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## Application Exploration of Case Method in Ecological Landscape Design Course

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**Abstract:** As a course with utility and practicality, the teaching content of ecological landscape design course not only includes the learning of basic theoretical knowledge, but also covers the cultivation of design practical ability. How to effectively make up for students' deficiency of ecological landscape design practice and theory learning, improve students' analysis and judgment ability and cultivate students' communication ability and team spirit is an important problem in ecological landscape design course, which must be solved. In this study, it describes the concept and history of the case method and introduces its advantages with characteristics. On this basis, it makes a comprehensive discussion of the organization and implementation of case method in ecological landscape design course, including case selection, the basic mode of case method, the processing and analysis of case, the evaluation of students' performance and so on; Furthermore, it also discusses the relationship and application between the case method and other teaching methods in ecological landscape design course.

**Key words:** Case method, characteristic advantages, basic pattern, ecological landscape design course, application exploration

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### INTRODUCTION

Ecological landscape design is a course with high utility and practicality, whose teaching content includes not only includes the learning of basic theoretical knowledge, but also covers the cultivation of design practical ability, so it is hard to achieve the teaching goal just with traditional theoretical teaching methods. How to effectively make up for students' deficiency of ecological landscape design practice and theory learning, improve students' analysis and judgment ability and cultivate students' communication ability and team spirit is an important problem that must be solved (Konur, 2012). As a kind of participatory heuristic teaching method with the interaction between teachers and students, case method plays an important role in the training of students' practical ability and creative thinking (Ozguner *et al.*, 2011). This study will explore the application of case method in ecological landscape design course with a hope of providing enlightenment and reference for relevant teaching.

### CONCEPT AND HISTORY OF CASE METHOD

The concept of case method: In English, "anli" is called "case". In Chinese, case can be called as "gean", "geli", "shili", "shili", etc. In British and American law, case commonly refers to "the case with a judgement".

Case method is a teaching method, which helps students personally experience the case scene through simulating and reproducing some scenes in real life or learns something through discussing (Yin and Wang, 2011). It is mainly used in management, law and other disciplines, but now it is also widely used in the teaching of other disciplines. Case method is a heuristic teaching method with theory and practice (Wang, 2011). In cash method, teachers start from the cases in the textbook and use a variety of ways to encourage students to think and discuss related questions. In ecological landscape design course, case method usually concludes many design principles, experience or lessons through analysing, comparing and studying many successful or failed design cases in order to cultivate students to systematically master and use the professional theory of ecological landscape design as well as improve their comprehensive analysis ability and problem-solving skills, thus enriching their knowledge and broadening their horizons.

**History of case method:** Case method was first founded by the former dean of Harvard Law School C. C. Langdell in 1870 and promoted by the director of Harvard Business Institute W. B. Doham (Yadav *et al.*, 2010). Then, it quickly spreaded to many parts of the world from the United States and is considered as a successful educational method representing the direction of future education (Wang *et al.*, 2009). In the 1980s, case method

was introduced to China. The systematization of case method originated in Harvard Law School in the United States (Van and Ann, 2010). In fact, the history of case method can be traced back to the Spring and Autumn and Warring States Period in China and the Socrates method created by the philosopher Socrates in ancient Greece.

**China: One of the countries that first spread cases:** A lot of influential dynasties events and figures have been documented in Chinese historical data, such as Chunqiu, Strategies of the Warring States, The Book of History, Comprehensive Mirror for/to Aid in Government and so on, which provide reference and enlightenment for readers through One Project One discussion and reasoning with cases. Huangdi Neijing, An Outline Treatise of Medical Herbs and other classical works in ancient medicine have recorded many cases. People can learn how to cure the disease according to the cases recorded in the books. As early as the Spring and Autumn Period, scholars of various thoughts begin to use a large number of folk stories to expound the inherent law of things and the philosophy of life. Till now, the well-known “Tianji’s horse racing (Tianji Saima in Chinese pinyin)”, “An illusory snake in a goblet (Beigong Sheying in Chinese pinyin)”, “Professed love of what one really fears (Yegong Haolong in Chinese pinyin)” and other stories have been used as typical examples to expound philosophy. So China is one of the countries that first spread cases in the world.

**Ancient greece: Socrates pioneered case method:** Two thousand years ago, the Question and Answer Method (also called Socrates Method) created by the ancient Greek philosopher and educator Socrates (Socrates, 469-399 B.C.) is the prototype of case method, thus founding the case method. The teaching of Socrates’ Method usually goes around certain issues, combines the knowledge acquired by students and the situation they learned, equally discusses in a tone of asking for advice and guides students to come to a conclusion. Its main purpose is to inspire students to think, play the initiative of students and find a really effective solution to the problem through their own analysis and discussion. His student Plato inherited his teaching method and compiled a book with his Question and Answer Method to illustrate a truth with a story, which pioneered the earliest case teaching method in the history.

