

Research on the Alienation Transformation and Remolding Path of College Students' Employment Outlook in the Data-Intelligence Era

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Abstract

With the rapid popularization of digital technologies such as big data, artificial intelligence and cloud computing, the data-intelligence era has exerted an all-round and in-depth reshaping effect on China's labor market. As contemporary college students who are "Internet natives", their employment concepts, career selection preferences and career development paths are undergoing unprecedented changes. This paper systematically sorts out the multi-dimensional impacts of the data-intelligence era on contemporary college students' employment outlooks. Combined with the data from the questionnaire survey on college students' employment outlooks, it deeply analyzes the internal motivations for the transformation of college students' employment outlooks. From three dimensions including the construction of college employment guidance systems, the improvement of school-enterprise collaborative education mechanisms, and the enhancement of individual students' employability, this paper proposes an innovative guidance model for cultivating college students' correct employment outlooks in the data-intelligence era. The study finds that college students' employment choices in the data-intelligence era have shifted from the traditional "pursuit of stability and conformity" to "diversity and autonomy", but at the same time, they are also faced with practical problems such as fragmented career cognition, intensifying employment anxiety and blurred value orientation. Colleges and universities need to build a trinity employment guidance system featuring "value guidance + skill empowerment + targeted services", so as to help college students establish employment concepts that adapt to the needs of the times in the tide of data intelligence, comprehensively improve their core employment competitiveness, and achieve higher-quality full employment.

Keywords

Data-Intelligence Era; College Students' Employment Outlook; Employment Guidance Model; Employability Improvement.

1. Introduction

Multi-dimensional Impacts of the Data-Intelligence Era on Contemporary College Students' Employment Outlook. With the advent of the artificial intelligence era, the job market is undergoing a major transformation, and the employment concepts and employment choices of contemporary college students are also gradually undergoing profound changes. The full penetration of data-intelligence technologies is reconstructing the underlying logic of the entire job market, bringing disruptive changes to job forms, information dissemination methods and career development paths. Such changes directly affect college students as the main body of job seekers, promoting the accelerated transformation of their employment concepts from the traditional paradigm to the new data-intelligent paradigm. Against this backdrop, it is urgent to redefine the meaning of labor from the level of value guidance, guide contemporary college students to establish a correct employment outlook from the level of technical cognition, and

reshape the cultivation path of college students' employability from the level of education model innovation, so as to provide practical guidance for colleges and universities to promote high-quality full employment of college students in the artificial intelligence era.

1.1. Comprehensive Expansion of the Boundaries of Employment Choices

Before the advent of the data-intelligence era, college students' employment choices were long concentrated in traditional standardized employment scenarios such as state-owned enterprises, public institutions, and large private enterprises, with relatively fixed career paths and clearly defined industry boundaries. With the vigorous development of the digital economy, a large number of emerging occupations have sprung up like mushrooms: new occupations such as AI trainers, data labelers, short-video operators, and digital twin engineers have been continuously included in the national occupational classification catalogue, completely breaking the boundary restrictions of traditional employment. Various online employment service platforms built by data-intelligence technologies enable college students to access recruitment information from all over the country and even the world without leaving home, greatly weakening the barriers of regions, industries and posts [1]. This enrichment of employment scenarios directly promotes the transformation of college students' employment concepts from the "single stable type" to the "diversified open type". More and more graduates no longer regard "entering the public sector" as the only optimal solution, but begin to actively pay attention to diversified employment forms such as flexible employment, platform-based employment and self-employment. Employment in the data-intelligence era is no longer limited to the fixed workstation of "9-to-5". New work modes such as telecommuting and flexible working system are widely accepted, which greatly expands college students' imagination space for careers and enhances the freedom of employment choices to an unprecedented level.

