

# Methods and Approaches for Precise Job-Person Matchmaking in Private Universities through the Integration of Big Data and Personality Assessment

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**Abstract:** In recent years, the number of graduates has been increasing annually, significantly intensifying employment pressures for college students. Employment remains a critical aspect of public welfare; the quality of graduate employment and career development is closely linked to institutional reputation and sustainable development, while also influencing regional talent supply and economic growth. This study integrates big data technology with personality assessment tools and proposes a systematic curriculum-based framework tailored for private universities to enhance the precision of job-person fit. Addressing current challenges and needs in university career guidance, the research combines dynamic job demand analysis based on big data with popular personality assessment instruments to create a “dual-dimensional profile” encompassing students’ career preferences and market-specific job characteristics. Building upon this foundation, a data-driven, differentiated career guidance curriculum system is developed. The findings provide new insights and practical references for fostering high-quality applied talent development and enhancing career guidance in private higher education institutions.

**Keywords:** College student employment; Personality assessment; Precision employment guidance; Curriculum intervention; Person-job fit

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## 1. Introduction

Both the 2026 Government Work Report and the 15th Five-Year Plan Outline emphasize the integrated advancement of education, technology, and talent development, calling for breaking the uniformity among universities and enhancing quality through expansion. They propose establishing a core evaluation system for applied universities focused on “solving industry challenges and cultivating practical skills.” Private universities face dual pressures from expanding graduate populations and intensifying structural

contradictions in career guidance <sup>[1]</sup>. On one hand, big data and artificial intelligence are transforming human resources management—intelligent job-person matching systems and generative AI applications enable precise employment services. On the other hand, interdisciplinary integration will become standard practice, with AI serving as a key driver that pushes research beyond traditional frameworks to achieve broader innovations <sup>[2]</sup>. However, current studies predominantly focus on specific technologies or recruitment practices in tech-driven companies, paying insufficient attention to the unique characteristics of private university students or tailored guidance combining personality assessments with curriculum interventions. This paper explores a practical pathway from curriculum design to personalized job-matching strategies to address employment challenges faced by graduates in the digital-age era.

## **2. Theoretical foundations of big data applications and person-job matching**

### **2.1. Personality type theory**

The renowned psychologist Carl Jung categorized personality into introverted and extroverted types, with the former characterized by inward reflection and the latter by outward exploration. He subsequently proposed four psychological functions: sensation, intuition, thinking, and emotion. When combined with personality traits, these functions yield eight distinct personality types. Most individuals fall into one or more of these categories, while some may exhibit both introversion and extroversion. Jung's personality type theory laid the foundation for the MBTI model; Myers later expanded upon introversion/extroversion and the four psychological functions by adding two additional dimensions: judgment and perception. The resulting combinations include: extroverted-introverted, sensation-intuition, thinking-emotional, and judgment-perception. This framework eventually evolved into a widely recognized tool for assessing professional personalities and gained significant popularity.

The core of Holland's Theory of Occupational Interest lies in integrating an individual's personality with their occupational interests to match them with suitable environments. When placed in a work environment consistent with their personality type, individuals are most likely to experience job satisfaction and fully utilize their talents <sup>[3]</sup>. Conversely, when exposed to an opposite environment, they struggle to find joy or feel competent at work. These theories help college students gain a faster and deeper understanding of themselves and develop a correct self-perception. By linking self-awareness with career choices, students can continuously refine their career decisions as they grow physically and mentally, ultimately achieving the optimal alignment between their occupational interests and working environments. These theories provide a foundation for scientifically assessing individual differences and predicting career paths, serving as the logical starting point for transitioning from curriculum interventions to effective person-job matching.

### **2.2. Big data-driven logic of career guidance**

Information technology, remote control technology, and human-machine collaboration have enriched the forms of employment in the era of artificial intelligence <sup>[4]</sup>. The logic of career guidance driven by big data is based on the acquisition and processing of large-scale, multi-source data, transforming traditional experiential guidance into data-driven scientific decision-making. This approach utilizes data mining and machine learning to analyze students' behavioral patterns, competencies, and market job requirements, establishing models to identify underlying relationships and patterns. Its objective is to translate broad overarching principles into concrete, personalized applications at the individual level, shifting career choices from being

“based on experience” to being “guided by algorithmic prediction,” thereby delivering more tailored and targeted employment services.

The integration of data with personality assessment enables this goal to be achieved by creating predictive models and developing personalized training programs based on students’ current conditions and potential future personality traits, thereby enhancing the effectiveness of job-personality alignment.

