

RESEARCH ON CREATIVE THINKING AND PRACTICAL ABILITY CULTIVATION OF "GEOMORPHOLOGY" COURSE

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Received: 13 May 2022

Accepted: 23 May 2022

Published: 24 May 2022

ABSTRACT

This paper proposes the reform content and implementation measures of the creative thinking and practical ability training course in Geomorphology based on an examination of the idea of creative thinking and the existing challenges in the current teaching process. The four teaching strategies of emotional communication, case study, in-class discussion, and literary translation are used to achieve the purpose of curriculum reform. The concepts of human-centered education, thinking innovation, teaching innovation, teaching platform, and practice platform construction are used to attain the educational goal of nurturing students' creative thinking and enhancing their practical competence.

KEYWORDS: Creative Thinking; Practical Ability; Education Goal; Geomorphology

INTRODUCTION

The essential direction for the development of socialist education with Chinese features is to fully implement the educational policy of the Chinese communist party and to fully accomplish the core job of moral education ^[1]. In China, educating inventive talents is a critical step in creating an innovative country. According to "China's Education Modernization 2035", education in the new era must "vigorously promote the modernization of educational concepts, systems, content, techniques, and governance"; Innovative talent training approaches, as well as nurturing students' innovative spirit and practical skill, have become critical to higher education development and high-quality talent training.

The educational concept of creative thinking is a novel concept that has been developed in light of contemporary social, economic, and educational developments and is beneficial to nurturing students' innovative spirit and practice ^[2]. It plays an important role in promoting the cultivation of creative talents. This paper uses the course "Geomorphology" as an example to explore the classroom teaching reform model for the promotion of creative thinking and practical skill, based on an analysis of the connotation of new ideas. Curriculum reform and the development of inventive abilities serve as examples.

THE CONNOTATION OF INNOVATIVE THINKING

The four stages of the creative thinking process are product, process, measurement, and personality ^[3], with the personality environment that creates creative thinking playing a critical role. There is a strong link between intellect and creative thinking. Therefore, a person's creative thinking ability might be produced by the intelligence formed by school education experience and education level.

Creative thinking is an advanced and distinct way of thinking and thinking activities. In contrast to traditional thinking, creative thinking emphasizes the understanding, generalization, and mastery of objective things from different perspectives and ideas with a new cognitive way and method^[4].

The concept of creative thinking and the psychological processes that underpin it are distinct from traditional thinking. The current teaching reform in colleges and universities must stimulate and support the originality, pioneering, and complicated cognitive process of creative thinking activities.

ANALYSIS OF THE CURRENT SITUATION AND EXISTING PROBLEMS OF CREATIVE THINKING TRAINING

The traditional teaching method relies heavily on professors, and students take knowledge passively. Students are passively accepted in the communal teaching style, their thinking is limited to the guidance of teachers and professors, and their subject status is not reflected^[5]. Mechanical indoctrination as a teaching method occupies the time and space available for students' to self-learning and independent thinking. Hence, the space for students' independent learning and independent thinking is compressed. The current educational model has a weak in-class practice teaching and neglects of integration of theory and practice^[6]. Universities should provide a good hardware environment for top-notch inventive talents, as well as a professional course practice teaching platform for the cultivation of key entrepreneurial competencies^[7].

REFORM OF CREATIVE THINKING AND CREATIVE PRACTICE ABILITY OF THE COURSE "GEOMORPHOLOGY"

Contents of Teaching Curriculum Reform

The course content is carefully aligned with the teaching curriculum and talent training objectives, and it is modularized, functionalized, and targeted to meet the training requirements for creative thinking and practical ability.

Exodynamic landform geomorphology, endodynamic landform geomorphology, and artificial landscape geomorphology are the three modules that make up the course. Students become familiar with landform catastrophes and evaluation methods after studying the formation and evolution of landforms, and then achieve the goal of improving the geological environment and supporting the harmonious development of humans and the earth. The main ideas of its teaching reform are as follows (Fig.1):

- Course content module: The textbook is Peking University Press's "Principles of Geomorphology" (4th edition). Since its initial release in 2001, the teaching materials have undergone four changes and are currently included in the national planning textbook "Twelfth Five-Year Plan." It is proved in terms of the publishing timing of the textbooks, whether they belong to the national planning textbooks, and whether they are acceptable for the application of geographic science majors by comparing all currently published geomorphology textbooks in China. Finally, the teaching team considers that the currently chosen textbooks match the requirements, making it possible to conduct multiple creative thinking training sessions for students in the future.