**Harvard law school: Took first attempt of case method:** In 1870, the dean of Harvard Law School Christopher Columbus Langdell in the United States founded the case method, who is known as the “pioneer” of case method.

At that time, the law teaching was a mixed teaching method with teaching, reciting materials and practicing (Lavis and Brannon, 2010). Such teaching method let students be in a passive state, which was unable to mobilize the enthusiasm of the students, so the students were not capable of dealing with complex cases after graduation. The case method used by Langdell just catered for the legal characteristics that used cases as law in British and American law countries, so the case method quickly emulated by other law schools in the United States and gradually influenced Britain, France and other British and American law countries (Niemiera and Harris, 2009). While Langdell was vigorously promoting case method at Harvard Law School, Harvard Medical School also introduced the case method, which used clinical practice and clinical pathology conference to reform the traditional medical teaching.

Encouraged by the successful practice of the case method in Harvard Law School and Harvard Medical School, Harvard Business School also adopted the case method to its teaching in 1921. After their perfection and promotion, the case method eventually had a broad effect on the world.

#### **CHARACTERISTIC ADVANTAGES OF CASE METHOD**

**Able to stimulate students’ enthusiasm for learning:** Traditional teaching method is a three-center model centered on the teacher, class and textbook. Such teaching model is to tell students basic principles and how to do, which is theoretical indoctrination. Its contents may be impractical or boring and students have few opportunities to participate, so to some extent it undermined the enthusiasm of the students and their learning effect. Students will find answers through their own efforts, which makes the boring learning process become lively and let students get the motivation to learn (Table 1).

**Conducive to the cultivation of students’ comprehensive ability:** In traditional classroom, students are listeners and knowledge receivers, so they are totally in a passive position. Case method leads students to use the theory they learned to solve practical problems. The cases studied in case teaching are true but usually complicated, some of which are implicit or explicit, some of which are true or pseudo. Such teaching method forces students to place themselves in the “scene” so as to identify problems, analyse problems and find a solution to the problem. In case method, the selected cases are the concrete examples that have occurred or appeared in real

**Table 1: Contrast of case teaching method and traditional teaching method in ecological ecological landscape design course**

Category	Case teaching method	Traditional teaching method
Teaching purpose	Train the thinking and ability of ecological landscape design	Teach the knowledge of ecological landscape design
Teaching method	Heuristic and discussion style	Taught style
Teaching carrier	Case of ecological landscape design	Textbook
The role of teacher	Subordinate	Dominant
The role of students	Initiative	Passive
Communication channel	Multi-directional	Unidirectional
Enthusiasm for learning	Higher	Lower
Teaching effectiveness	High efficiency of learning design practice ability, low efficiency of learning systems theory knowledge	High efficiency of learning systems theory knowledge, low efficiency of learning design practice ability

**Table 2: Subject case selection and treatment methods**

Subject	Suggested case	Reasons for selection	Treatment methods
Ecological architecture design	China academy of building research green and ecology research center project	Summons the ten green technologies widely applied nowadays, utilized energy conservation at maximum	Question method
Industrial wasteland ecological landscape design	Zhongshan qijiang park landscape design, german north duisburg landscape park design	Master classic work	Question Method, case demonstration method, comparison method
Garden and grassland system ecological landscape pattern evaluation	Guangzhou grassland landscape space pattern evaluation	Classical evaluation system and index application	Question method, case demonstration method

life, which can improve students’ observation ability. This process not only cultivates students’ expression ability, thinking ability and data access capability, but also trains their adaptive capacity to the future complex and volatile environment, the ability to analyse problems and problem-solving ability (Table 2).

**Conducive to the forming of interactive multi-exchange:**

Traditional teaching method refers to the method that teachers say and students listen, whose focus and core is classroom teaching. How much the students listened and understood, we don’t know until we see the results of the final test, so what the students learned is just knowledge. However, in case teaching method, both teachers and students are participating in the discussion and analysis of the real case. Organizing case discussions is the central part of the case method, which can arouse students’ interest of abstract theory and learning. What’s more, teachers are required to lead students to find the answer at any time, which prompts teachers to deepen their thinking and add new teaching contents according to the different understanding of participants, thus forming a case teaching form with two-way interaction and achieving better teaching results.