1.2. Fundamental Transformation of Access Modes to Employment Information

Under the traditional employment model, the channels for college students to obtain employment information are very limited, mainly relying on announcements released by university career guidance centers, offline job fairs, referrals from relatives and friends and other approaches. The information dissemination features low efficiency and narrow coverage, leading to a serious information asymmetry problem between students and employers. In the data-intelligence era, new information dissemination modes such as algorithm recommendation, big data matching, and live-streaming job recruitment have become the mainstream, making the dissemination efficiency of employment information achieve an exponential improvement. Various recruitment platforms, leveraging big data algorithms, can accurately push suitable job information based on labels such as students' majors, intended positions, and salary expectations; corporate live-streaming briefings on short-video platforms allow students to intuitively understand the working environment and daily work of positions in enterprises, breaking the information barrier between enterprises and students in the past. However, this algorithm-driven information distribution mode has also brought new problems: the "information cocoons" effect of algorithms will continuously strengthen students' existing employment preferences. Some students are continuously pushed content related to high-paying popular positions for a long time, which easily leads to the narrowing of their employment cognition, makes them lack understanding of employment opportunities in other industries, and instead exacerbates the limitations of their employment choices.

1.3. Iterative Updating of the Evaluation Criteria for Occupational Value

The group of college students who grew up in the data-intelligence era have been immersed in the Internet environment throughout their growth process, and their evaluation criteria for occupational value show distinct intergenerational differences compared with previous generations. In the past, the society had a highly unified evaluation standard for a "good job",

which mainly focused on external labels such as job stability, social status, and salary level. In the data-intelligence era, however, college students have begun to pay more attention to internal value dimensions such as the matching degree between personal interests and careers, work freedom, self-growth space, and work-life balance when choosing jobs. When choosing careers, contemporary college students no longer simply take the "iron rice bowl" as the primary evaluation criterion, but value more whether the occupation can give full play to their own expertise and realize personal value. This transformation of occupational value orientation not only reflects the awakening of individual consciousness in the data-intelligence era, but also reflects that the diverse occupational forms under the digital economy provide more possibilities for college students to realize self-worth [2]. However, at the same time, under the impact of diverse values, some students are also prone to fall into confusion in occupational value judgment, excessively pursuing "internet celebrity occupations", "high-paying trending sectors" and the like, thus ignoring the long-term nature and stability of career development.

1.4. In-depth Reconstruction of the Competition Logic in the Job Market

The popularization of data-intelligence technologies has shifted the competition in the job market from the past "competition of academic qualifications" to "competition of capabilities". In traditional employment scenarios, educational background and the reputation of one's alma mater often serve as the core stepping stone for job hunting. However, in the data-intelligence era, enterprises' demand for talents has changed significantly, with digital skills, innovation capabilities, rapid learning ability and other qualities becoming the core competencies that employers value more. As the iteration speed of digital technologies continues to accelerate, the skill requirements for posts are also being updated continuously, and the traditional career development model of "mastering a skill once for lifelong benefit" has completely failed. This transformation of competition logic makes college students deeply realize that in the data-intelligence era, only by maintaining the habit of lifelong learning and constantly updating their skill reserves can they adapt to the rapidly changing job market. This change promotes the transformation of college students' employment concepts from "one-time employment for a lifelong career" to "continuous-growth oriented employment". More and more students no longer regard their first job as a lifelong career destination, but take it as the starting point of career growth, continuously iterate their own abilities at work, and plan a dynamically adjusted career development path.

2. Materials and Methods

To accurately grasp the actual transformation of college students' employment outlooks in the data-intelligence era, this paper integrates the data of two employment outlook questionnaires distributed to multiple universities across the country, with a total of 1,876 valid samples collected. The samples cover all grades from freshman to senior, and include multiple professional categories such as science and engineering, humanities, medicine, education, economics and management. Through cross-data analysis, this paper systematically sorts out the internal motivations and specific paths of college students' employment outlook transformation [3] (see Figure 1).