In addition to the introduction chapter, the textbook is divided into exodynamic landforms, endodynamic landforms and artificial landscapes according to the main dynamic conditions of landform formation.

This division combines students' geology knowledge to increase their understanding of landform causes. Landform development and evolution is a result of the interaction of natural and human activity, hence rapid changes in landforms are disasters that risk human survival and safety. As a result, sorting out the substance of this chapter and explaining essential ideas and obstacles will set the stage for the following condensed goal-oriented issues.

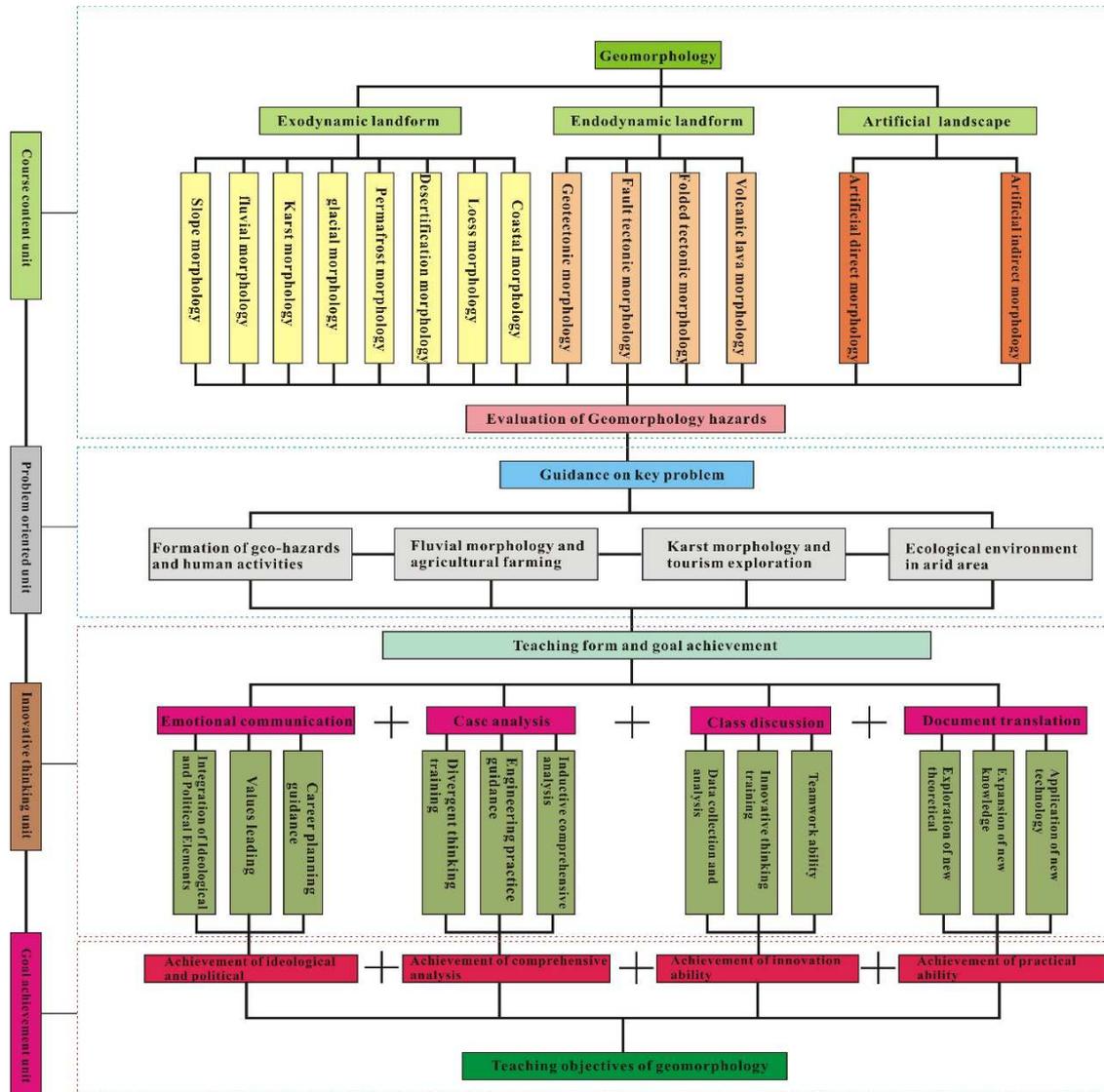


Figure 1: Functional Module Diagram of Classroom Teaching Reform for the Cultivation of Creative Thinking and Practical Ability of the Course "Geomorphology".