**Conducive to the improvement of teachers’ quality:**

In traditional teaching, the role definition of teachers is to teach the students the knowledge on the textbook, so if they know the textbook well and express knowledge clearly, they can be considered to have fulfilled their duties. The textbooks used in traditional teaching method usually are consistent and unchanged for many years. Case method is the elaboration of specific teaching scenarios and actual teaching topics, whose basic

principle is relatively stable, whose cases are updated dynamically. In case teaching method, teachers are leaders and facilitators, whose role definition is to guide the overall process of case method so as to break the phenomenon that teachers act instead of students in teaching activities and overcome the psychological dependence of students in learning.

**ORGANIZATION AND IMPLEMENTATION OF CASE METHOD**

**Selection of cases:** In general, the teaching case selected by the ecological landscape design course has the following three characteristics.

**With a purpose and target:** While selecting cases, it should select the cases that closely integrate with the topics of ecological landscape design teaching instead of the cases that are not suitable for the teaching content. Only selecting the cases that can illustrate the ecological landscape design content and have a certain representativeness can make students learn the related design theory and practice method directly, then twice the result can be accomplished with half the effort.

**With authenticity and integrity:** Taking the existing ecological landscape design cases or landscape works as the main analysis case of the course will increase the authenticity and persuasion of case explanation. Furthermore, the selected cases should collect the information related to the design plan and completed works like design backgrounds, information of designers, related design drawing and design details and comments, as much as possible.

**With typicality and enlightenment:** As for the course of ecological landscape design, the selected case should be typical. To select the classic ecological landscape design cases that are closely related to the design theory or design topics for analysis and learning will be more conducive to the elaboration of the problem and the long-term impact on students. The manifestation of the angle and point of ecological landscape design case analysis must be analysed and prepared carefully, which must be integrate theory with practice; Besides being closely related to the teaching content and clearing the basic problem that must be solved, the selected cases have to provide thinking space for students to develop students' thinking activities and improve teaching quality.

**Basic mode of case method:** The basic mode of case method can be divided into teaching mode and discussing mode. Ecological landscape design teaching can use one of them or both of them.

The discussing mode is a teaching method that students discuss the ecological landscape design theory and design plan under the guidance of the teacher. In the specific teaching process of ecological landscape design, discussing mode can be divided into two styles: one is the discussion style-the teacher lists requests and the discussion topics, then asks all the students to discuss with each other or in groups, finally makes conclusions and evaluations; Another is the analog style-students participate in the "ecological landscape design analysis", reproduce the inner relations of ecological landscape design concepts and theories, then discuss and exchange ideas with each other.

**Processing and analysis of cases:** Case method is neither to discuss cases as much as possible, nor to talk about cases in each class. The use and processing of ecological landscape design case can receive good results only when it has grasped some skills. Its common methods include the method of supposing questions, example-illustration method and comparative method. Example-illustration method is to take a ecological landscape design case as the ground of argument to prove some teaching theories or points of view. This method can make the dreary ecological landscape design theoretical knowledge visual and vivid. Comparative method is to use cases to guide students to compare the ecological landscape design theoretical knowledge that is easily confused or difficult to be understood so as to master the ecological landscape design content through comparison.

**Evaluation of students' performance in case method:** The homework of the ecological landscape design case teaching is mainly completed in the form of group cooperation. While evaluating students' performance, if the teacher uses traditional grading means, he only can give a score to the whole team according to the overall performance of the team, but he cannot know the academic performance and learning effect of each student, so he cannot accurately evaluate the achievement of each student. Because each student in the team will gain the same results, it may exist a phenomenon that only a part of members in the team spent time and effort to complete the task while the other members didn't pay enough effort. This phenomenon usually brings a negative impact on the effect of group learning, thus directly influencing the effect of ecological landscape design case teaching.

## DISCUSSION AND CONCLUSION

The application of case teaching method in ecological landscape design course makes the teaching become lively and interesting, which can effectively stimulate students' intellectual curiosity and make the classroom atmosphere lively. However, the case method is just one of the teaching methods. What the case method provides is many specific but isolated individual cases and scenarios of ecological landscape design. Furthermore, the case method is the complementary form for teaching ecological landscape design theories and concepts, so it cannot replace theoretical teaching, it should be used on the basis of certain theories. Case method has many advantages, but it shouldn't totally exclude or replace other teaching methods. Since the analytical study of ecological landscape design cases is the comprehensive application of the knowledge in various disciplines, only if you have mastered the necessary basic theories and knowledge of ecological landscape design, then the case method can be used. Case method cannot replace the systematic learning and teaching of theories, so what we need is to realize the combination of various teaching methods.

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