

# *Practical Exploration on Teaching Reform of Chinese Geography Course in Colleges and Universities*

—Taking Geographic Information Science as an Example

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**Abstract**—Geography is an important basic course for geographic information science major. According to the social needs and the characteristics of professional development and the design requirements of geography syllabus in China, geography teaching needs to improve the quality of teaching by reforming the course teaching. This paper has put forward reform ideas in teaching objectives, teaching contents, teaching methods, practical teaching, examination and assessment, further to promote the teaching reform of China's geography teaching in colleges and universities.

**Keywords**—Geography of China; Geographic information science; course teaching; reform

## I. INTRODUCTION

Chinese geography takes it as the research object for studying the basic characteristics of natural and human geographical environment, the formation and development of production layout and their interrelationship and regional differentiation. The whole content includes two parts: general part and summary part. The general part focuses on the change system of the temporal and spatial changes of Chinese geography, to analysis various geographical phenomena and their causes related to Chinese geography, to makes a theoretical summary. The summary part focuses on generalizing the characteristics of the differentiated regional systems, to puts forward the reasonable direction and way of transformation, to utilize by the advantages and disadvantages of different regions. Chinese geography and world geography are the core courses of geography, an important foundation of regional geography, a comprehensive course for students to understand their country and hometown. It is necessary to study the characteristics, laws and development of the natural and human geographical environment of the whole country and its geographical districts in an all-round way. Therefore, China's geography is a compulsory course for all majors of geography (Geographic Information Science, Geographic Science and Urban and Rural Planning).

The development of the times calls for innovation, and the reform of geography teaching is imperative. Zhang Guanghua, etc[1-2]studied and puts forward an optimization scheme for

the curriculum design of geography specialty, which has the characteristics of strengthening the status and function of education courses and strengthening the training of geography teaching skills of normal students. Miao Lizhi, etc.[3-4]studied the teaching content of GIS course and related courses, and puts forward some reform ideas and measures. Jieruifeng, etc.[5-6]put forward the problems and measures in the reform of geography teaching in Colleges and universities. Zhou Chunjiang, etc.[7] optimized the curriculum of Geography Specialty in domestic universities, we should strengthen the curriculum construction of regional geography, highlight the characteristics of the curriculum, set up research-oriented courses, cultivate students' innovative ability, teaching methods and diversification of curriculum evaluation, and optimize the strategy of informationization and internationalization of curriculum setting. Yang Qin, etc. [8-9] studied the current situation of the geographic normal students' literacy in local colleges and universities from three aspects: the emotional literacy level, the knowledge literacy level and the ability literacy level of the graduates, found the problems in the process of talent training in time, and put forward solutions to improve the quality of the geographic normal students in Local Colleges and universities. Song Hongl, etc.[10]studied the evaluation model of students' learning, put forward specific evaluation reform methods and specific composition of performance evaluation. Looking at the development form of teaching reform in our country, we can see that the development trend of teaching reform research is students' skills training, curriculum setting, curriculum positioning, emotional training and learning evaluation

## II. PAY ATTENTION TO THE SELECTION AND CONSTRUCTION OF CURRICULUM TEXTBOOKS, TO IMPROVE THE EFFICIENCY OF GEOGRAPHY TEACHING IN CHINA

At present, China's geography textbooks mainly include general higher education curriculum textbook "China Geography" for the 21st century (edited by Zhao Ji, Chen Chuankang). Higher Education Press published Sun Jin's edition of Geography of China. Northeast Normal University Press Publishes Geography of China (Li Tao et al.)China Geography (edited by Lu Xinxian) is published by China

Science and Technology Publishing House. The main textbooks have their own characteristics. Geographic Information Science major can choose a kind of teaching material. At the same time, according to the training objectives of talents, the needs of education and social development, the frontiers of international and domestic development, we should constantly optimize and update the teaching content.

