

# Innovative Exploration of College Admission Promotion Work in the Era of Big Data

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**Abstract:** Against the backdrop of the rapid development of big data technology, college admission promotion work has ushered in new development opportunities and challenges. The traditional admission promotion model can no longer meet the demand for accurate information acquisition among candidates and parents in the new era, nor can it satisfy the development goal of differentiated enrollment in colleges and universities. Based on the characteristics of the big data era, this paper deeply analyzes the practical dilemmas faced by current college admission promotion work, and explores innovative paths for college admission promotion from multiple dimensions such as data integration, precise communication, channel innovation, and talent cultivation. It aims to provide theoretical reference and practical guidance for colleges and universities to improve the effectiveness of admission promotion and attract high-quality students.

**Keywords:** Big data; College admission; Promotion work; Innovative paths

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## 1. Introduction

As China's higher education enters the popularization stage, the competition for college enrollment has become increasingly fierce. As a key link to attract high-quality students, admission promotion has become more and more important. With the core advantages of massive data collection, precise analysis, and efficient application, big data technology provides technical support for the transformation and upgrading of college admission promotion work. However, most colleges and universities still use traditional models for admission promotion, failing to give full play to the application value of big data, resulting in problems such as poor promotion effectiveness and resource waste<sup>[1]</sup>. Based on this, in-depth exploration of the dilemmas and innovative paths of college admission promotion in the era of big data is of great practical significance for promoting the high-quality development of college admission work and optimizing the student source structure.

## **2. Dilemmas faced by college admission promotion in the era of big data**

### **2.1. Severe data fragmentation**

Currently, most colleges and universities have the problem of scattered data resources in admission promotion work, failing to form a unified data source and data management system. Relevant departments such as the admission office, academic affairs office, and student affairs office all hold part of the data related to admission, such as historical enrollment data, student source regional distribution data, major application popularity data, and students' on-campus development data. However, these data are often stored in different information systems with inconsistent data standards, irregular formats, and a lack of effective data sharing mechanisms between departments<sup>[2]</sup>. This fragmented data situation makes it difficult for colleges and universities to comprehensively integrate and conduct in-depth analysis of student source data, and unable to accurately grasp the application needs and psychological characteristics of candidates from different regions and levels. As a result, the admission promotion work lacks pertinence and is difficult to achieve precise efforts. At the same time, data fragmentation increases the workload of data collection and collation, reduces the efficiency of admission promotion work, and causes a waste of human, material and other resources.

### **2.2. Insufficient promotion precision**

Traditional college admission promotion mostly adopts a “broadcast” model, carrying out promotion through distributing promotional brochures, holding offline admission consultation meetings, and placing advertisements in mass media. This model is difficult to accurately target potential candidates, and the promotional content is often identical, failing to meet the personalized needs of different candidates. In the era of big data, the channels for candidates and parents to obtain information have become increasingly diversified, and their requirements for information precision and personalization are constantly improving. However, due to the lack of precise analysis of candidate data, current colleges and universities cannot accurately identify key information such as candidates' interests, professional tendencies, academic performance, and family backgrounds, leading to a mismatch between promotional content and candidate needs<sup>[3]</sup>. For example, for high-achieving candidates inclined to science and engineering majors, they fail to focus on pushing information such as the advantages and characteristics, faculty, and scientific research achievements of relevant majors; for candidates concerned about employment prospects, there is a lack of precise presentation of data such as the employment rate, employment direction, and salary level of each major. This reduces the attractiveness and persuasiveness of admission promotion, making it difficult to effectively impress potential candidates.

### **2.3. Poor adaptability of communication channels**

With the development of Internet technology, the channels for candidates to obtain college admission information have shifted from traditional print media and television media to emerging channels such as short video platforms, social media, and live streaming platforms. However, the admission promotion of some colleges and universities still relies excessively on traditional communication channels, insufficiently utilizes emerging communication channels, and lacks an accurate grasp of the characteristics of different communication channels, resulting in poor communication effects. On the one hand, traditional communication channels have drawbacks such as limited information dissemination scope, poor timeliness, and weak interactivity, making it difficult to reach the majority of young candidates<sup>[4]</sup>; on the other hand, although some colleges and universities attempt to use emerging communication channels, they lack professional operation capabilities, and the promotional content is single, mostly simple accumulation of text and pictures. They fail to create characteristic content such

as short videos, live Q&A, and online campus open days that meet candidates' preferences in combination with channel characteristics <sup>[5]</sup>. In addition, colleges and universities lack effective data monitoring and evaluation of the communication effects of different communication channels, and cannot adjust communication strategies in a timely manner, leading to a disproportionate relationship between the investment of promotional resources and communication effects.

