

Innovation and Practice of Ornamental Botany Teaching Based on the New Media

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Abstract. The weak biology foundation of tourism management students and the decline of learning interest caused by the poor maneuverability of practical teaching are urgent problems that need to be solved in ornamental botany teaching. We increased the basic terminologies for plant classification in classroom teaching, and optimized the teaching contents, and increased the class hour of plant morphology and anatomy observation and also introduced the hot cases of ecotourism and tourism planning according to the professional requirements. The two homework of phenology observation and plant landscaping for the whole semester made up for the lack of mobility in practice teaching. The assessment of practice teaching was increased, which included practice attitude, field plant identification, comprehensive report and practice experience these measures have improved the learning interests and teaching effects. The use of WeChat's new media to show a wide variety of ornamental plants and to attract students to observe was an innovation.

1. Introduction

"Ornamental botany" is a compulsory basic course of majors such as tourism management, landscape architecture, environmental art design[1, 2]. It is an application course which combines scientific, systematic and artistic natures into one. Based on systematic teaching of ornamental plant resources and its characteristics, the course focuses on ornamental plants' own ornamental and decorative value, applicability and practicality. This course is closely related to general botany, plant physiology and ecology, traditional garden tree science, flower science, garden plant cultivation and so on. The above traditional courses of agroforestry are more focused on one aspect, while this course systematically describes the resources of ornamental plants, biological characteristics and ecological habits of different types and their application. Its purpose is to use less class hour to let students have a more comprehensive understanding of ornamental plants, highlighting non-agricultural and forestry majors' demand for ornamental plants.

As an important element of the landscape, ornamental plants play an important role in tourism. There are many tourist areas around the world formed because of its rich or unique ornamental plant resources, such as the rhododendron of British Edinburgh Botanical Garden, the tulip of Dutch Kukenhof Park, the sakura of Japanese park, the peony of Henan Luoyang Wangcheng Park. At the same time in many scenic areas, ornamental plants will also form a famous attraction, such as the welcoming pine of Huangshan, Bodhi tree of Guangxi Nanning Liangfengjiang National Forest Park, banyan of Yunnan Xishuangbanna, white robe general (white pine) of Beijing Beihai Park Tuancheng. At the same time, China's resource-rich ancient and famous trees are also important tourist resources, such as Yunnan's *rhododendron protistum*, Tibet's *paeonia ludlowii*, Zhejiang Tiantai Mountain's plum blossom, Hubei Xianning's sweet-scented osmanthus. These are all cities' postcard to attract tourists. Only familiar with the characteristics of the tourism elements can we be able to apply this tourism element well in travel planning and tourism landscape design. The "Ornamental Botany" of Beijing Institute of Agriculture is set based on the above considerations. It is for tourism management (eco-tourism direction) specialty and has combined courses of "Botany", "Garden Flower", "Ornamental Tree", "Ornamental Horticulture" and "Flower Application".

Through the teaching of this course, let students understand the concept of ornamental plants, the characteristics, distribution and cultivation history of Chinese ornamental plant resources; understand the cultivation techniques and breeding methods of different types of plants; master the basic theory and method of classification and application of ornamental plants; focus on the ornamental characteristics, biological characteristics and ecological habits of different types of plants; and ultimately let the students have a more systematic understanding of that ornamental plants can beautify the environment, improve the environment, develop industry and its role in forest and natural landscape tourism. Use less class hours to let non-agricultural and forestry students have a general grasp of the complex and diverse ornamental plants, laying a solid theoretical and practical basis for the students to continue to learn the principles of urban and rural planning, tourism planning, tourism landscape and facilities design and other professional courses.

