

Non-cognitive ability research for undergraduate students based on the coupling of supply and demand

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Abstract

From the perspective of demand side and supply side of high-quality professional talents, the changes and composition differences of the current non-cognitive ability structure of undergraduate students are discussed. On this basis, the formation mechanism of undergraduate non-cognitive ability under the perspective of supply and demand matching is clarified. From the four perspectives of students, colleges, enterprises and governments, it proposes a practical coupling path to optimize the non-cognitive ability of college students, which will help alleviate the contradiction between supply and demand of undergraduate employment, promote the supply-side reform of talent training in colleges and universities, and promote the comprehensive development of quality education.

Keywords

Non-cognitive; Undergraduate employment; Mismatch between supply and demand.

1. Raising the issue

According to statistics, the number of college graduates in 2022 is expected to reach 10.76 million, breaking through the mark of tens of millions of people for the first time. In 2001, the number of ordinary college graduates nationwide had just exceeded one million. In the nearly 10 years from 2011 to 2019, college graduates grew by a total of 1.74 million, and now the number of graduates has increased by 1.67 million in one year. As the number of new college graduates increases year by year, it is difficult for a considerable number of college students to achieve on-time employment, and the number of people who should be stagnant in previous years is getting bigger and bigger like a snowball, and the "difficulty" of employment seems to have become "normal". As high-quality professionals, undergraduates should be popular human resources in the job market, but in reality, undergraduates still suffer from "employment difficulties". From the two sides of supply and demand, it is found that on the one hand, the limited capacity of the job market and the continuous increase in the number of employees have led to the difficulty of employment of college students; on the other hand, the structural contradictions in the professional settings of colleges and universities and the imbalance in the matching of the ability and demand of enterprise posts have aggravated the difficulty of how college students can find employment. Under the new normal of the economy, changes in industrial structure and the development of scientific and technological innovation require that the knowledge system and ability structure of college students can keep pace with the times. Although the specific requirements and standards for college students' core literacy are not completely consistent in different countries or organizations, the importance of non-cognitive abilities such as willpower, innovative spirit, and motivation for achievement is emphasized. [1]

2. Definition of core concepts

2.1. Non-cognitive abilities

Non-cognitive ability, also known as "non-intellectual factors", first appeared in the academic report of American psychologist Alexander, and then after the exploration of many scholars such as Wexler, the initial meaning of non-cognitive ability was gradually formed: non-cognitive ability runs through various cognitive activities, is a necessary part of people's intelligent activities, and plays a restrictive role in intelligence. [2] In relevant domestic research, Cai Guo Yan scholars' use of the concept of "non-intellectual factors" has become the main source of definition of the concept of non-cognitive ability by many scholars, and its content mainly refers to the good psychological quality of individuals, including willpower, moral accomplishment, courage, self-confidence, etc. At present, there is no unified consensus on the definition of non-cognitive ability in the academic community, and the research on non-cognitive ability by scholars at home and abroad has not yet been popularized, and the commonly used research method is to compare traditional cognitive ability with non-cognitive ability. The connotation definition of the concept of non-cognitive ability of college students in this paper mainly refers to personal habit formation, way of thinking, communication expression, emotional control and environmental adaptation in addition to "cognitive ability", which are indispensable comprehensive abilities in the future workplace.

2.2. Employment of college students

According to the relevant provisions of the State, employment refers to the legal occupation of certain social occupations with remuneration or labor income by capable citizens within the legal working age. [3] Generally speaking, employment refers to the social behavior of uniting labor subjects and means of production in order to obtain economic remuneration. The employment of college students mainly includes the following three types: First, the implementation of work categories. This includes employment agreements with employers, employment contracts with employers, and employment in a flexible manner (flexible work, freelancers, etc.); Including the choice of participating in national and local grass-roots projects, such as university student village officials, three branches and one support, etc., including independent entrepreneurship, conscription, etc.; the third is the further study category. Including continued study in China, studying abroad (abroad), working, etc.

3. The current situation and composition of non-cognitive abilities of undergraduate students on both sides of supply and demand

3.1. Current status of non-cognitive structure of undergraduate students on the supply side

Through the analysis and comparison of different types of undergraduate colleges and universities talent training programs, it is found that the triangular model composed of "knowledge-ability-literacy" is universal and representative, which better reflects the current goal of undergraduate training in China's colleges and universities, that is, to cultivate moral, intellectual, physical education and other aspects of all-round development, to become high-quality specialized talents in line with the actual needs of socialist construction.[4]

Table 1 "Knowledge-Ability-Literacy" model, the knowledge module is divided into three parts, namely basic knowledge, professional knowledge and general knowledge; the ability module includes two parts: professional ability and general ability; the content of the literacy module is mainly concentrated in the basic literacy, core skills and general professional literacy of college students. Therefore, this structure shows that high non-cognitive ability requires

undergraduate students not only to have the necessary knowledge structure and ability system, but also to have good personal literacy.

