms are not only leveraging traditional educational values but are also incorporating innovative elements such as gamification and immersive teaching methods to enhance the learning experience. By integrating these multicultural aspects, online education platforms are able to cater to a wider audience and make learning more engaging and effective.

(2) Customer needs: the user base of online education platforms is highly diverse, encompassing various segments such as K-12 education, vocational training, and quality education. To effectively serve this varied audience, platforms must offer personalized services that cater to individual learning styles and preferences. Additionally, there is a need to address regional disparities in educational resources. By collaborating with top universities and non-profit organizations, online education platforms can extend their reach to underprivileged areas, providing high-quality educational resources to students who may not have access to them otherwise. This not only fulfills a social responsibility but also enhances the brand's reputation and influence.

(3) Flow strategy: the sustainable growth of online education platforms hinges on effective cash flow management. Implementing reasonable charging standards and embracing technological innovation are crucial for improving service quality and user experience. To manage the financial pressures that come with rapid expansion, online education enterprises must optimize their cash flow and explore various financing channels. This strategic approach ensures that the platforms can continue to invest in their services and technologies, maintaining a competitive edge in the market.

(4) Operational capability: the core strength of an online education platform lies in its operational efficiency, which is largely dependent on having a professional and dedicated team. To enhance their competitive position, online education institutions need to increase their investment in technological innovation, content optimization, brand building, and channel expansion. By focusing on these areas, platforms can deliver a superior educational experience, attract a larger user base, and establish themselves as leaders in the online education sector.

(5) Social justice and educational balance: in China, although online education resources are increasingly abundant, there are still significant differences in the distribution of education resources between different regions. Through the promotion of cloud education platforms, high-quality educational resources can be transported to remote and resource-poor areas, contributing to narrowing this gap. Achieving this goal not only depends on the technical strength of the platform, but also ensures the efficient transmission and interactive experience of teaching content; It is also necessary to establish an effective resource allocation mechanism to ensure the coverage of services is as wide as possible, so that every child can enjoy the opportunity of quality education.

(6) User behavior and social concepts change: with the development of society and the progress of technology, the views and expectations of parents and students on education are undergoing profound changes. Modern families are increasingly inclined to accept emerging educational models, such as one-on-one online tutoring and interest-oriented study groups. The rise of these new learning methods has prompted online education institutions to innovate constantly and provide more personalized and diversified course choices and services. In this way, whether seeking academic promotion or personal interest development, learners can find the most suitable learning path for themselves. This change emphasizes that education should pay more attention to individual differences and meet students with different backgrounds and needs, thus promoting their all-round development.

The innovation of online education needs to be based on the cultural heritage, accurately grasp the needs of customers, flexibly use cash flow strategy, and build a professional and efficient operation team to adapt to the development of the education market in the new era.

3.4. Technical Environment

While big data and artificial intelligence technologies are maturing, the introduction of blockchain technology is leading the online education platform to evolve in a more intelligent, personalized and customized direction. By combining the excellent transmission rate and low latency characteristics of 5G technology and the security and transparency given by blockchain technology, an efficient and secure cloud platform for smart education resources is built. On this platform, big data analysis can not only track and evaluate students' learning behaviors and effects in real time, but also transform these data into accurate personalized evaluation of students' learning progress and understanding depth with the help of AI technology. This teaching mode based on data analysis enables the cloud platform to quickly identify the problems encountered by students and provide more accurate and effective solutions, thus improving learning efficiency and quality. Each student's study habits, hobbies and knowledge mastery have become the basis for formulating personalized learning plans and question banks, which not only enhances the pertinence and effectiveness of learning, but also stimulates students' enthusiasm for learning and promotes the development of autonomous learning ability. In addition, the application of blockchain technology ensures the authenticity and integrity of educational resources, while protecting the privacy of users, so that user data can be properly managed and used.

With the continuous progress of algorithms and models, online education platforms continue to optimize their educational content to better meet individual needs. With the support of high-speed network, teaching forms become more diversified, such as high-definition video courses and real-time interactive teaching, which makes the distance education experience more vivid and interesting. The combination and development of all these technologies indicates that the online education platform is not only a medium of knowledge dissemination, but also an important force to promote education equity and improve education quality. This educational model will be more flexible and diverse in the future to meet the needs of learners of different levels and types. Through continuous innovation and improvement, the education platform will

continue to provide higher quality services for learners and promote the sharing and popularization of global educational resources.

4. Analysis of The Development Prospects of China's Unique Cloud Education Platform Market

4.1. Analysis of Consumer Behavior

China's online education market shows broad prospects and development potential. From the perspective of consumer behavior, users choose online education services mainly based on quality, price, reputation and brand, and tend to choose products that can bring the greatest utility. At the same time, irrational preferences such as recommendation, review and platform reputation also significantly affect consumer decision-making, especially for users who are first exposed to online education. Brand management occupies an important position in the market, consumers are highly concerned about the reputation and past performance of education providers, and the establishment of brand loyalty is an important goal of enterprises. In the competitive market, international platforms such as Coursera and Udemy occupy a place by virtue of extensive international brand recognition and professional course resources, while domestic institutions such as Hao Future and New Oriental provide targeted services through in-depth understanding of the Chinese education system and become market leaders [9]. Companies need to focus on the specialization and personalization of education mode to cope with the fierce market environment with differentiated competition.