### **3. Analysis of current issues**

#### **3.1. Lack of data application**

Currently, private universities in China have widely implemented career guidance programs, though their application of big data and personality assessment technologies remains in its early stages. These programs primarily rely on experience-based approaches and general education courses, lacking systematic collection and analysis of students’ multi-dimensional behavioral data and individual characteristics, resulting in a superficial understanding of student differences. The absence of such data also prevents the transition from generalized group counseling to personalized job-person fit matching.

#### **3.2. Mismatch between course supply and demand**

In employment guidance courses offered by private universities, there exists a disconnect between the course content and societal needs. The curriculum predominantly focuses on traditional theories, while teaching applications of emerging technologies such as big data analytics and artificial intelligence remains limited. Consequently, the job-seeking skills students acquire fail to meet the demands of the intelligent recruitment era, and the support provided by these courses cannot satisfy new requirements arising from social development and technological advancement. This significantly undermines the effectiveness of employment guidance courses and hinders the achievement of precise job-person fit <sup>[5]</sup>.

#### **3.3. Inefficient matching between personnel and job positions**

In career guidance services at private universities, the efficiency of matching students with suitable positions remains severely inadequate. Traditional assessment and recommendation methods predominantly rely on fixed indicators and standardized models, overlooking students’ behavioral performance and skill development during their studies, resulting in a superficial understanding of individual candidates. Meanwhile, job requirement information remains outdated; new position requirements generated by artificial intelligence and big data are not updated promptly, failing to reflect current industry trends. Consequently, the developed talent cultivation plans and career guidance strategies lack accuracy and relevance. These two factors collectively undermine the effectiveness of the entire process as a closed-loop system.

#### **3.4. The support system is outdated**

The employment guidance support systems in private universities suffer from deficiencies in both technical infrastructure and service personnel. Most institutions lack a comprehensive big data platform, as students’ individual characteristics and employment information are scattered across various sources, making effective integration and analysis impossible. Furthermore, there is a shortage of faculty members with backgrounds in data science and psychology; even when relevant data is available, it cannot be adequately analyzed or utilized, hindering the sustained delivery of targeted employment guidance services.

## **4. Design of practical implementation pathways**

### **4.1. Reconstruction of the curriculum system**

Curriculum reform is pivotal to delivering targeted career guidance, which involves integrating big data-based personality assessments throughout the entire teaching process. For instance, personality assessments can be incorporated into courses on data literacy and personal cognition; tests such as MBTI personality types and personal career interest preferences should be added to courses like college students' career planning and employment guidance, with students required to carefully analyze their results to understand how their personality traits relate to future career paths. Additionally, practical projects related to job profiles can be embedded in certain specialized courses—for example, by introducing MBTI testing early in experimental sessions like job search simulations or corporate operation simulations, allowing students to select appropriate positions based on their results and thereby develop key competencies aligned with target roles through simulated tasks.

### **4.2. Implementation of assessment tools**

The implementation of assessment tools requires reliance on intelligent platforms that dynamically link personality trait data with job requirement models. Integrating the MBTI personality assessment into these platforms enables students to identify their MBTI type during course initiation. However, as students undergo psychological development, their personality types may evolve; thus, platforms must track daily learning progress and conduct annual assessments to ensure continuous updates. With ongoing advancements in big data technologies and AI, traditional human-assisted candidate-job matching is being replaced by intelligent models. After its introduction, MBTI gained widespread popularity in Europe and America, where senior executives and HR managers at renowned companies like PepsiCo and PolyLai utilize it for candidate screening. In recent years, MBTI has emerged in China, with many domestic enterprises employing it for initial candidate selection. Many HR professionals now categorize types such as ISFP or INTP as ineligible candidates, making MBTI a rapid screening tool when sufficient candidates are available. This necessitates universities to collaboratively establish data standards and algorithmic ethics frameworks with enterprises, fostering early-stage industry-academia partnerships. The core application of these tools lies in transforming static assessments into dynamic matching processes, providing real-time data support for precise candidate-job alignment.

### **4.3. Analysis of key functional modules**

First, data modeling analysis aims to establish a dynamic matching approach that links student characteristics with job requirements. As shown in Table 3-1, by aggregating information on students' course performance, academic status, psychological tests, and behavioral data, a comprehensive profile of their personality traits and abilities—a multidimensional personality and competency profile—is generated. Based on corresponding corporate job descriptions, competency models, and relevant market information, the system automatically generates a demand profile for each position, followed by the application of machine learning techniques to identify potential matching patterns<sup>[6]</sup>. This model represents not a simple, one-time, static person-job match; it can continuously evolve alongside student development and market changes, providing targeted career guidance.

