A Brief Analysis on the Cultivation of Students' Practice and Innovation Ability Majoring in Land Resource Management

Ping GONG and Hui WANG

Inner Mongolia University of Finance and Economics, No.185, North Second Ring Road, Hohhot, Inner Mongolia, China

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Abstract. As a highly comprehensive and talent-scarce discipline, the construction and development of the specialty of land resource management needs to be closely combined with the new situation of national land resource management. The specialty involves the academic area of technology, nature, society, economy, law and ecology. And it has the characteristics of interdisciplinary, cross-industry and cross-regional, which centers on the relationship of human and land and management decision-making. In full consideration of land and resources management under the new situation of reform and development, and applied talents oriented, this paper applied for the new situation of land resource management personnel training mode, and discusses the practice and the cultivation of innovation ability, in order to further improve the characteristics of the land resources management professional talents cultivation.

The Effect of Practical Teaching on the Cultivation of College Students' Innovation Ability

Practical course is an important link in the teaching process of colleges and universities. It is the supplement and test of previous classroom theory learning. It is one of the important means and methods indispensable for students to integrate theory with practice, acquiring direct knowledge and consolidate what they have learned in school. Therefore, practical teaching is not only an exercise for students to combine theory with practice and acquire practical knowledge and ability, but also a good opportunity for students to carry out quality education.

Design of Special Practice Teaching System

The practical teaching system of “basic practice, professional practice, comprehensive practice, graduation design” will be implemented to the entire cultivation process of undergraduates.

Geological Foundation Practice

One week of basic geological practice is arranged in the summer semester of freshman year. The specific internship content and location are as follows:

1. Field practice of geology and geomorphology: distinguishing three types of rocks (sedimentary rocks, metamorphic rocks, magmatic rocks), intrusive rocks, extruded rocks and major mineral types; the correct use of compass and other equipment to identify and determine the typical rock strata, structure and its occurrence elements and contact relations in the south Taihang mountains; the general characteristics of the tectonic movement of the Daqing mountains; to be familiar with the main geomorphic types and features of Daqing mountains.

2. Field practice of Comprehensive physical geography in Liangcheng county in Inner Mongolia: understanding the types, characteristics and distribution characteristics of the soil; Analysis of the main soil processes in typical chestnut soil; Utilization and development of soil resources; Analysis of soil profile characteristics, the law of soil azonality. Observe local soil profile, collect and process soil samples; measure the mechanical composition, structural characteristics and PH value of soil. The soil forming process is analyzed according to the soil profile.

3. Hydrological practice of Daihai lake in Inner Mongolia: to understand the formation mechanism of structural lake in semi-arid area, to master the basic concept and characteristics of
lake Daihai, and to analyze the evolution of the lake. Observe and analyze the vegetation and soil characteristics of the coastal wetland, and analyze its formation process.

④ An intern of the natural geographical law in Manhan mountain: to understand the zonality and azonality of Inner Mongolia, to be familiar with the basic characteristics and influencing factors of vertical zonality of different slopes of Manhan mountain, and to master the characteristics of vertical zonality of vegetation and soil in the Manhan mountain. Based on the cause of formation, analyze the characteristics of development and utilization of mountain tourism resources.

Measurement and Cadastral Measurement Practice

Two weeks were arranged for the measurement and cadastral measurement practice in the summer semester of sophomore year. The specific practice content and location are as follows:

① To cultivate students' ability to apply the theoretical knowledge of measurement comprehensively and analyze and solve the general measurement problems in their major. Review and consolidate the theoretical knowledge in the measurement course. The topographic map observation is completed from whole to part, and controlled first then fragmented. The theoretical knowledge is systematically combined with practice, to further understand, consolidate and broaden the theoretical knowledge of measurement.

② Master the procedures and methods of large scale topographic mapping in small areas (including the organization work of external and internal industries, internal and external business of plane control measurement, internal and external business of elevation control measurement, topographic mapping, splicing and finishing work), and master basic knowledge and skills of surveying and mapping systematically.

③ In the unit of the team, a topographic map with a scale of 1:50 x 50cm was mapped and assembled, painted and decorated.

④ Master through the repeatable operation of the instrument through topographic map mapping, so that the students can skillfully use the total station, theodolite and level.

Comprehensive Practice of Land Remediation and Land Investigation

Comprehensive sophomore and junior years of professional courses, in the third summer semester in the arrangement of two weeks of land consolidation project and land survey comprehensive practice. Through practice, so that the students master the methods of land resources survey, steps, and through the on-the-spot investigation to understand the land use status quo investigation, land use, land management (control), and land use planning, training students' land use and management of basic skills, proficient in using computer to complete the text, data and graphics processing operation skills. The comprehensive practice design is “1+1+1” mode, that is, 1 week interior practice design, image map making and ground interpretation, 1 week field investigation of the practice base, 1 week rural land use database construction and writing report. The specific content is as follows:

① Take an administrative region of the field practice base as the unit, collect image documents, complete image map making and ground interpretation, investigate local natural conditions and social and economic conditions, and complete the internship design.

② According to the basic process of land use status survey, carries out land use status survey in the investigation area, including field survey and remote sensing survey, and at the same time, understands the current situation of land use and existing problems of land use in the region.

③ Through investigation data and remote sensing data, using computer software for land survey, update and other practical operations.

④ Understand the process of land planning (including urban planning and comprehensive agricultural land use planning).