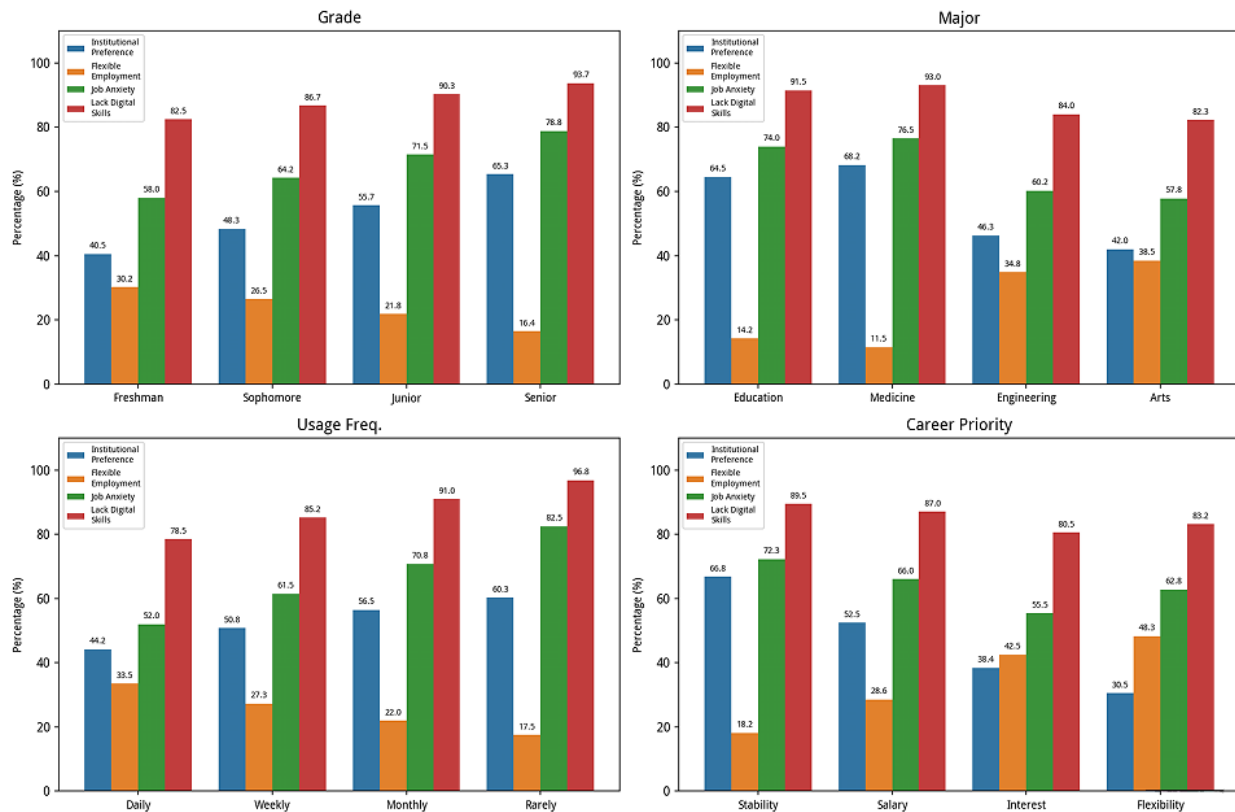


Figure 1. Employment Attitudes and Digital Skills Awareness

2.1. Statistics on Basic Characteristics of Samples and Employment Tendencies

In terms of the grade distribution of the samples, freshmen account for 22.7%, sophomores 26.1%, juniors 28.3%, and seniors 22.9%. The samples cover the complete college career cycle from just enrolling in university to about to graduate, which can fully present the evolution process of students' employment outlooks at different stages. In terms of the distribution of professional categories, science and engineering accounts for 37.2%, humanities, history, philosophy and law 18.5%, education 12.3%, economics and management 16.7%, medicine 8.1%, art and other categories 7.2%. The samples basically cover the mainstream majors in domestic universities and have strong representativeness.

In the multiple-choice statistics of priority factors for career selection, 78.4% of the students list "career development prospects" as the primary consideration, 71.2% of the students pay attention to salary level, 65.9% of the student's value job stability, 58.3% of the students take personal interests and development space into core consideration, and only 32.6% of the students take "the degree of matching with their major" as an important career selection criterion. This set of data clearly reflects that the career selection priority of contemporary college students has shifted significantly. The "major-career matching" that used to be placed in the first place is no longer a rigid requirement. Students pay more attention to whether the occupation can bring long-term growth to themselves, and the flexibility of their employment choices has improved significantly.

In the statistics of the first-choice employment directions, 28.7% of the students take state-owned enterprises as their first choice, 24.3% of the students prioritize public institutions, 22.6% of the students choose private enterprises, 11.8% of the students consider flexible employment, and 6.2% of the students have plans for self-employment. Compared with the data of similar surveys ten years ago, the proportion of students choosing flexible employment and self-employment has increased by nearly 20 percentage points, indicating that diversified employment forms have been accepted by more and more college students, and the traditional "employment in the public sector" is no longer the only mainstream choice for graduates.

