

# Curriculum and Educational Idea Reform of Geography, under the Background of New National College Entrance Examination of China

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**Abstract:** The new NCEE brings new opportunities to the training of professional talents in geography. We should break through the traditional training mode of geoscience talents; scientifically establish the training mode of geoscience talents under the background of new National College Entrance Examination. Based on the adjustment of the talent training program of geography, the talent training mode of geography should be established in line with the actual situation of our university and the needs of social development; the adjustment of training program can highlight the practicality of geography science specialty, and effectively guide the geography teaching of middle school and the new National College Entrance Examination of students, improve the interest of students in professional learning, lay down the professional foundation of students, and meet the needs of innovative talents training of geography.

## 1. Introduction

Geography is a science that studies the spatial distribution law, time evolution process and regional characteristics of geographical elements on the earth's surface. It plays an important role in the decision-making of local, regional and global environmental changes and economic development at different scales. The development of geography education in China has a long history. At the end of the 19th century, geography was regarded as an independent subject in primary and secondary schools, and then geography department was set up in universities, and geography education specialty in colleges and universities came into being.

After the founding of the People's Republic of China, Chinese colleges and universities carried out the adjustment of colleges and departments to the Soviet Union from June to September 1952, and divided the subjects into liberal arts and science, in order to quickly select and train talents to participate in national construction <sup>[1]</sup>. Under the system of National College Entrance Examination(NCEE)of China, geography belongs to liberal arts in high school, while geography belongs to science in college specialty. The division of subjects causes liberal arts students to be unable to apply for geography science major, and geography science major in colleges and universities cannot recruit liberal arts students with good geographical foundation, which has a great adverse impact on the cultivation of geography science professionals <sup>[2]</sup>.

After 2000, with the change of talent demand, the integration of professional universities and comprehensive universities has become a new mode of university development, and liberal arts and science gradually move from separation to integration. At this time, the main goal of geography education in China has gradually changed from the teaching of basic knowledge to the cultivation of students to use a variety of geographical skills to solve practical problems. In September 2014, the State Council's "opinions on the implementation of the reform of the examination enrollment system" opened the prelude to the reform of the new NCEE enrollment system. So far, 19 provinces of China have introduced the new NCEE reform plan. The implementation of the new NCEE policy breaks through the traditional talent training mode and poses a new challenge to the cultivation of college professionals.

The new NCEE reform plan sets up the course selection mechanism, and colleges and

universities set up the guide directory of major selection subjects according to the characteristics of their majors, which not only meets the opportunities for high school students to develop their subject interests and specialties, but also provides conditions for colleges and universities to select students with clear interests and solid professional foundation. The reform of the new NCEE highlights the idea of selecting talents for colleges and universities, and effectively promotes the autonomy of colleges and universities in enrollment and selection, and breaks the solidified level of colleges and universities, and brings new opportunities for the construction and development of colleges and universities<sup>[3]</sup>. The admission system with major as the core of the new NCEE has strengthened the status of major, and the students have changed from “selecting universities” to “selecting majors”, thus stimulating and encouraging colleges and universities to optimize their professional layout. Therefore, colleges and universities will pay more attention to connotation construction rather than blind professional expansion.

After the implementation of the new NCEE system, Geography has become one of the selected subjects of geography major in Colleges and universities, which has completely changed the dilemma of college geography enrollment under the college entrance examination system of Arts and Sciences, and brought opportunities for the talent training of geography major.

According to the statistics of the selection of subjects in Shandong Province in 2020, up to 65% of the students choose geography, which indicates that the geographical literacy of the students which enrolled in geography science major has been generally improved. Therefore, the curriculum system and training plan of geography science in traditional colleges and universities cannot meet the needs of students' exploratory analysis.

As the backbone of geography literacy training, students of geography are not only the potential army of high-level geography talents, but also the reserve force of middle school teachers in the future. The development of geography specialty should be guided by the social demand for innovative talents, and based on the professional advantages of comprehensive colleges and universities, give full play to the comprehensive and systematic characteristics of geography, break through the shackles of the disconnection between the theory and practice of talent cultivation of geography and the cultivation of innovative and applied talents, and innovate and reform the talent cultivation mode under the background of the new college entrance examination<sup>[4]</sup>. It not only helps to enhance the strength of Geography in comprehensive universities, but also helps to deepen the development of geography discipline system.