Table 1. Non-cognitive structure of supply-side undergraduates

Level 1 indicators	Level 2 indicators	Level 3 indicators
Non-cognitive	Knowledge	The basics Expertise General knowledge
	Ability	Professional competence General capabilities
	Attainment	Basic literacy of college students Core competency literacy General professionalism

3.2. The current situation of non-cognitive ability structure of undergraduate students on the demand side

Starting from the demand side of high-quality professionals, we adopt rooted theoretical research methods to explore the current status and changes of the non-cognitive ability structure of undergraduate students. [5] First of all, the selected campus recruitment advertisement text data is imported into the NVIVO qualitative analysis software, and the word frequency analysis is used to explore the initialization concept of the demand ability of undergraduate graduates in the advertisement; secondly, the initialization concept is categorized. Finally, an in-depth analysis of all categories is carried out, the logical order and structural relationship between different categories are further sorted out, and they are refined to form the employability structure of higher vocational students demanded by employers, that is, the "knowledge-ability-literacy" hierarchical model, as shown in Table 2.

Table 2. Non-cognitive structure of demand-side undergraduates

Level 1 indicators	Level 2 indicators	Level 3 indicators
Non-cognitive	Knowledge	Expertise
	Ability	Professional competence General capabilities Job competence
	Attainment	Professionalism Professional competence Basic literacy of college students

From Table 2, it can be seen that the essence of the ability that employers are most concerned about is the job competence of graduates, in this non-cognitive ability structure, knowledge is the basis of employment, ability is the key to employment, and literacy is the premise of employment.

3.3. The difference in the non-cognitive ability structure of undergraduate students on both sides of supply and demand

Through the above analysis of the supply side and demand side of the undergraduate academic non-cognitive ability structure, it is found that from the perspective of undergraduate institutions, the cultivation of undergraduate students' non-cognitive ability is centered on whether they are talented, and is more inclined to the comprehensive and coordinated development of undergraduate students' knowledge, skills and qualities; in the perspective of employers, the evaluation of undergraduate students' non-cognitive ability is based on ability as the core standard, and employers pay more attention to whether the undergraduate graduates recruited are competent for the position of the enterprise. [6] Therefore, employers' evaluation of undergraduate students' ability standards focus more on the level of skills and skills, the general ability applicable to the workplace, and professional quality.

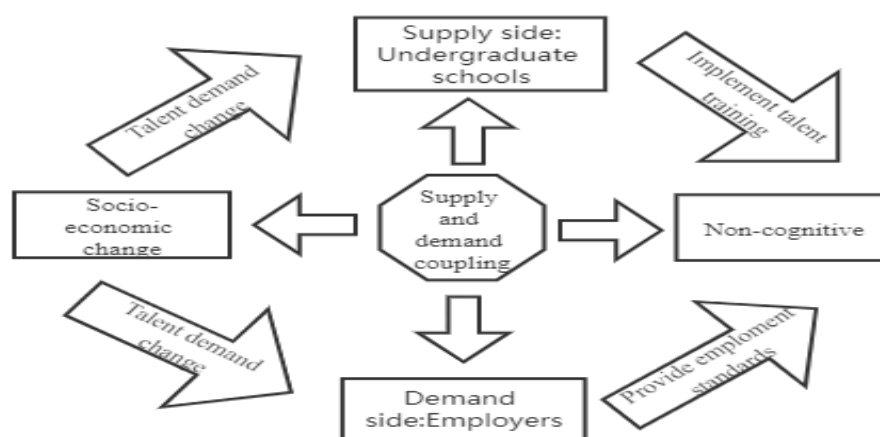


Figure 1. Causes of non-cognitive abilities of undergraduates

4. The formation reasons and development paths of undergraduate non-cognitive abilities on both sides of supply and demand