4.2. Analysis of Consumer Demand

In-depth analysis of consumer demand reveals the diversification trend of the education market [10]. Education reform has promoted the demand for the training of scientific and technological talents. Through the strengthening plan of basic subjects and the youth competition plan, educational institutions can develop targeted courses to meet the demand for the training of scientific and technological talents. At the same time, the educational needs brought by the elderly population have changed the traditional way of education, from cultural entertainment to how to help the elderly adapt to social changes. Diversified and personalized courses should be developed to improve the learning experience of the elderly. In addition, considering the user groups in Taiwan, Hong Kong and Macau, the Company should develop courses tailored to the local language and needs, and take advantage of the opportunities in the Greater Bay Area to expand the market and develop courses for international students to enhance market competitiveness.

4.3. Business Opportunity Analysis

The analysis of business opportunities and challenges shows that China's online education market has great potential. The cultural course market and international certification course market brought by the penetration of Western culture have growth potential. Combined with the advantages of online platform, learning help can provide diversified course portfolio. At the same time, it is key to seize the opportunity of educational content innovation to develop a curriculum system that meets the needs of different users by combining basic disciplines and career development directions. In terms of market expansion, we will take advantage of the opportunities of the Greater Bay Area to expand to Hong Kong and Macau, develop courses for international students, and further expand the user group. However, the low-cost operation advantage of online mode is significant, but continuous investment is still needed in brand building to improve the quality and reputation of educational content and enhance market competitiveness.

4.4. Business Strategy Analysis

In terms of strategic suggestions, companies should build competitive advantages by integrating theory and practice. In the brand strategy, the quality and reputation of education should be emphasized to strengthen the trust of consumers. In the product strategy, diversified courses will be developed and artificial intelligence and VR will be applied to improve the learning experience; In the market expansion strategy, personalized operation strategies are formulated according to the needs of different regions, and cooperative relations are established with educational institutions and enterprises to expand market coverage. Through the above strategies, the company can occupy a leading position in the highly competitive market.

5. Development Strategies of China's Unique Cloud Education Platform Market

Under the current background of globalization and digitalization, China's cloud education platform is facing unprecedented development opportunities and challenges. According to data provided by Statista [11], as shown in Fig 2, the distribution of users on cloud education platforms varies significantly among different countries and regions, with the United States ranking first with 51%, followed by the United Kingdom and Canada with 41% and 22%, respectively. This data reflects the global popularity of cloud education and its acceptance in different regions, and also hints at the potential development space of Chinese cloud education platforms in the international market.