## **2. New Ncee in Shandong Province, China**

### **2.1 Selection of Individual Subjects**

As the second batch of national NCEE reform pilot provinces in China. The new NCEE examination stipulates that the national unified examination of Chinese, mathematics and foreign language is compulsory, and another three subjects were selected from politics, history, geography, physics, chemistry, biology. The comprehensive reform of college entrance examination of Shandong Province started from 2017. The subject which selected with the largest number of students is geography, the proportion is 67.86%, the rest are in order as fellow biology, chemistry, history, Physics and politics, and the proportion of them is 57.83%, 49.79%, 49.61%, 39.52 % and 35.34%.

### **2.2 Composition of Elective Courses**

According to official data of the Shandong Education Admissions Examination Institute, The number of senior high school students in 2017, who have taken part in the NCEE in 2020. Among the 20 combinations selected for the new NCEE in Shandong Province, the combination with the most choices is “the integration of the old liberal arts”, namely politics, history and geography, the proportion is 16.7% .In second place is “ the integration of old science”, namely physical, chemical and biological, the proportion is 13.11%. In third place is the integration of history, geography and biology, the proportion is 11.24%.The lowest selected combination is politics, history and physics,

accounting for only 0.79%, followed by the integration of politics, geography and physics, accounting for 1.17%. The integration of political, physical and biological is accounting for 1.30%.

### 2.3 Requirements for the Selection of Geography Major for Enrollment in Colleges and Universities in Shandong Province

The required courses of 12 colleges and universities in Shandong Province, except Qingdao University, which is limited to geography, all other colleges and universities, are limited to physics, chemistry or geography, which can be applied for one subject.

### 2.4 Subject Selection Requirements for Geography Major in Shandong Province Enrollment Colleges

Among the 85 colleges and universities that can recruit students in Shandong Province, the major of geography are 95. The major enrollment subject selection examination request one of physics, chemistry and geography, the proportion is 74.74%. There are 9 colleges and universities enrollment subject selection is geography, the proportion is 9.47%. Three different integrations of physics or geography, chemistry or geography, physics or chemistry, are alternated in colleges and universities. Both Physics and chemistry must be chosen only one university, it is Nanjing University. It is the mainstream to choose one subject from the combination of physics, chemistry and geography. It gives students an opportunity to choose geography, the students of geography in colleges and universities should have improved their professional base. It will benefit to the development of geography.

### 2.3 Subject Selection of Geography Major Students of Jinan University

In 2020, 80 students enrolled in geography major of University of Jinan, 56 students were selected for the new NCEE, 24 students except. All of the 56 students, 53 were selected for geography, the proportion is 94.64%, history and politics were selected accounted for 60.71% and 51.79% respectively. The number of subjects selected for physical, chemical and biological examination was significantly less, the proportion is 16.07%, 30.36% and 46.43% respectively. The proportion of liberal arts majors is significantly higher than that of science majors; the students admitted to geography science major obviously appeared the phenomenon of “liberal arts”, so students' knowledge of science is weak. And it brings new challenges to geography development in colleges and universities. However, it is gratifying that the students' geographical knowledge base has improved significantly compared with the old NCEE system. How to take advantage of the new NCEE, and adjust the professional training programs to make up for the lacks of students' knowledge of science are the focus problem which the teachers of geography deserve to think about.

## 3. Method of Solving Problems

Students are the main body of university education. Understanding the characteristics of students can be targeted to carry out teaching. Grasp the characteristics of students, can be targeted to carry out teaching. Through the investigation of different behavior subjects (students, teachers and employers), different stages (high school stage, undergraduate learning stage and working stage), demand direction (learning satisfaction, curriculum system construction and job demand), this paper determines the main content and mode of geoscience students training under the new college entrance examination system.

### 3.1 Survey on the Basic Knowledge of Geography for Students Majoring in Geography

Statistical methods will be used to analyze the data of college entrance examination, and determines the proportion of college entrance examination students in geography, course combination, major selection, college selection, and the distribution curve of total score and single subject score of different combination students. It studies the impact of the new NCEE on the professional basis of college students majoring geography, and adjusts the relevant curriculum.