Further cross-analysis of the differences in employment outlooks among different grades shows that only 12.4% of freshmen have begun to pay attention to the employment situation, while this proportion reaches 94.7% among seniors. Moreover, as the grade rises, students' recognition of "seeking employment first and then choosing a career" continues to increase. 62.3% of senior students agree with the concept of "accumulating experience through employment first, and then gradually adjusting the career direction", which is far higher than the 31.5% of freshmen. This also intuitively reflects that college students' employment outlooks are constantly becoming rational and mature as their understanding of the job market deepens during the four years of university.

2.2. Core Motivations for the Transformation of Employment Outlook in the Data-Intelligence Environment

Combined with the cross-analysis of questionnaire data, the transformation of college students' employment outlooks in the data-intelligence era is not accidental, but the result of the combined effect of multiple factors including the technological environment, market demand and individual characteristics. Its core motivations can be summarized into three levels.

First, the information environment constructed by data-intelligence technologies has directly reshaped students' occupational cognition. Questionnaire data shows that 82.4% of students use data-intelligence tools to obtain employment information almost every day or 2-3 times a week, and 67.9% of students mainly learn about occupational information through digital channels such as recruitment platforms, short-video live briefings, and algorithm-recommended content. Digital channels have replaced traditional channels and become the primary source for college students to obtain employment information. 56.7% of the students stated that they learned about emerging occupations that they had never known before through digital channels. The emergence of these new occupations broke their traditional cognition of "a good job" and directly promoted the transformation of their employment outlooks in a more diversified direction. But at the same time, 41.3% of the students also stated that the fragmented employment information pushed by algorithms has confused their occupational cognition, and the conflicting information from different channels has instead exacerbated their employment confusion.

Second, the changes in skill requirements of the job market in the data-intelligence era force students to adjust their employment expectations. The survey on digital skills in the questionnaire shows that only 12.7% of the students believe that their digital skills can fully meet the employment needs in the data-intelligence era, and 48.2% of the students believe that their own skills "cannot quite meet" or "cannot meet at all" the job requirements. This clear perception of their own ability gaps makes college students realize that in an era of rapid technological iteration, a stable "iron rice bowl" does not exist, and only by continuously improving their core competencies can they maintain competitiveness in the job market. This directly prompts students to abandon the traditional concept of "finding a stable job for a lifetime" and establish a new type of employment outlook centered on ability growth.

Third, the intergenerational traits of growing up in the data-intelligence era provide internal impetus for the transformation of employment outlook. As digital natives, contemporary college students have been immersed in the digital environment since childhood, and their ability to accept new things is much higher than that of previous generations. Questionnaire data shows that 62.8% of the students have considered flexible employment, and the primary reasons for choosing flexible employment are "flexible working hours" and "better balance between work and life", which fully reflects the strong pursuit of work autonomy among Generation Z college students. They no longer regard occupations merely as a means of making a living, but hope to realize their personal life philosophy and self-worth through work. This

inherent intergenerational trait is the core driving force that promotes the transformation of their employment outlooks from "passive compliance" to "active choice".

2.3. Specific Paths for the Transformation of College Students' Employment Outlooks

Under the combined effect of multiple factors, the transformation of contemporary college students' employment outlooks is not chaotic, but presents three clear evolution paths.

The first path is the transformation from "passively accepting assigned arrangements" to "actively planning and making choices". For a long time in the past, college students' employment choices were often greatly influenced by the external environment and family opinions. Many students chose stable jobs under the arrangements of their parents, and their own subjective will was ignored. In the data-intelligence era, college students can obtain massive occupational information through various digital tools, and independently explore career directions that suit them with the help of resources such as AI career assessment and online industry sharing sessions. Questionnaire data shows that 72.5% of students have begun to actively learn about occupational information through digital channels and plan their career paths as early as their sophomore or even freshman year, and the autonomy of their employment choices has been enhanced to an unprecedented level [4].