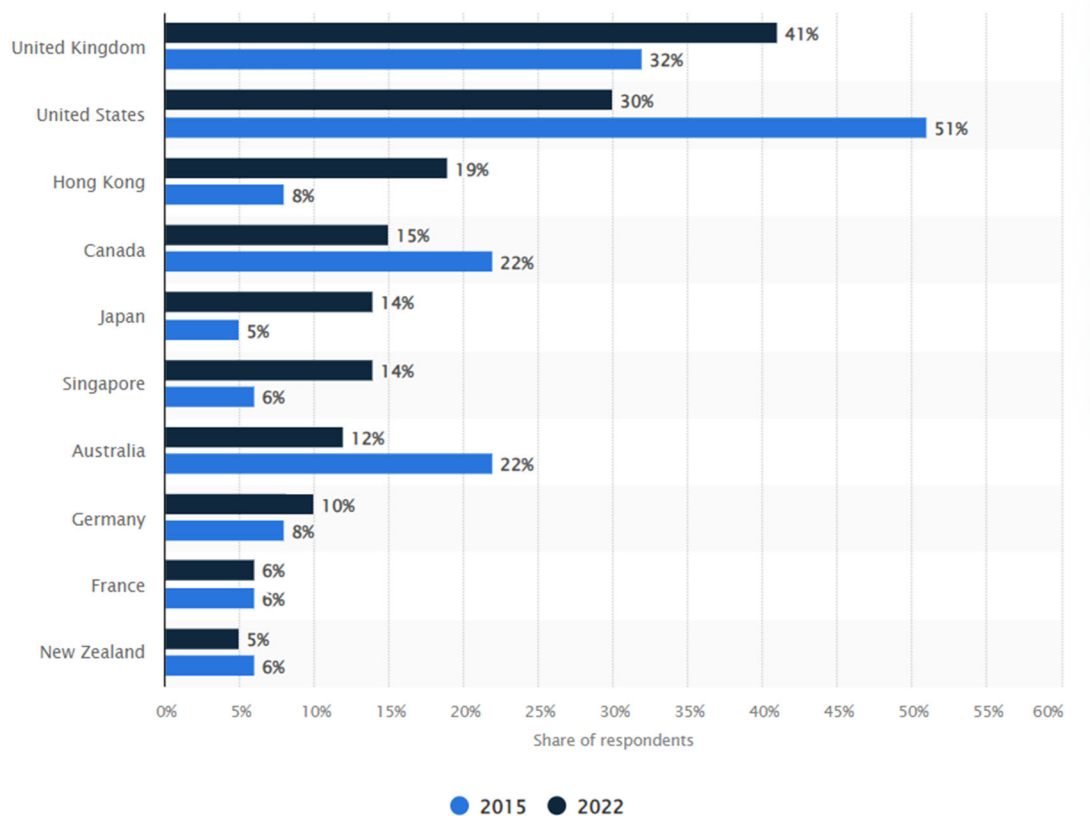


Figure 2. Comparison of user distribution on cloud education platforms by country

5.1. Opportunistic Countermeasures

(1) With the infiltration of western culture in China's mainland, especially the popularity of western catering culture (such as baking, wine, coffee, etc.), the market supply of related online courses is relatively limited, but the market potential is increasing year by year. In addition, the international certification of adult interest courses can increase the attraction of "learning assistance", attract more users through online education and reduce operating costs..

(2) The trend of China's future education reform shows that it is an urgent need for the country to cultivate top scientific and technological talents. First-class universities such as Tsinghua University and Peking University have participated in the "Basic Discipline Enhancement Plan", and the practice of targeted training of science and technology students will lead to the trend of developing the enrollment target of Chinese universities in the direction of science and technology. Learning Help can offer online courses on basic subject enhancement programs and youth competitions to expand the user base of young people and their parents.

(3) With the rising proportion of the elderly population and the aggravation of population aging, the issue of education for the elderly has become the focus of social attention. Learning assistance should seize this opportunity, pay attention to the importance of education for the elderly, and launch a curriculum system that meets the diverse and personalized needs of the elderly.

(4) Considering the frequent cooperation in education between Taiwan Province and the mainland, as well as the special geographical location and cultural background of Hong Kong and Macao, learning assistance can take residents in these areas as potential user groups and develop curriculum content suitable for them.

5.2. Challenge analysis and countermeasures

Uneven distribution of users: As many parts of China are limited by hardware or lack of educational resources to access or understand online education platforms, the challenge for Learning Help is to gain the support of this user group.

Core business saturation phenomenon: China's education market is saturated and highly segmented [12], and new entrants need to face crowding out and competition from incumbents. Learning help requires targeting the core business and positioning yourself within the segment.

Limitations of China's indigenous system: Whether credits for study assistance courses can be recognized by the education commission, and whether online learners can be recommended to work in companies, perfect these essential tasks are great challenges for China's education and employment system.

Intellectual property issues of courses: As a cloud education platform, Learning Help also faces the problem of how to effectively protect the intellectual property rights of lecturers. If this problem is not solved, the cooperation and localization between learning aid and Chinese universities will stagnate, which is very detrimental to the development of learning aid.

6. Conclusion

Under the background of digital age, the online education market in China has shown great potential and development value, and has become an important force to promote educational modernization and social progress. Cloud education platform provides personalized learning resources by using big data and artificial intelligence technology, and plays an important role in the smart education market in China. The support of government policies, social attention to education and technological progress are the key factors to promote the rapid development of online education. User service indicators provide important guidance for market development, and diversified courses and personalized services have become the focus of competition.

China cloud education platform is facing challenges such as uneven distribution of users and limitations of local system, which need to be solved urgently to achieve the improvement and stable development of educational environment. Enterprises need to pay attention to the future trend, and promote the improvement of educational environment and achieve stable development through innovation and optimization of service system. Digital transformation promotes China Cloud Education Platform to expand its functional service capabilities, support the use of various terminals, and develop teachers' teaching tools, personal resource library, live broadcast area, activity area, etc. The application scope of the platform has been significantly expanded, and the application training for rural teachers has enhanced their awareness and ability to use the platform. The platform also launched physical education, aesthetic education and labor education resources, supported schools to run national courses and organize related extracurricular activities, and provided rich high-quality digital education resources for teachers and students' autonomous learning, teachers' teaching improvement and home-school collaborative education.

The successful practice of the intelligent education platform reveals how digital technology profoundly changes the traditional education model and provides valuable enlightenment for the global education modernization. With the continuous progress of technology and in-depth application, cloud education platform is expected to play a greater role in the future and promote the further development and innovation of education.

The online education market in China has great development potential and value. The innovation and optimization of cloud education platform will provide important support for the improvement of educational environment and the realization of educational modernization. Future research and practice need to pay more attention to the long-term development trend of education industry, and promote the sustainable development and social progress of education industry through technological innovation and optimization of service system.

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