4.1. The reasons for the formation of non-cognitive ability of undergraduate students on both sides of supply and demand

The formation mechanism of non-cognitive ability of undergraduate students from the perspective of supply and demand coupling is shown in Figure 1. Among them, the innovation of economic models, the transformation of economic structure and the upgrading of industrial structure have spawned new demand for talents. As the main body of cultivating talents, undergraduate colleges and universities should refer to the employment standards of employers, comprehensively consider social and economic factors and the social responsibility of education, so as to cultivate activities that can meet the social process and practical training content; employers, as the main body of the market, will transform the talent needs needed for social and economic development into feasible employment standards to recruit graduates suitable for their own needs. [7]

4.2. The development path of non-cognitive ability of undergraduate students on both sides of supply and demand

The coupling of non-cognitive abilities of undergraduates to the supply and demand of the job market is a dynamic cycle and continuous evolutionary process, which requires the joint efforts of multiple entities such as college students, universities, employers and the government, as detailed in Figure 2.

First of all, undergraduate students as the main body of high-quality talents should actively participate in practical activities, in the process of practice, explore their own advantages and deficiencies, according to the employer's requirements for talents in different positions, targeted to improve their non-cognitive ability, and then improve their core competitiveness in employment.

Secondly, the misalignment of supply and demand in the undergraduate student job market is actually a disconnect between the supply structure and market demand. Undergraduate colleges and universities must make reforms, strengthen communication and cooperation with employers, and timely feedback the requirements of employers' talent quality to colleges and universities.

Through close cooperation and cooperation with employers, we will promote the optimal state of matching supply and demand in the job market for undergraduate students.

Third, in the process of matching supply and demand in the job market, employers are the touchstone for testing the comprehensive ability of undergraduate students, and they are more sensitive than undergraduate colleges and universities in measuring talent standards, and the demand for talent capabilities is constantly changing. In this regard, employers should give full play to their own advantages, actively cooperate with colleges and universities, and increase internship positions and opportunities in enterprises. In the internship, we will examine and evaluate the current situation of non-cognitive abilities of college students, and respond to the institutions in a timely manner, in order to achieve mutual synergy and mutual promotion of benign development.

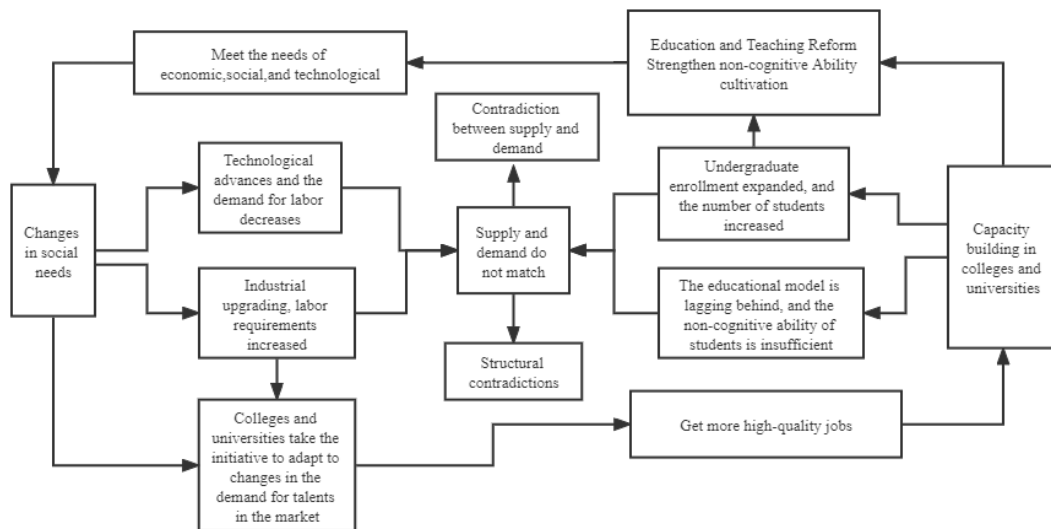


Figure 2. Diagram of the coupling mechanism between supply and demand of non-cognitive abilities of undergraduate students

Finally, in the process of matching the supply and demand of talents, the government cannot stay out of the matter, and it is indispensable to undertake macro-control and bridge services. Government departments should play a "bridge" role, take the initiative to coordinate employers and undergraduate institutions at both ends of the bridge, and promote mutual coordination and close cooperation. Starting from the supply and demand sides of regional high-quality talents, the problem of supply and demand mismatch caused by information asymmetry is further solved by releasing forecasts of talent market demand and supply and demand timeliness information.

Acknowledgments

Fund: An Hui University of Finance University-level Scientific Research Project "Analysis of mismatch between supply and demand of college students' non-cognitive ability and coupling path from the perspective of employment" (ACYC2021067).

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