Teaching Reforms of Field Practice in Botany

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Abstract: This paper analyzes the problems existing in the teaching of botany field practice and discusses the reform ideas based on the field practice experience, so as to provide references for cultivating students' scientific quality and improving the teaching quality of botany field practice.

1. Introduction

Botany field practice is an important link in botany teaching process and an important means for students to consolidate classroom knowledge and combine theory with practice. At the same time, it plays an indispensable role in stimulating students' learning interest, enriching taxonomic knowledge, improving their awareness of scientific research and cultivating their independent working ability [1]. The advantage of field practice lies in that it can study plants in the natural environment and can better understand the relationship between plants and environment [2]. Due to the limitation of funds and the lack of relevant professional teachers in the traditional field of botany, most colleges and universities are carrying out related reforms [3]. Some colleges and universities adopt "tourism" internship, which not only increases the cost of students, but also almost deviates from the purpose of practical teaching [4]. In the case of limited funds, how to conduct effective botany field practice teaching is inevitable. On the basis of referring to the reform experience of other colleges and universities and combining with the many years practice experience, this paper discusses the reform ideas of botany field teaching, in order to provide reference for cultivating students' scientific quality and improving the teaching quality of botany field practice.

2. Reform Measures for Botany Field Practice Courses

2.1 Establishment of Botany Field Practice Base.

The selection of practice site is an important premise for the Botany field practice teaching [5]. The practice base should choose a place with abundant plant species, convenient transportation and relatively simple terrain. Thanks to the unique geographical location of our school, it is adjacent to the Huguang rock, adjacent to the south subtropical botanical garden and the back of the suburb, with rich plant species. With the condition of limited internship funds, in addition to regular campus internships, the choice of these three locations not only guarantees students' safety, but also enables students to come into contact with different plant types. In the suburbs, can let students fully understand the local wild plant species, laying a foundation for the students who majoring in plant protection and agriculture to learn professional courses in the future. In Huguang rock and the scenic area of the south subtropical botanical garden, students can have access to a large number of cultivated plants, which is of great significance for students who majoring in horticulture and forestry to broaden horizon.

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2.2 Improve Students' Enthusiasm.

Students' understanding of the internship of botany course is biased, believing that it is only a simple learn about common plants [6]. In particular, with the progress of science and technology, there are many software for identifying plants at present, such as Shape Color, Flower Companion, Discovering and Recognizing Flowers by Microsoft , etc., which make students feel negative and think that they can easily identify plants by these software instead of listening to the teacher. However, these software itself has many defects, which cannot completely correct identify the surrounding plants, in the long run, students cannot play their own initiative. Therefore, in the course of teaching process, teachers should fully explain the role and status of this course in the major, so that students can understand that botany field practice is not only the sublimation of theoretical knowledge, but also the cultivation of students' scientific literacy and the improvement of their decision-making and reflection ability when they are facing practical problems. Secondly, teachers should appropriately elaborate some practical working knowledge and the influence of talent competition on students' vital interests, so that students can generate a spontaneous driving force from the heart and change passive learning into active learning [7]. Introducing famous people and events in plant taxonomy, cultivate the students' cognition, such as some of the early taxonomists Zhong Guanguang, Hu Xiansu, Qin Renchang, introduce their deeds and achievements in plant taxonomy, so that stimulate students interest.

2.3 Enriching Teaching Content.

Plant taxonomy has always been mainly based on the morphological characteristics of plants. With the progress of science and technology, there are various methods of plant classification, such as cytology, chemical method and molecular classification. In particular, the current classification system established by the Angiosperm Phylogeny Group, according to the genomic information of plants, the classification system of APG is established by the method of affinity branches. Compared with the traditional classification system, the classification system of APG is greatly different and closer to the real state of nature. However, the system is rarely used by teachers in teaching. On the one hand, some teachers are unwilling to make any changes, and it has become a habit to use the former system based on morphological classification; on the other hand, many teachers lack relevant professional training [8]. In the teaching mode, the traditional method is that the teacher introduces the species names, families and morphological characteristics of plants to the students, while the students follow the teacher and mechanically listen to the teacher's explanation of record and ask the teacher questions. In this way, students get only a few sporadic knowledge at the superficial level, only learn about plant species simply, however, the morphological variation of plants is large and the plants have strong regional characteristics. As time goes by and the places change, the names of plants that students remembered are gradually faded away. Making specimen is also mainly relying on teachers to explain and demonstrate the main process. However, the making process of plant specimens is tedious and requires attention to many details, only rely on oral explanation cannot let students fully understand and learn. The practice content of botany course is rich and should from operation to result refine the teaching content. It can be done as follows: (1) Field observation: learn about the vegetation types of the practice site; Learn about its main characteristics and living environment. (2) Field collection: learn how to collect plant specimens. (3) Field recording: learn the recording method of collecting plant specimens in the field, which includes collection date, collection person, collection number, collection place, environment, plant character, plant name and so on. (4) Making and pressing herbarium: learn the methods of pruning, pressing, drying and making herbarium. (5) Expand the content of the project: guide students to conduct special investigation and research in groups, and write related papers. (6) Use reference books: teach students to use search tools to look up plants in the field. (7) Internship summary: including daily analysis and summary of internship contents during the internship, and comprehensive internship summary after the end of the internship. In terms of teaching methods, mainly rely on heuristic teaching, Such as literature review, group discussion, field investigation, classified knowledge competition and other teaching methods, Encourage students to participate in

the teaching process initiatively, so as to highlight the main role of students and give full play to their initiative.

2.4 Deepen the Course Assessment Method.

The assessment of field practice results is a comprehensive evaluation of students' performance in the process of practice [9]. However, the traditional field practice assessment is usually based on how many kinds of plants students know, and the quantity and quality of specimen making. Although these also mobilize the enthusiasm of students to a certain extent, yet ignore the cultivation and improvement of students' ability and quality [10]. Therefore, it is imperative to establish a more scientific assessment system. According to the teaching content, it should establish a corresponding assessment system. It can be assessed from the following four aspects: a. the professional practice attitude, which can based on the attitude of students to participate in field practice activities, including abiding by discipline, participating in each teaching activity, and completing each link of the practice. b. Internship report and research paper. According to the quality of students' internship reports completed after the end of the internship and the research projects of extended teaching in groups and the quality of papers make assessment. c. Practical operation skills. Mainly assess students' ability of collecting and making specimens, their ability to identify plants, and their consult methods of unfamiliar plants [11]. As all mentioned above, give recognition and praise to the students who have done well in the study, choose exquisite specimens to lie in the display window for students to learn, etc., fully mobilize the enthusiasm of students.

3. Summary

The effect of field practice is directly related to students' mastery of botany courses, through the above teaching reform of field practice, can fully mobilize students' enthusiasm, cultivate independent study ability and team spirit, and lay a solid foundation for future study and scientific research.

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