⑤ Observation survey: through the observation survey of typical farmland water conservancy projects, typical topography and landform, land consolidation engineering scenic spots, new town planning scenic spots and land reclamation of mining area landform remodeling, soil reconstruction,
vegetation reconstruction, etc, to deepen the understanding of the concepts related to the major and broaden the vision of the major.

**Graduation Practice**

Starting graduation practice in the fourth year of college. Graduation practice is an important step for students to step into the society. It is not only directly related to the design quality of students' graduation thesis, but also related to the realization of the goal of talent training in colleges and universities. The main teaching purpose of graduation practice is to cultivate students' practical application ability of the basic knowledge of the major, and to exercise students' practical working ability and innovative spirit by carrying out practice in the professional field. The place of graduation practice can be chosen in the off-campus practice base and professional related enterprises and institutions. Graduation practice content should be closely related to the production practice and internship unit, mainly in land consolidation, land use planning and cadastral survey, and other fields to carry out the specific business and related work, students in the process of practice, should actively investigating, analyzing and thinking of the new situation, new problems appeared in the process of development of land management.

**Innovation Ability Cultivation System**

**Establish an Innovative Practice Platform and Cultivate Practical Awareness**

The cultivation of undergraduates' innovation ability is based on the professional knowledge, which can be comprehensively applied to cultivate students' innovative consciousness, innovative thinking and innovative skills. According to the characteristics of financial and economic universities, the cultivation of the innovative ability of undergraduates majoring in land resource management in Inner Mongolia university of finance and economics is carried out in stages: the first year of university, on the basis of basic courses, the cultivation of innovative consciousness is strengthened; Second and third grade, cultivate students' innovative thinking by applying for university-level college students' innovation and entrepreneurship competition projects. The cultivation of innovation skills is mainly carried out through the innovation practice platform and scientific research platform of the university for 4 years. In order to cultivate students' innovation ability, the university provides a special college students' innovation practice base for students to carry out practical innovation. At the same time, for the major of land resource management, teachers can cultivate students' comprehensive application ability, scientific research ability and innovation ability through scientific research projects.

**Field Investigation and Visit to Develop Students' Ability to Find Problems**

One of the comprehensive practice in land reclamation engineering and land survey in Junior, is to on-the-spot investigation to understand the land use status quo investigation, land use, land management (control), land use planning research, after the investigation is completed, a summary on the back to the classroom discussion, students are required to, in the form of group, report the investigation of typical irrigation and water conservancy engineering, typical landform, land reclamation engineering resort, new town planning and land reclamation of mining area landform reshaping, soil reconstruction, characteristics and problems of vegetation reconstruction, were analyzed and discussed, and according to their own idea, put forward scientific and reasonable suggestions to develop students' ability to find and solve problems.

**Cultivate Professional Awareness through Expert Lectures**

During the four stages of practical teaching, experts and leaders from different aspects were invited to give lectures, so that students could understand the basic knowledge of geology, surveying and mapping technology, land improvement, land use planning and other technical processes and methods. For example, by land planning expert lectures, students can understand and recognize that the investigation of the overall planning and special planning, and land planning compiling process, make students realize the land planning and the overall urban layout by urban nature, scale and the
influence of such factors as natural conditions, different types of planning and layout have their own characteristics. It will lay a solid foundation for them to participate in the land use planning, regional planning, urban development, real estate planning and related policies and regulations research.

**Computer-Aided Mapping to Cultivate Innovative Thinking**

In the process of surveying and cadastral surveying practice, land consolidation project and land survey practice, students are required to master the operation skills such as word, data and graphics processing by using computer after the investigation is completed. Through the computer software, completed the practice design, image map making and the interpretation of land type, and completed the construction of the rural land use database after the completion of the field survey. All content is required to be rendered and printed using computer-aided software (such as MAPGIS).

**Effect of Cultivation of Practice and Innovation Ability**

**The Professional Characteristic Knowledge System can Be Strengthened**

Through the development and implementation of the training program based on the characteristics of finance and economics, the students' learning knowledge system features prominently. In addition to the foundation of economics, management and resources, it also increases the knowledge system with financial characteristics, finance and other financial characteristics. Effectively broaden the understanding of the work content, nature of work, technical methods and other aspects of the land management major, and realize the featuring “thick foundation and wide caliber” cultivation mode.

**Can Improve Students' Practical Ability**

With the support of the basic theory, through the construction of the experimental training system of the land management specialty, the practical ability of the students is comprehensively trained. Guided by the practical requirements required by the major of land management, through a large number of experiments and practical training, the students' professional thinking ability, comprehensive analysis ability and problem solving ability will be trained, and eventually they will be able to skillfully use their knowledge comprehensively to think, analyze and solve practical problems in land management.

**It can Promote the Improvement of Students' Innovation Ability**

Students can report and host research projects, and participates in various research projects. Through scientific research practice, students’ independent thinking ability of land resource management is cultivated. To cultivate students’ ability to understand academic issues from the perspective of frontier academic issues in the field of land resource management; on this basis, cultivate students’ innovative thinking, innovative understanding and innovative ability.

**Conclusions**

The specialty of land resource management is a multidisciplinary interdisciplinary specialty. The specialty of land resource management under different backgrounds should cultivate talents with different characteristics. Through the construction of the characteristic land resource management to cultivate the professional mode, students can broaden their knowledge, training students with characteristics of the professional knowledge system and innovation capacity.

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