2. The necessity of teaching reform of ornamental botany

When participating in the tree planting activity in capital, president Xi Jinping stressed that "China is still a country which is lack of forest and ecologically fragile. There is still a long way to go." At the same time, president Xi also pointed out that "the construction of ecological civilization is related to the sustainable development of the Chinese nation and the realization of the goal of two hundred years". Protecting the ecological environment is to protect the productive forces, and improving the ecological environment is to develop the productive forces. At present, there are few students who have graduated from ecotourism. There are few people who can do a good job on specific tours guides, services and grassroots management. They can not answer the questions about ecology and forest plants in tourism activities and can not meet ectourists' psychological pursuit for new and difference and cultivation of ecological consciousness[3]. For students who learn tourism management, especially eco-tourism, they need to always reflect and imply the ecological principle in future tourism planning and tourism landscape design. This new era's goal has put forward new requirements for current stage's curriculum construction and personnel training.

New media is the communication and media form which provide users with information and entertainment services through channels of internet, wireless communication network, satellite and terminals such as computers, mobile phones, digital televisions with digital technology, network technology and mobile technology. Compared to traditional media such as newspapers, magazines, radio, television, the new media has greater information and stronger interaction[4]. The new media environment poses new challenges to the teaching of ornamental botany.

3. The objectivity of teaching reform of ornamental botany

3.1 Students' initiative is poor

At present, the teaching of ornamental botany in many schools is based on the evolution order of the plant system, which focuses on the biological characteristics of plant families[1,2,5]. In the actual teaching, it is found that due to the weak foundation of life science of tourism management students (liberal arts candidates), their understanding and mastery of complicated plant morphological terms are poor. At the same time, they are also prone to have the situation of disjoint of plant identification and plant application. These situations will affect the application of ornamental plants in subsequent tourism planning and design.

In the curriculum system setting of school's tourism management specialty, the teaching module of plants is in the state of decreasing and compressing. The connecting courses for ornamental botany are very few. In the early period, there is no pre-set botany course, ecology belongs to course of the same period, follow-up plant landscaping and application courses are elective courses. The lack of completeness and systematicness of plant teaching module course setting has affected the student's interest and motivation for learning.

3.2 Practice teaching arrangements has poor mobility

With the change of season and environment, the phenological period of ornamental plants is also changing. Based on the consideration of teaching standardization, the practice teaching time of ornamental botany in school is generally determined at the end of the previous semester, and can not be changed in actual execution. Then in the actual teaching, it's easy for practice teaching arrangements and plant phenological period to be inconsistent. Such as the spring of Beijing sometimes has a long period of coldness, and plant phenology is also significantly delayed compared to the past. The original practice of spring ornamental plant recognition is easy to be affected. The plant species that students can observe in the day of practice teaching have been greatly reduced compared to previous years, and students will miss the phenological period in the next practice teaching. In addition, some extreme weather phenomena will affect the ornamental effect of plants, not conducive to the practice teaching activities.

3.3 Traditional assessment mechanisms is not good

Like most other courses, the grade of the theoretical teaching of Ornamental Botany depends on both of the final examination and the daily performance. The content of examination has come mainly from the class teaching and text book. The traditional examine mode, measuring the level of student learning by high or low scores, can easily lead students to prepare for examination by a rush recite job and a quick forgetting soon after the examination. In the meanwhile, there is a circumstance that students are able to write the name of some ornamental plant on the test paper, but they could not recognize it in practical application, through which the application of this plant in future has been limited.

The evaluation of Ornamental Botany Practice Teaching is mainly based on the written internship report. In the process of finishing the internship report, students may copy the text book or botany chart, or copy from each other. Teacher could not distinguish the above-mentioned situation when making the judgement. In the meanwhile, because of lacking of examination, some students take part in the practice teaching activity negatively. They have low participation enthusiasm and low interactiveness.

4. The innovation and practice of ornamental botany teaching

With the goal of cultivating the metropolitan-type, application-oriented and inter-disciplinary talents, and with the aim of achieving the ecological functional performance of the plants in Beijing, such as the wind break and sand fixation, regulation climatic, air purification and maintaining of balance of ecosystem and in order to enhance the students' cognition level of "ecological", the course team has carried out a series of reform attempts based on the upholding of the scientific, artistic and practical of the course, with considering the characteristics of the school students.