The second path is the transformation from "single-minded pursuit of stability" to "diversity and inclusiveness". In traditional employment concepts, "stability" was the core keyword for college students to choose careers. However, in the data-intelligence era, more and more students have begun to embrace new employment forms such as flexible employment and platform-based employment. Although some students still have concerns about the social security benefits and income stability of flexible employment, nearly one-third of the students have taken flexible employment as an alternative employment option, no longer limiting their employment to traditional standardized posts, and their tolerance for diversified employment forms has improved significantly.

The third path is the transformation from "valuing external labels" to "valuing internal growth". In the past, when choosing careers, college students often prioritized external labels such as the reputation of the enterprise and the social status of the post. In the data-intelligence era, students increasingly value whether the occupation can bring them ability improvement and satisfy their personal interests. More than 70% of the students in the questionnaire listed "career development prospects" as the primary factor for career selection, indicating that the employment value orientation of contemporary college students has shifted from pursuing external recognition to focusing on self-growth, and the internal driving force behind their career choices has increased significantly.

3. The Remolding of College Students' Employment Outlook and the Path to Improve Employability in the Data-Intelligence Era

Facing the new characteristics and new problems of college students' employment outlooks in the data-intelligence era, universities, as the core subject of college students' employment guidance, can no longer follow the traditional employment education model. Instead, they must build a new guidance system adapted to the needs of the data-intelligence era, and make concerted efforts from the three dimensions of value guidance, system construction and capability empowerment [5], so as to help college students establish a correct employment outlook and comprehensively improve their core employment competitiveness (see Figure2).



Figure 2. The Path to Improve Employability in the Data-Intelligence Era

3.1. Construct a Full-Cycle Data-Intelligence Based Cultivation System for Employment Outlook

Colleges and universities need to break the traditional employment guidance model of "concentrated crash courses for seniors", move employment outlook education forward to the freshman admission stage, and build a systematic cultivation system covering the full cycle from freshman to senior year.

In the freshman year, the focus is on launching career enlightenment education, establishing a dedicated electronic employment growth file for each freshman to accurately record their learning status, interests and specialties, and practical experiences. Combined with data-intelligence based career assessment tools, universities help students initially recognize their own strengths and possible career directions, so as to avoid falling into learning confusion after enrollment. In the sophomore year, systematic career planning courses are offered. Combined with the industry development trends of different majors, industry technical backbones and outstanding alumni are invited to the campus to share their experiences, so that students can clearly understand the data-intelligence related post requirements corresponding to their majors, and build confidence in their major and the industry [6].

In the junior year, the focus is on the guidance of employment values, integrating ideological and political education related to employment into daily education, guiding students to combine their personal career ideals with national development and social needs, avoiding being misled by one-sided high-salary information pushed by algorithms, and establishing the correct career selection concept of "going to the grassroots level, going to the places where the motherland needs them most". In the senior year, targeted employment outlook correction services are carried out, and one-on-one counseling and guidance are provided for students with problems such as "having high aspirations but low abilities" and "delayed employment", to help them set reasonable employment expectations. At the same time, colleges and universities should make full use of data-intelligence technologies to build a new employment outlook education matrix. Through new media channels such as official university We Chat accounts and short-video platforms, they can dig into typical cases of their own graduates working at the grassroots level and achieving high-quality employment, tell good employment stories in the data-intelligence era, and use the real experiences of people around the students to guide them to establish positive employment outlooks and break the problem of information cocoons brought by algorithms.

3.2. Deepen the School-Enterprise Collaborative Education Mechanism of "Supply-Demand Coupling"

One important reason for the deviation of college students' employment outlooks in the data-intelligence era is the disconnection between the talent cultivation in universities and the actual post demands of enterprises. Students lack cognition of the real workplace environment and

are easily misled by one-sided employment information on the Internet. Colleges and universities must deepen school-enterprise cooperation, promote the in-depth connection between talent cultivation and enterprise demands, and help students establish correct occupational cognition from the root.