At present, the study of regional geography is uneven. In China, it can't be updated for the characteristics of regional development, regional division, the contents of regional development in time, to inevitably affect students' understanding and understanding of regional development for different social basis of regional development, natural resources and economic development. The construction of the geographical division needs to be updated urgently. In the specific teaching process, teachers should take textbooks as the main basis, at same time, combine with the frontier of regional development, creatively supplement and improve textbooks on the premise of fully reflecting the scientificity, theory and systematicness, to strive to gradually achieve a wide range of content and theoretical basis .It has a deep foundation and a combination of field practice, international and domestic training, innovation and quality training, so as to give full play to the scientific and efficient leading role of textbooks in achieving the goal of personnel training.

### III. IMPLEMENTING THE THREE-DIMENSIONAL TEACHING OBJECTIVES OF "KNOWLEDGE AND SKILLS, PROCESSES AND METHODS, EMOTIONAL ATTITUDES AND VALUES"

The teaching goal is a clear expression of what changes will happen to students in teaching, which refers to the expected learning results of students in teaching activities. In the process of teaching, teaching objectives play a very important role. Teaching activities are guided by teaching objectives and are always carried out around the realization of teaching objectives. At present, basic education has made it clear that we should pay attention to the teaching objectives of knowledge and skills, processes and methods, emotional attitudes and values in the teaching process. The teaching objectives of three-dimensional course can also be used for reference and guidance in college classroom teaching. Among them, knowledge and skills are the basic goals, emphasizing that students should master the basic knowledge and skills of the course skillfully, and have solid theoretical basis and basic skills. The process and method are the key objectives. They emphasize the process of inquiry and formation of knowledge, and cultivate students' ability to analyze and solve problems and thinking methods. Emotional attitudes and values are development goals. The aim is to cultivate students' emotions and values in love with their motherland, their hometown, resources and environment. The three goals are complementary and indispensable components. However, in the context of exam-oriented education, education focuses on knowledge and skills objectives, while ignoring process and method objectives, emotional attitudes and values objectives. It has formed a talent training mode with high marks and low abilities. Teachers in Colleges and universities should innovatively design teaching programs, which not only impart knowledge and skills to students, but also increase teaching activities in process and methods, emotional attitudes

and values. In terms of process and method, the emphasis is on combining field practice and internship in geography in China, strengthening the training of practical operation ability, arousing students' interest in exploring and researching geographical problems, excavating geographical causes through geographical phenomena, summarizing geographical laws, and transforming from passive learning type to active exploring type. In terms of emotional attitudes and values, we should use the beautiful scenery of mountains and rivers in Chinese geography, local conditions and human feelings to beautify and sensitize the students' love for China, and set up a hard-working study to serve the motherland. At the same time, let students clearly understand the problems existing in China's development, understand the problems existing in China's population, resources, environment and regional development, and help students establish a correct view of population, resources and environment.

### IV. SUPPLEMENTING AND PERFECTING TEACHING CONTENTS ACCORDING TO THE NEEDS OF SOCIAL DEVELOPMENT AND PROFESSIONAL CHARACTERISTICS

The selection of teaching content should be based on teaching objectives, formulate scientific teaching syllabus and teaching execution plan according to the needs of social development, clarify the breadth and depth, construct the correlation between teaching content of each part. What kind of knowledge talents are needed for social development, teachers should give students what kind of knowledge. Geography majors have different teaching requirements for Chinese geography. Therefore, teachers should reconstruct scientific and systematic classroom teaching content from the perspective of professional development.

#### A. *Determining the teaching content according to the specialty characteristics*

Geographic information science specialty is to cultivate the basic knowledge of geography, grasp the basic theory and basic knowledge of geographic information science, database theory, remote sensing principle and technology, cartography, geographic science, resources and environment science, and possess the integration and application of geographic information science, global positioning system and remote sensing as well as related information. Ability of information processing and analysis. Therefore, mastering the basic knowledge of geography is the premise and guarantee. Geography covers a wide range of basic geographic knowledge with strong comprehensiveness in China. It can meet the students' follow-up learning needs, so teachers should use it according to the characteristics of professional development and regional development in China. Make appropriate choices about the teaching content and explain in detail the knowledge closely related to the major. The general part focuses on the first chapter of location and boundaries, the second chapter of land structure and water resources structure, the third chapter of sea areas and islands, the seventh chapter of landscape and regionalization. The part classified as students' self-study by the General Parts is Chapter II Mineral Resources and Scenic Tourism Resources, Chapter III Marine Environment and Marine Resources, Chapter V Spatial Process of Traditional