4.1 Carefully select the teaching content and optimize the teaching group

Based on the characteristic that the students of arts have poor foundation of Biology, in the theoretical teaching, the major morphological terms of angiosperm and three experiment courses have been added. In the experimental courses, teachers make full use of the plant resources in campus and greenhouse, and show the material object of compound leaf, branch, flower, inflorescence and fruit, through which the students' direct cognition has been increased. By observing the anatomy of flower and fruit type, with a combination of using plant key, students can have a better grasp of the taxonomy terms of this chapter, and establish a good foundation for recognizing the ornamental plant.

As the mainstay of tourism activities, experienter not only wants to get the sensory experience, but also to acquire the cultural edification. Because of this point, we pay attention to explore the cultural connotation of the ornamental plant, and add the content related to Chinese flower culture. Through introducing the cultivating history and applied forms of Chinese famous flowers and traditional flowers, students are able to enhance their culture. Combined with the internship in the Summer Palace of other courses, students composed the tour guide manuals of plant application in the Summer Palace and explained them in the practical activities, which have received highly praise from tourists.

In order to let students understand the subject frontiers of ecotourism and tourism planning, the emerging tourism dynamic and trends have been added in the theoretical teaching timely, such as the following case teaching of hot design cases, “agricultural sightseeing garden”, “sponge city”, “Bed & Breakfast” and “vertical forest”. The roles of the ornamental plant played in the cases are emphatically analyzed in the course. The presentation of these cases implements the practical characteristic of the course, and ignites the students’ desire for exploration in the meanwhile.

The current teaching group of this course contains front-line teachers engaged in Botany, Dendrology, Floriculture, Ecology Theoretical Teaching and Ecology Practice Teaching. All teachers teach the corresponding content with combining his or her technology expertise. Diverse teaching styles could stimulate more interest of students’ learning. This course has a complete network platform. Large quantities of plant characteristics, photos of application and examples provide students a better interactive platform. Teachers not only learnt the new teaching methods actively, such as “MOOC” and “Flipped Classroom”, but also applied the prevalent new media Wechat in teaching. Teachers post messages of flowers information of campus and practice base on Individual WeChat public number and the WeChat public number of University. Students are able to identify and evaluate outside the classroom, through which the class has been effectively extended and the teaching effect has been enhanced.

4.2 Multiple teaching method, motivating students’ independence and initiative

Multimedia teaching, represented by “PPT” offers great convenience for presenting the morphological feature and application forms of plants. Large quantities clear and vivid pictures are able to turn dull theoretical teaching into vivid “Exploration in the Botanic Garden”. In order to change the drawback of “students bury themselves in taking notes and the dull classroom atmosphere”, which is easily appears in the multimedia teaching of this course, the theoretical teaching applies the form of teacher’s showing combines with students’ autonomous quizzing and explaining, with a particular emphasis of the students’ evaluation interactive of the recognition of plant’s ornamental characteristics and application effects. Teachers guide students mainly to “watch and evaluate”, and urge students to ask questions, and then teachers and students discuss and solve the problems together.

Besides classroom interaction, constructive teaching is another significant method to enhance the students' independence and initiative[6]. Connecting with the teaching content of Ornamental Plant and Chinese Culture, a 2 hours' constructive teaching mode has been set up. Choosing a topic of flower history and application, the students adopt the method of group discussion and then do the class presentation. Students carry out the group learning activities freely, and obtain the relative knowledge through multiple ways. Students consult reference, read the similar-type books of “Flower and Culture”, watch documentaries and combine with learning the application of PPT and webpage making, and finally make the presentation in a diversified demonstration form. The form of synthesis evaluating among intra-group and inter-group mobilizes the students' interest. At the end of the course, a 2 hours’ constructive teaching mode was set up. Teachers guide students to select subject combines with the courses which are set up in the same term, such as Ecology and Science of Tourist Guide, the serials subjects of “Ocean of Flowers in Four Seasons”, “Tour of Lavandula”, “Ornamental Plant and Souvenirs” and “Botanical Garden Designing” are set up. These teaching process have enhanced the students’ independence and initiative.