**Table 1.** System-wide person-position matching analysis table

| Surname and personal name | Grade | Specialty                     | Job Title            | Key Competency Requirements                                                             | Superiority                                                                       | Need improvement                                                     | Personality type | Match Rate% |
|---------------------------|-------|-------------------------------|----------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------|-------------|
| Wang                      | 2024  | Marketing Management          | Sell                 | Oratory skills, adaptability                                                            | Exhibits strong verbal expression skills and robust logical thinking abilities.   | Liability Insurance, Experience                                      | ENTP             | 93          |
| Person Chen               | 2025  | Computer Science              | New Media Operations | Aesthetic ability and expressive ability                                                | Sensitive, meticulous, and expressive                                             | Social skills, communication skills                                  | INFP             | 95          |
| Zhang                     | 2025  | Big Data and Accounting       | Accounting           | Professional software skills, data processing capabilities, and relevant certifications | Careful, patient, and possesses outstanding learning ability.                     | Relevant experience and skill certifications                         | ISTJ             | 90          |
| Mr.Li                     | 2026  | Chinese Linguistic Literature | Game Design          | Document writing skills, data analysis and modeling, aesthetic judgment                 | Sensitive, meticulous, highly responsible, and proficient in verbal communication | Pressure resistance, data processing capability, relevant experience | INTJ             | 80          |

Second, functional algorithms can be embedded within the system to automatically calculate matching scores based on job requirements and students' characteristics. Additionally, leveraging the skills required for each position, the system can automatically remind students of which specific skills or certifications they need to acquire at different stages. For instance, during their first year, students should focus on obtaining essential certificates such as College English Test Band 4 (CET-4), Mandarin proficiency certification, and Computer Level 2 certification; in their sophomore year, they should advance further by pursuing CET-6, a driver's license, and participating in various professional competitions; during their junior year—the critical preparation period—they should aim to obtain professional skill certifications like Teacher Qualification Certificate, Legal Professional Qualification Certificate, and Accounting Certification; and in their senior year, the system should intelligently recommend various public institution examinations and corporate recruitment opportunities, tailoring support to meet specific job requirements and helping students enhance their competencies promptly.

Third, precision matching services integrate big data and personality assessments to establish a dynamic job-person fit model. By leveraging artificial intelligence to analyze and compare vast amounts of job-related information with individuals' multifaceted characteristics, the system automatically identifies suitable positions and predicts future trends, enabling students to understand their career development paths better. This approach not only enhances matching efficiency but also fundamentally aligns students' profiles with job requirements, providing crucial technical support for transitioning from broad guidance to tailored services.

## 5. Validation of application performance

The course intervention employed big data-based personality assessments, significantly enhancing students'

self-awareness and their ability to plan future careers at private universities. Following the intervention, students gained a deeper understanding of how well their personal characteristics align with job requirements, reducing uncertainty. This demonstrates that data-driven teaching activities can effectively bridge the gap between students' expectations and actual career demands, laying a solid foundation for precise job-person fit matching.

To evaluate the effectiveness of this model, we designated the 2024 cohort of Human Resource Management graduates who completed the full curriculum and underwent assessment interventions as the experimental group, while former students who did not participate in these programs served as the control group for follow-up tracking. A post-graduation comparison analysis revealed that the experimental group demonstrated significantly higher rates of job relevance, starting salaries, and employer satisfaction compared to the control group. This confirms that utilizing big data-based personality assessments to provide targeted recommendations can substantially improve job-person fit. The key aspect of this approach lies in enabling students not only to recognize their surface-level traits but also to make assessment results readily accessible resources to bridge the gap between students and suitable positions. The integration of big data with personality assessment not only enhances job-person alignment but also supports students' career development.

## **6. Conclusion**

This paper employs big data technology and personality assessment tools to implement targeted career guidance programs in private higher education institutions. This approach leverages curriculum-based interventions to holistically enhance students' overall competencies and professional skills, complemented by data analysis to achieve optimal job-person fit outcomes. These findings demonstrate that data-driven personalized guidance significantly improves graduate employment rates and career adaptability. Future research should focus on further advancing the application of technological methods in personalized education strategies.

While this study represents a preliminary exploration of an employment guidance model integrating big data and personality assessment, it still has certain limitations. The research primarily focused on students from a single cohort at a private university, and its applicability across diverse types of higher education institutions requires further investigation. Key aspects such as how to effectively link curriculum interventions with job-personality matching during implementation, the efficacy of this approach, and potential improvements lack sufficient data support. Future studies should expand the research scope and establish long-term tracking evaluation mechanisms to investigate further the potential of combining big data and personality assessment in career development guidance at private universities, while exploring ways to enhance artificial intelligence's integration into classroom teaching for improved job-personality alignment.

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## Disclosure statement

The author declares no conflict of interest.

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