- Problem-oriented module: According to the course teaching arrangement, taking into account the practical teaching, highlighting the syllabus and course objectives and needs, focusing on sorting out and condensing the exodynamic landforms, forming geological hazards and human activities, fluvial water landforms and agricultural farming, karst morphology, and tourism exploration, and ecological environment in arid areas, are used to guide students and cultivate students' divergent thinking and innovative thinking.

It's also important to pay attention to the integration of appropriate ideological and political aspects [8], improve the direction of socialist core values, and achieve the goal of training all students in the process of nurturing innovative thinking during the teaching process.

- Creative thinking module: This module is organized into four parts based on the teaching format and the objectives to be met, including emotional communication, case study, in-class discussion, and literary translation. The above sections are throughout the geomorphology course.

The formation of creative thought and practical skill requires emotional communication. Teachers must establish an emotional environment for students to develop diverse thinking in a certain setting and learn to think about specific concerns in a variety of ways. Teachers assess students' practical abilities to serve as a benchmark for future career planning. Teachers can train students' divergent thinking skills in a targeted manner by introducing specific engineering cases, and eventually construct a whole process of thinking activities to accomplish the objective and requirements of creative thinking case analysis. Students acquire and analyze materials in groups according to the discussion topics during the in-class discussion process. This method fosters students' capacity to think creatively, collaborate effectively, and conduct thorough analyses. One of the most successful strategies to actively improve students' self-learning ability and widen the change from traditional thinking to creative thinking is to translate recent foreign-language literature. This link actively encourages students to investigate research, develop new ways of thinking or viewpoints, and strive to put this new technology into practice to improve practical abilities.

- Goal control module: Ideological and political achievement, comprehensive analysis achievement, creation ability achievement, and practical ability achievement are the four sub-goals that make up the course teaching goal. Benchmarking course objectives, achieving creativity ability, and achieving practical ability all require further help from course practice, as well as the assessment of ideological and political achievement and comprehensive analysis achievement.

The Goal of Teaching Reform

This course is problem-oriented to construct a curriculum teaching design. Train and cultivate students' creative thinking and practical ability through the secondary goals of emotional communication, case analysis, in-class discussion, and literary translation in the key problem-oriented process; change the dominant position of teachers in the classroom, extend knowledge teaching to extra curriculums, and cultivate students' self-learning ability through multi-level training in the classroom and practical.

Implementation Measures Plan

Curriculum teaching function, teaching reform plan, key problem solving, and teaching mode development are the four phases that make up the project's implementation. The teaching plan, for instance, supports the solution of key problems, and the key problems are iteratively fed back to the teaching plan in a timely fashion, resulting in the formation of an effective teaching model. The project implementation plan is as follows (Fig. 2)

- Humanistic education concept: Change the typical teacher-centered posture in the classroom, gradually giving way to students, and allowing students to dominate classroom. Simultaneously, maintain an atmosphere of emotional communication, encourage students to engage in divergent thinking, consider typical situations relevant to the course, and present personal ideas or opinions.

