

# Exploration and Reflection on Strengthening Field Practice Teaching of Geological Majors through School Enterprise Cooperation

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**Abstract:** Field practice teaching in geological majors is an important way to cultivate students' characteristics in geological majors. By combining field production internships with geological exploration units, it is beneficial for students to better integrate theoretical knowledge with practical production, which is of great significance for improving comprehensive quality and increasing employment.

**Keywords:** School-enterprise cooperation; Geological category; Practical teaching

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## 1. Introduction

Geology is a highly applied and comprehensive discipline, which is one of the oldest disciplines, involving multiple fields such as earth science, resource exploration and development, environmental protection, engineering construction, and geological disaster prevention and control<sup>[1]</sup>. It has important supporting significance for national mineral energy security and economic and social development. Geology has three characteristics: fundamental, comprehensive, and practical. Compared with other disciplines, the proportion of practical teaching in geology is particularly prominent. Taking China University of Geosciences (Beijing) as an example, practical teaching mainly consists of three parts: field cognitive internship in Beidaihe in the second semester of college, teaching internship of basic theoretical courses in Zhoukoudian in the second semester of college, and graduation production internship in the second semester of college. The first two internships focus on cultivating students' basic knowledge, mainly adopting the model of internship teachers leading teams and whole-class field classroom teaching. Graduation production internship refers to students participating in the production and research projects of their supervisors, which has the characteristics of a small number of students, strong targeting, and more emphasis on improving students' professional abilities.

This stage is particularly important, and how to make reasonable arrangements is of great significance for cultivating qualified geological talents and ensuring passing the final test <sup>[2]</sup>.

In recent years, with the continuous increase in the scale of graduate enrollment, there have been more and more graduate students under the guidance of supervisors, so there has been a serious shortage of teaching staff. At the same time, there are also problems such as insufficient internship bases and a lack of teaching resources. How to ensure and improve the quality of undergraduate field production internships is a difficult problem facing education institutions. China University of Geosciences (Beijing) has achieved good results by jointly completing undergraduate field production internships with geological exploration units in various provinces. The university selected some students to directly participate in the front-line production and scientific research projects of the enterprise, and have the enterprise assign experienced experts as enterprise mentors for the students. The school mentors and enterprise mentors are jointly responsible for the student's field production internship tasks. Compared with the traditional field production internship mode, this training mode has achieved good results with the following advantages.

## **2. Use of new technologies and methods**

In the past decade, with the increase of national investment in the geological exploration industry, earth science has made significant progress and breakthroughs, especially the widespread application of high-tech achievements such as information technology, physics, and chemistry, which has brought profound changes to modern geological work. Enterprises have a good practical environment, which provides a strong foundation for cultivating students. Compared with the conditions for field internships in schools, exploration units in various regions have obvious advantages in terms of funding, equipment, and instruments, as well as the use of new technologies and methods. Geological survey units in various regions have popularized digital mapping in regional survey projects many years ago, while many schools still use more primitive mapping methods today. Through school-enterprise cooperation, students can enter enterprises and make good use of advanced instruments, equipment, and professional software that some geological exploration units possess but universities lack. This enables students to learn more knowledge and create more scientific research achievements, not only saving resources and cultivating a large number of innovative and useful talents but also creating great wealth for society.

Knowledge in any field is constantly being updated and improved. As the main tool for carrying knowledge, textbooks have a significant lag compared to rapidly changing technology, and the textbook knowledge learned by students is somewhat disconnected from actual production <sup>[3]</sup>. School enterprise cooperation is conducive to promoting the close integration of theory and practice, enabling students to timely understand and master the latest information in production practice. The theoretical knowledge and practical skills learned in school can be verified through practical internships in enterprises, strengthening the cultivation of professional skills, and discovering new problems in practice, which is conducive to further learning and research. School enterprise cooperation is also beneficial for better solving the problems encountered by enterprises in practice, providing theoretical support and technical guidance for enterprises, and has important significance for their future development.

### **3. Familiarize oneself with the work environment and clarify the next learning objectives**

The geological exploration industry, as a difficult industry, has certain industry characteristics. Although there have been significant improvements in various aspects in recent years, it still has certain difficulties and risks compared to other industries. Some students cannot adapt to the harsh environment of geological work after graduation, and their ideological foundation is not solid. They quickly resign or switch jobs when they enter the job market. For students jointly trained by schools and enterprises, entering the enterprise production internship and participating in scientific research and production work as a member of the geological exploration team, they are both students and employees of the enterprise, able to personally experience the nature of work, familiarize themselves with the work environment, and lay a solid ideological foundation early on. In addition, it can greatly broaden academic horizons, improve professional knowledge level, and exercise independent ability, social ability, scientific research ability, innovation ability, and teamwork ability, thereby enhancing overall quality. At the same time, it enables students to have a clearer understanding of their own shortcomings and a deeper understanding of geology. Through practice, it also clarifies their learning direction for future studies and research, truly achieving targeted learning.

### **4. Achieve seamless connection between learning and employment**

Students jointly trained by schools and enterprises need to undergo 2–3 months of field learning practice in the cooperating units. During this period, the cooperating units and the students who come to receive training have sufficient time to fully understand each other. For cooperative units, while cultivating students, it is also examining their comprehensive qualities, so that they can select outstanding talents in the future and seek human resources reserves for the development of the unit. For students, they can have a good understanding of the nature of work in enterprises, familiarize themselves with the work environment, and accumulate work experience. By studying and practicing in enterprises, students' professional skills can be greatly improved. After graduation, students can quickly adapt to enterprises and quickly play a role in the workplace, shortening the period of adjustment between students and enterprises after employment.

Enterprises generally give priority to students who have interned in their own units or have internship experience in enterprises when accepting graduates. The fact also proves that exploration units in various regions have selected many outstanding talents from the cooperative training of students, and many students have voluntarily gone to work in the units where they have interned after graduation. The addition of more interns has also provided favorable conditions for the development of the enterprise. Compared with other students who are working at the same time, students who receive joint training have stronger adaptability and can stay. Some students who receive joint training are highly sought after in the job market due to their internship experience in production units. The model of school-enterprise joint training has truly achieved seamless connection between the learning and employment of some college students.

Although there are still some difficult management issues in the current school enterprise joint training, it is still a good way to solve students' production internships in the long run, which is conducive to improving students' practical abilities and enhancing their comprehensive quality. By collaborating with more enterprises and establishing more internship bases, the advantages of school-enterprise cooperation will be more significant.

## Disclosure statement

The author declares no conflict of interest.

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