On the one hand, the targeted training model of "order-based classes" can be widely promoted. Universities can cooperate with leading enterprises in the industry to jointly formulate talent cultivation plans, integrate the real projects and latest technologies of enterprises into daily courses, and invite enterprise technical staff and human resource managers to teach directly on campus, so that students can clearly understand the ability requirements of target posts during their time in university. On the other hand, dual-dimensional on-campus and off-campus internship and training bases are co-built. On campus, standardized training platforms are built in accordance with the real working scenarios of enterprises; off campus, students are organized to enter enterprises for visiting experience, shadow internship and full-time post internship, so that they can immerse themselves in experiencing the workplace culture of the data-intelligence era in advance, apply the theoretical knowledge they have learned to real work scenarios, and establish rational cognition of occupations in practice. In addition, colleges and universities can jointly hold various skill competitions with enterprises, promoting learning through competitions and promoting teaching through competitions, so that students can directly connect with the latest technical demands of the industry during the competition, understand the real value of different posts, build a virtuous cycle of mutual benefit and win-win results for schools and enterprises, allow enterprises to deeply participate in the cultivation process of students' employment outlooks, and help students establish the rational employment concept of "giving priority to competence".

3.3. Precisely Empower the Comprehensive Improvement of College Students' Core Employability

The guidance on employment outlook must ultimately be implemented in the improvement of employability. Only when students have sufficiently solid core competencies can they build confidence in the job market of the data-intelligence era, get rid of employment anxiety, and establish a stable and rational employment outlook. Colleges and universities must make concerted efforts from the three levels of professional skills, general competencies and digital literacy to comprehensively enhance students' employment competitiveness [7].

At the level of professional skills, it is necessary to continuously optimize the professional curriculum system, keep up with the industrial technology iteration in the data-intelligence era, update the teaching syllabus in a timely manner, integrate digital content such as big data and artificial intelligence into the core courses of different majors, and consolidate students' professional theoretical foundation. At the level of general competencies, it is necessary to consciously exercise students' communication and collaboration skills, organization and coordination capabilities, stress resistance and emotional intelligence through various scenarios such as campus activities, group projects and social practices. These general qualities are the most valued traits of employers in the data-intelligence era in addition to professional skills. At the level of digital literacy, it is necessary to offer popularization courses on digital skills for all students, and carry out targeted skill training on data analysis, advanced application of commonly used office software, basic use of AI tools and other skills according to the characteristics of different majors, so that all students can master the basic digital competencies adapted to the data-intelligence era, eliminate students' ability panic when facing digital technologies, and enable them to calmly cope with the skill requirements of the data-intelligence workplace.

3.4. Build a Professional and Data-Intelligence Oriented Employment Guidance Faculty Team

The implementation of employment guidance work ultimately relies on a high-quality employment guidance faculty team. In response to the current problem that employment counselors in some colleges and universities are part-time staff concurrently serving as student affairs supervisors with insufficient professional competence, colleges and universities should build a professional employment guidance team combining full-time and part-time members. On the one hand, select teachers with relevant experience on campus to form a full-time employment guidance team; on the other hand, hire corporate human resources directors, senior industry practitioners, and outstanding alumni as part-time employment guidance tutors, so as to form an employment guidance faculty system with a reasonable echelon and comprehensive coverage. At the same time, a systematic training plan for employment guidance teachers should be formulated to regularly carry out training in aspects such as data-intelligence technology application, employment policy interpretation, and career counseling skills, so as to improve teachers' data-intelligence literacy and professional competence in employment guidance. Improve the informatization and institutionalization construction of employment guidance work, rely on the digital employment management platform to track the employment dynamics of graduates in real time, realize the full-process digital management of employment information release, employment consultation services and employment data statistics, ensure that employment guidance work is truly implemented with precision, and provide warm and effective employment services for students.

4. Conclusion

The advent of the data-intelligence era has brought unprecedented challenges as well as unprecedented opportunities to the employment of contemporary college students. The transformation of college students' employment outlooks is an inevitable result of the combined effect of technological progress, market reform and intergenerational characteristics. This transformation generally develops in a more autonomous, diversified and open direction, but it also inevitably gives rise to new problems such as fragmented occupational cognition, unreasonable employment expectations and vague value orientation. Facing these new changes, colleges and universities must not stick to old conventions. Instead, they must proactively embrace data-intelligence technologies, build a new three-in-one employment guidance model featuring "value guidance, practice empowerment and precise services", integrate employment outlook education into the full cycle of talent cultivation, enable students to connect with the real workplace through in-depth school-enterprise cooperation, comprehensively improve students' core employ ability, and guide college students to integrate their personal career ideals into the development needs of the country and the society, so as to achieve higher-quality employment and more long-term career development in the tide of the data-intelligence era.

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