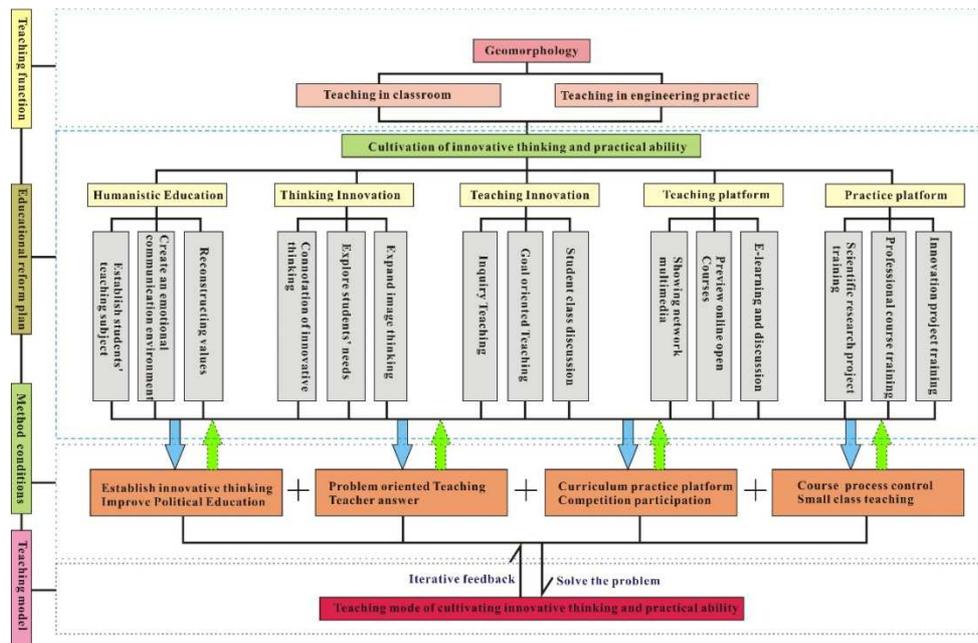


Figure 2: Technical Roadmap of Teaching Reform for Improving Creative Thinking and Practical Ability of Geomorphology.

- Teachers' thinking innovation: Teachers are conversant with the instructional subject and comprehend the meaning of thinking creation. Set up a variety of discussion subjects, as well as ideas for how to teach frontiers and how to guide them. Teachers must have a thorough understanding of their students' learning situations, psychological activities, learning attitudes, endurance, and emotional monographs, among other things, as well as a preliminary understanding of their students' learning needs based on their usual grades, and conduct targeted classroom discussions related to the topic of discussion. Activities to encourage students to think in a continuous and divergent manner before forming an effective and creative point of view.
- Reform of teaching methods: Team teaching teachers will collaborate to develop a teaching method that is appropriate for the course's material to create an educational plan. To construct a teaching model in which students have a certain amount of time in the classroom for intense discussion, the subject-exploration and target-question-oriented teaching approaches are used.
- Modern educational technology: Teachers concentrate on dialogues, screen teaching reference tools and materials, and concentrate on images, photos, and PPT that foster students' original thinking during the teaching process. Teachers increasingly integrate multimedia and network resources in their presentations, particularly domestic open online courses and high-quality courses, and encourage students to study independently after class. Furthermore, the teaching team forms a learning exchange group and invites students to join, forming a good online communication and feedback learning mechanism, utilizing high-quality modern educational resources to their full potential, and cultivating students' innovative thinking ability in multiple dimensions.
- Practice platform construction: The geomorphology course is highly practical. Therefore, strengthening practical ability training is critical in the process of fostering students' creative thinking. Teachers can increase radiation levels based on their scientific research projects, choose a research topic that is appropriate for undergraduates, and fund their research through scientific research projects to develop students' practical abilities.

CONCLUSION

This paper suggests the reform content and implementation methods of the creative thinking and practical ability training course in Geomorphology based on an analysis of the idea of creative thinking and the challenges that exist in the current teaching process. The following are the primary conclusions:

The course content of "Geomorphology" is divided into three modules: exodynamic landforms, endodynamic landforms and artificial landscapes, from which the formation of geological hazards and human activities, fluvial water landforms and agricultural farming, karst morphology, and tourism exploration, and ecological environment in arid areas are derived. Environment and other four topics, through emotional communication, case analysis, in-class discussion, literature translation four teaching methods to achieve the goal of curriculum reform.

The implementation of the teaching reform plan is divided into teaching functions, teaching reform plans, key problem solving, and teaching model formation. Through the implementation of five steps: human-centered education concept, teacher thinking innovation, teaching method reform, modern educational technology, and practice platform construction, solve key problems, and timely feedback and updates to achieve the educational goal of cultivating students' creative thinking and improving their practical ability.

ACKNOWLEDGMENTS

This project was funded by the Teaching Reform Project of GDUPT (234611).

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