### **3. Innovative paths of college admission promotion in the era of big data**

#### **3.1. Construct an integrated data integration system**

To solve the problem of data fragmentation, colleges and universities need to construct an integrated data integration system to realize the centralized management, efficient sharing, and in-depth mining of admission-related data. First, establish a unified university-level data management center, clarify the working mechanism led by the admission office, supported by the information technology department, and coordinated by relevant departments, breaking down data barriers between departments. On this basis, comprehensively sort out various data such as historical admission scores, student source regional distribution, major application rates from the admission office, curriculum settings and professional characteristics from the academic affairs office, academic atmosphere construction and community activities from the student affairs office, and employment rate, employment unit types, and salary levels from the career guidance center. Formulate unified data collection standards, format specifications, and update mechanisms to ensure data consistency and timeliness <sup>[6]</sup>. Second, actively expand the scope of data collection, break through the limitations of traditional on-campus data, and actively connect with high school education stage data platforms to obtain key information such as candidates' academic proficiency test scores and comprehensive quality evaluation files; at the same time, collect multi-dimensional data such as candidates' online behavior data, information acquisition preferences, professional interest tendencies, family economic status, and further education demands through web crawler technology, user research questionnaires, and online consultation interaction records, constructing a full-chain student source database covering "candidates - high schools - colleges and universities - society" <sup>[7]</sup>. In addition, it is necessary to strengthen data security management, establish and improve a classified data management system, encrypt the storage of candidates' personal sensitive information and control access rights, strictly standardize the operation processes of data collection, storage, use, transmission and other links, equip professional network security technical personnel, and regularly carry out data security hazard investigations and emergency drills to ensure that candidates' personal information security is not violated.

#### **3.2. Realize precise promotion based on data portraits**

On the basis of the integrated data integration system, colleges and universities should use big data analysis technology to deeply mine student source data, construct precise candidate data portraits, and realize the transformation of admission promotion from "broadcast" to "precision drip irrigation". First, clarify the construction process of data portraits: first, use data cleaning technology to eliminate invalid data and correct erroneous data to ensure the purity of the data source; then use algorithms such as cluster analysis and association rule mining to extract core characteristic indicators of candidates from massive data, such as academic performance, professional tendencies, interests, family background, regional characteristics, information acquisition habits, and further education plans, and then construct individual and group portraits of candidates with both individual differences and group commonalities <sup>[8]</sup>. Among them, individual portraits focus on the

personalized needs of a single candidate, such as a candidate who is good at mathematical analysis, interested in aerospace engineering, and inclined to an employment-oriented training model; group portraits target the common characteristics of specific groups, such as high-scoring candidates in a certain province who prefer comprehensive universities, and candidates from rural areas who pay more attention to student aid policies and employment security. Second, formulate differentiated promotion strategies based on candidate portraits and push personalized promotional content and services. For high-achieving candidates with potential in scientific research, focus on pushing information such as national-level scientific research platforms, top faculty teams, major scientific research achievements, postgraduate admission rates, and academic exchange programs of relevant majors, and invite professors from relevant majors to record academic sharing videos to enhance academic attractiveness<sup>[9]</sup>; for candidates concerned about employment prospects, focus on pushing data such as the employment rate, employment direction, and salary level of each major, and organize outstanding graduates to carry out live broadcasts of employment experience sharing; for candidates from low-income families, accurately push interpretations of student aid policies such as national grants, university scholarships, and work-study positions<sup>[10]</sup>; for candidates from different regions, targetedly push region-specific admission plans and local preferential policies in combination with local admission policies, student source base, and historical admission situations, improving the precision and effectiveness of promotion.

### **3.3. Create a diversified and integrated communication channel**

Colleges and universities should comply with the laws of information dissemination in the new media era, break the limitations of traditional single channels, and create a diversified and integrated communication system of “traditional channels + emerging channels” with complementary advantages, comprehensively improving the coverage, penetration, and influence of admission promotion. On the one hand, scientifically optimize traditional communication channels, retain their offline interaction advantages, and inject big data elements. For activities such as offline admission consultation meetings and campus open days, use big data analysis to predict the student source scale and needs in different regions in advance, reasonably plan the number and locations of activities, and accurately invite candidates and parents from target middle schools; set up intelligent consultation terminals at the event site, integrate the admission information database to provide candidates with personalized information query services, and collect on-site consultation data to provide a basis for subsequent promotion optimization. In addition, deepen cooperation with key middle schools, establish a “college - middle school” collaborative promotion mechanism, and enhance the pertinence and credibility of promotion by dispatching outstanding teachers to give subject lectures and establishing student source bases<sup>[11]</sup>.