4.3 Construct open-ended experimental site and extending practical activities

Practice teaching contains 24 hours’ on-campus experiment and 3 days’ off-campus internship. The major content includes the recognition of evergreen conifer wood species, outdoor blossom tree of spring and summer, outdoor flowers and greenhouse ornamentals and cut flower plants. The Experiment and Practical Course combines the base on campus and off-campus base organically. The base on campus contains the Botanical Garden and greenhouse on campus of Beijing University of Agriculture, including about 300 kinds of trees and flowers; the off-campus base includes Baihua Mountain National Forest Park, all parks and botanical garden in Beijing, Beijing Teaching Botanical Garden and the Off-campus Forest Farm. All these forest parks and botanical gardens are mainly

focused on the popularization of plant science and ornamental plant landscape, which combine the cultural landscape, ornamental and knowledge together. All the teachers are able to select the internship base reasonably based on his or her practical experience.

The campus and forest farm can become the open-ended laboratory by adopting the flower information pushed by the Wechat Official Account and the “QR Code” of plant in campus and forest farm. Teachers have set up an experimental class of phenological observation and a comprehensive phenological observation plan, which lead students to observe the ecological habits in different seasons and be familiar with the growth status of the plants throughout the year. Through investigating, observing and summarizing the phenological period of the frequent ornamental plant, the students have cultivated their enthusiasm and initiative towards Botanical Ornamental Discipline, and also the influence of class decreases has been offset. When the students go on a field trip to scenic spots of other courses in the same term, they are required to watch more and record more, get familiar with the species and different application forms of the frequently-used local ornamental plants, and conduct the evaluation of the “ornamental value and ecological feature” of the plant landscaping. The discussion teaching should be approached based on the survey. The two huge after-school work of phenological observation and the evaluation of plant landscape along with the teaching activities have effectively overcome the deficiency on “bad mobility on practice arrangement”.

4.4 Paying attention to the learning process and innovating the examination mechanism

In order to better stimulate students' interest in learning, the learning process is considered for the performance appraisal mechanism. The whole learning process has been divided into several items, containing attendance, presentation, scores of group discussion, scores of experimental lesson and scores of final examination (without the use of the textbook). Each item takes a definite proportion. Such kind of process evaluation is able to evaluate students comprehensively and objectively. In the same time of reducing the pressure of theory class test, the learning desire of students with liberal arts foundation has been enhanced. Practice Teaching adopts the method of oral examination. The newly reformed Ornamental Botany practical assessment integrates the following aspects to do the overall evaluation, such as the attitude of internship, oral examination on the spot, internship integrated report and internship feelings and experiences. The scores are comparatively objective, which can truly reflect students' studies. The strict assessment not only have the function of urging students to study conscientiously, but also improve the students' practice effect.

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6. Conclusion

It has been an irresistible trend of new media-based modern teaching to be subordinated to high education system. The Construction of Ecological Civilization also puts forward the new demand for cultivating the “ecotype” talents. They have not only presented new opportunities, but also brought new challenges. These requires that the teachers should be good at learning new concepts, new technologies, updating the teaching materials in time, perfecting experimental teaching, bringing in subject dynamic and frontiers, creating an interactive and discussion-based teaching mode actively, as well as adopting the new media to infinitely extend the practical class. In the process of teaching, teachers should pay attention to train students' insight, as well as to enhance the abilities of analyzing and solving the problems, letting students obtain the omni-directional exercise and becoming the interdisciplinary “ecotype” applied talents.

7. References

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