Culture and Modernization, Chapter VI Disasters and Environment, Chapter VIII Territorial Regulation and Regional Development Strategy. Chapter 9, Northeast China, Chapter 10, North China, Chapter 11, Shanxi, Shaanxi and Inner Mongolia, and Chapter 12, Middle and Lower Reaches of the Yangtze River. Students learn by themselves Chapter 13 Southeast Chapter 14 Northwest Chapter 15 Southwest Chapter 16 Qinghai-Tibet Region.

#### *B. Strengthening the Key Explanation of Basic Knowledge Content*

Geographical knowledge is diverse and complex, and the basic knowledge points of general and sub-theories are closely related in China. Students majoring in Geographic Information Science come from science and have little basic knowledge of geography. It is difficult for teachers to make students fully understand and master the knowledge of Geography in a short period of time. According to the general rules of students' learning knowledge, teachers first let students start with the overall structure and establish the main knowledge framework of Chinese geography curriculum. The natural conditions and characteristics of China's geography are understood through the general part. The key knowledge in the general introduction is gradually understood in combination with the contents of the sub-discussion regions. Secondly, when teaching the contents of the chapters, we should focus on clarifying the basic concepts and laws of each chapter, and linking the knowledge points according to the inherent laws, so that students can master the basic characteristics of Chinese geography and the main contents of each region in general.

#### *C. Continuous supplement of frontier knowledge and improvement of discipline system*

The renewal of modern scientific knowledge is very fast. New viewpoints, theories and achievements concerning the development of China's geography emerge in an extraordinary stream. Because of the limitation of the update time of the current geographical edition, new theories and achievements can't be added to the textbooks in time in China. Therefore, teachers should learn and master the frontier of the subject, and add the new contents of the subject development to their own teaching system in time.

### V. OPTIMIZING TEACHING DESIGN, METHOD, APPLYING MODERN EDUCATIONAL TECHNOLOGY

American scholar Kemp defines instructional design as: "Instructional design is the use of systematic methods to analyze the problems and needs of various interrelated parts of the teaching process. Establish methods and steps to solve them in a continuous model, and then evaluate the systematic planning process of teaching results. The design of Geography Curriculum has a direct impact on the quality and effect of teaching in China. The teaching design of Geography is the construction of basic knowledge structure, laying the foundation for learning; assigning learning tasks to deepen students' understanding and mastery of knowledge in China; independently exploring homework to realize the transformation of knowledge points; group collaborative learning to strengthen cooperative analysis and thinking.

#### *A. Foundation knowledge framework building, laying the foundation for learning*

Teachers should help students build an open knowledge system and integrate different professional knowledge in the teaching process of Chinese Geography. The key lies in the analysis of key concepts and the organization of chapter content system to help students sort out and construct the knowledge structure of the curriculum. Improve students' understanding and application ability of knowledge points, while leaving enough space for students to think.

#### *B. Arranging learning tasks to deepen students' understanding and mastery of knowledge*

Teachers should adopt the gradual problem as the theme of their learning task. The topic should be fully combined with the special problems of population, resources, environment and development in China so as to enable students to comprehensively analyze and judge the natural, human, economic and social conditions of China's geography from the perspective of geography, and use their professional knowledge to solve the practical problems in regional development. To train students' ability to collect and organize information, to understand and judge information, and to discover, expound and solve problems. The continuous repetition of this process is a complete scientific research process. In the process of assigning learning tasks, teachers should not only act as subject experts, method guiders and task consultants, but also as task makers, problem diagnostic experts and task auditors. In practice, when students are found to have difficulties and the solutions deviate seriously, teachers should grasp and gradually guide learning to the right track. Face-to-face dialogues and exchanges are adopted to encourage students to reflect on themselves and explain themselves. In the process of teachers' and students' participation, they constantly revise their plans, discover and solve problems, and promote knowledge processing and sublimation.