On the other hand, vigorously expand emerging communication channels and improve professional new media operation capabilities. On short video platforms (such as Douyin, Kuaishou, Bilibili), create promotional content that is both interesting and professional in combination with candidates' preferences, such as “professional revelation series”, “campus life Vlogs”, “senior experience sharing”, and “admission policy interpretation animations”, and reach potential candidates through precise algorithm recommendations; on social media platforms (such as WeChat official accounts, Weibo, Xiaohongshu), build a hierarchical promotion matrix: WeChat official accounts focus on in-depth interpretation of authoritative information such as admission policies and professional characteristics, Weibo focuses on real-time interaction and hot topic operation, and Xiaohongshu focuses on sharing daily content such as campus life and application strategies to meet candidates' information acquisition needs in different scenarios<sup>[12]</sup>. At the same time, regularly carry out online live activities, such as “deans interpreting majors online”, “admission office teachers' Q&A sessions”, and “cloud campus

tours”, inviting professional teachers, current students, and graduates to participate together to enhance real-time interaction with candidates and parents and narrow the distance between colleges and universities and candidates<sup>[13]</sup>. In addition, establish a multi-dimensional communication channel effect evaluation system, use big data to analyze core indicators such as the information dissemination volume, reading volume, interaction volume, and conversion volume (such as consultation volume, number of people registering for campus open days) of each channel, quantify the promotion effect of different channels, clarify the advantages and improvement directions of each channel, and accordingly allocate promotional resources reasonably and optimize communication strategies to achieve the goal of “precision placement and efficient communication”.

### **3.4. Cultivate a professional admission promotion talent team**

A professional talent team is the core guarantee for the innovative development of college admission promotion in the era of big data. To address the current shortage of talent, colleges and universities need to make efforts from multiple dimensions, such as training, introduction, and incentives, to build a compound talent team with admission professional literacy, big data technology capabilities, and new media operation capabilities.

First, establish a systematic talent training mechanism. Regularly organize special training for admission promotion staff, covering the operation and application of big data collection and analysis tools (such as Python, SPSS, Tableau), new media content creation and operation skills (such as short video script writing, live broadcast planning, fan operation), admission policy interpretation, marketing theories, etc., and invite industry experts, technical backbones, and outstanding peers to give lectures and share experiences; at the same time, build an internal exchange and learning platform, encourage staff to rotate across departments, deeply understand the business processes and data resources of academic affairs, student work, career guidance and other departments, and improve comprehensive business capabilities<sup>[14]</sup>.

Second, increase the introduction of professional talents. Publicly recruit compound talents with professional backgrounds such as big data analysis, new media operation, and marketing planning from the society, clarify post requirements and division of responsibilities, and strengthen the core admission promotion team; at the same time, establish cooperation with relevant majors such as computer science and journalism and communication in colleges and universities, introduce outstanding fresh graduates or invite professional mentors to provide technical guidance, injecting fresh vitality into the talent team.

Third, establish a scientific and reasonable incentive mechanism. Formulate clear job responsibility descriptions and performance appraisal standards, directly link promotion effectiveness (such as promotion coverage, consultation conversion rate, admission rate of high-quality students) with performance appraisal, selection of excellent employees, and professional title promotion, and give material rewards and spiritual recognition to individuals or teams that perform outstandingly and achieve remarkable results in promotion work, fully mobilizing the enthusiasm and initiative of staff<sup>[15]</sup>. In addition, strengthen inter-departmental collaboration, establish a multi-department linkage working mechanism including the admission office, information technology department, publicity department, and student affairs office, clarify the responsibilities and division of labor of each department in admission promotion work, strengthen information sharing and collaborative cooperation, and form a joint work force.

## **4. Conclusion**

The era of big data provides unprecedented opportunities for the innovative development of college admission

promotion work, while also bringing many challenges. Current college admission promotion work faces dilemmas such as data fragmentation, insufficient precision, poor adaptability of communication channels, and a lack of professional talent. By constructing an integrated data integration system, realizing precise promotion based on data portraits, creating a diversified and integrated communication channel, and cultivating a professional talent team, these dilemmas can be effectively solved, and the effectiveness of admission promotion can be improved. In the future, colleges and universities should continue to deepen the application of big data technology in admission promotion work, constantly optimize innovative strategies to adapt to the needs of higher education development in the new era, attract more high-quality students, and promote the high-quality development of college education.

## Disclosure statement

The author declares no conflict of interest.

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