### 3.2 Requirements of employing units and graduate training institutions for geography professionals

The demand of national economic and social development is an important driving force to promote the development of geography specialty. Through interviews and questionnaires, the subject interviewed the relevant employers and the relevant personnel of the important graduate training units of geography in China, to determine the current geography graduates' lack of work ability in the process of work and further study, and education curriculum, teaching content and teaching mode adjust.

### 3.3 Optimizing and Adjusting the Training Mode of Geography Science in Colleges and Universities under the Requirements of Individualized Development of Students

Through the interview on the satisfaction of undergraduate students and teaching teachers of geography in colleges and universities, aiming at the deficiency of the existing training mode of geography in colleges and universities, combined with the national requirements for the cultivation of talents in colleges and universities and the discipline advantage of comprehensive university to adjust and optimize the training mode of geography.

4. Change of Talent Training Idea and Talent Training Mode in Colleges and Universities, under the background of New NCEE

### 3.2 Changing Traditional Geography Teaching Ideas

Traditional geography teaching focuses on imparting basic geography knowledge, and the cultivation of geography related skills is only limited to imparting basic geography skills; with the development of society, the education mode under the condition of "Internet plus" has created conditions for the cultivation of students with diverse backgrounds. The understanding and understanding of students' basic knowledge and basic skills in geography has far exceeded our imagination. Especially in the new NCEE system, the geographical knowledge base of students majoring in geography has been greatly improved. Simple knowledge transfer and skills training cannot meet the needs of students and society<sup>[5]</sup>.

Firstly, it is necessary to cultivate students' geographical thinking on the theoretical level. It is necessary to strengthen students' comprehensive analysis of geographical phenomena and geographical processes, and to improve students' understanding of geographical knowledge from the theoretical level. Secondly, we should make use of the great advantages of modern geographic information technology in the process of social development to strengthen the cultivation of students in geographic information system, remote sensing technology and modern surveying and mapping technology. We should thoroughly change the short board of the students majoring in geographical science in the application of technology, and give full play to the advantages of the students majoring in geographical science in the interdisciplinary. We should establish a new concept of talent training of geography in the new era, and formulate a talent training mode that meets the needs of national and social development.

### 3.3 Change the Existing Talent Training Program

Based on the analysis of the current situation of the development of geography in our university, to study the main factors that restrict the development of geography, and develops a professional talent training mode in line with the characteristics of our university. In the current teaching plan, we should pay more attention to the cultivation of students' professional foundation. In the situation of students' professional foundation getting better, we should highlight the comprehensive and systematic characteristics of geography, strengthen the promotion of students' professional theory, and continue to strengthen the cultivation of students' modern geographical science and Technology (Geoscience statistics, econometric models, remote sensing, geographic information system, etc.). We should increase the proportion of practical teaching, give full play to the strong interdisciplinary characteristics of geographical science, and highlight the integration of geographical science and other disciplines<sup>[6]</sup>.

## 4. Change the Existing Talent Training Evaluation Mechanism

In the current evaluation of geography teaching, the result evaluation and single evaluation are in

the majority, which is inconsistent with the new concept of talent training and training program. The existing talent training mechanism must be changed.

## 5. Conclusions

The new NCEE brings new opportunities to the training of professional talents in geography. Combining with the professional advantages of comprehensive universities, we should break through the traditional training mode of geoscience talents, scientifically establish the training mode of geoscience talents under the background of New NCEE, and emphasize on strengthening the modern geography science and Technology (Geoscience statistics, measurement model, remote sensing technology, etc. The training intensity of geographic information technology can meet the needs of national innovative and applied talents training for geography science majors.

Based on the adjustment of the talent training program of geography, the talent training mode of geography should be established in line with the actual situation of our university and the needs of social development; Meanwhile, the adjustment of training program can highlight the practicality of geography science specialty, break the traditional concept of “learning but useless” of geography science specialty, effectively guide the geography teaching of middle school and the NCEE of students, improve the interest of students in professional learning, lay down the professional foundation of students, and meet the needs of innovative talents training of geography.

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