#### *C. Independent exploration work to realize the transformation of knowledge points*

Based on classroom learning and homework training, students are gradually helped to realize the transformation of life concept to scientific concept. For example, on the basis of grasping the basic laws of the general theory of Geography of China, we can identify the natural, social and economic development of a specific region, and understand the geographical characteristics and their spatial manifestations in combination with life experience. At the same time, it is acceptable to think from the perspective of maps, to correspond Abstract geographical laws to maps, or to summarize the distribution and change laws of regional nature, resources and economic development from various maps, to understand the differences of human and regional development caused by differences in natural backgrounds, and to examine geographical landscape from the perspective of space and time. Evolution process and reason of pattern. This kind of transformation training between concrete and abstract problems and cognitive conflict caused by new content learning all urge students to interact with each other in concepts, gradually

establish network connection between concepts, and form a situational module to solve the problems of geography.

#### *D. Cooperative learning in groups and strengthening cooperative analysis and thinking*

The purpose of group collaborative learning is to promote learning and communication among students and to cultivate the spirit of team assistance. In the process of cooperative learning in small groups, students should not only put forward questions from various perspectives of thinking, but also adopt the method of induction and sub-division of brainstorming to help students quickly realize the conceptual transformation and cognitive processing. Different opinions are critically considered and absorbed; when solving practical problems, we can discuss the same problem, express our own opinions and learn from others, so as to form a problem-solving model with common satisfaction; at the same time, teachers timely regulate students' cognitive strategies to achieve the common purpose of group cooperation.

#### **VI. PAY EQUAL ATTENTION TO PROCESS EVALUATION AND EXAMINATION EVALUATION TO IMPROVE THE EFFECT OF ASSESSMENT**

With the change of the way of curriculum assessment, both process evaluation and examination evaluation are emphasized and double integrals and double standards are adopted. Teachers should first attach importance to process evaluation, which is not only to judge the cumulative evaluation of students in the learning process, but also to supervise the evaluation of students' learning attitude and quality. At the same time, we should increase the flexibility of the examination evaluation questions. The process evaluation and the examination evaluation account for 50% of the total score evaluation, or the process evaluation accounts for a slightly higher proportion.

#### *A. Strictly and conscientiously do a good job of the peacetime process evaluation*

At present, colleges and universities generally have only one exam per semester, and the final results generally account for 40-50% of the total scores. The contents of the evaluation include classroom discussion, essay reading, survey report and other forms to carry out comprehensive evaluation of students. Because of the variety of forms and the complexity of evaluation criteria, teachers have to adopt a unified standard when assigning homework. The standard should be refined to within 1-5 points. Only after the standard is established can students be guided to think and consult information before completing the prescribed topics.

#### *B. Improving the Effect of Final Examination*

Final examination is one of the most important ways of evaluating examination. From the point of view of traditional propositions, teachers put more emphasis on rote memorization. The content of examination is limited to textbooks, classroom notes and the key points set by teachers, while the content of examining students' comprehensive quality and innovative ability is less, which makes students busy taking notes in class

and after class. Be eager to copy notes, memorize notes in the exam, and forget after the exam. Therefore, in the design of the final examination questions, besides the objective questions such as the regular explanation of nouns, filling in the blanks, choosing, judging and answering questions, teachers should properly increase the material questions, data analysis questions, imaginary subjective questions with innovative ability and focuses on examining students' flexible application of knowledge, independent thinking and judgment to get the ability to solve practical problems.

#### **VII. CONCLUSION**

1. It is the premise of teaching reform that implementing the Three-dimensional Teaching Objectives of "Knowledge and Skills, Processes and Methods, Emotional Attitudes and Values".

2. It is the basis of teaching reform that according to the needs of social development and professional characteristics, supplement and improve the teaching content.

3. It is the key to teaching reform that emphasis should be laid on both process evaluation and examination evaluation to improve the evaluation effect

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