

# Discussion on the Teaching of "Landscape Model Making" Based on the Cultivation of Innovation and Entrepreneurship Ability -- Take Zhaoqing College as an example

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## Abstract

In view of the reform of the garden model making course under the background of double creation, based on the full investigation of the development of gardening profession, it is proposed to enhance the teaching strategy of garden model making from the teaching purpose, teaching method, teaching content and teaching evaluation, and construct the "project + course". + Innovation and Entrepreneurship " "Landscape Model Making" course teaching new system. The teaching system explores a new mode of school-enterprise cooperation, and uses the platform of the University Science Park to carry out various forms of innovative entrepreneurial garden model courses to cultivate students' awareness of innovation and entrepreneurship.

## Keywords

Course project Innovation Entrepreneurial awareness.

## 1. Introduction

Under the background of "mass entrepreneurship and innovation", landscape architecture needs to make a comprehensive contribution to environmental, cultural, urban, social and economic changes. Landscape Architecture became a first-level discipline in 2011, and a relatively complete discipline system was established based on application development. How to meet the needs of the current urban and rural development for the professional, applied and complex high-level talents of landscape architecture is the top priority of landscape garden teaching. Landscape architecture has different emphasis on colleges and universities in different backgrounds, but garden model production has always been one of the main courses of garden teaching. The garden model making is an important course for the practical ability training of landscape garden students. It is the creative process of transforming two-dimensional design into three-dimensional space, and it is an important means of visual display of landscape architecture design [1]. From the perspective of garden model making, this paper explores how to improve the teaching of garden models from the perspective of innovation and entrepreneurship. The garden model production discussed in this paper does not include computer virtual model production.

## 2. The Significance of Garden Model Making under the Background of Innovation and Entrepreneurship

The changes in the market demand for graduates will directly affect the changes in the curriculum and teaching models of colleges and universities. In particular, the current demand for graduates' innovation and entrepreneurial literacy will directly affect the cultivation of talents in colleges and universities. In 2015, after the "Implementation Opinions of the General Office of the State Council on Deepening the Reform of Innovation and Entrepreneurship Education in Colleges and Universities" and the "Several Opinions of the Guangdong Provincial Department of Education on Deepening the Reform of Innovation and Entrepreneurship

Education in Colleges and Universities”, the school’s “Quality, Ability, and Innovation” Dimensions implement the innovation and entrepreneurship talent training system.

According to the training objectives of our university's innovative and entrepreneurial talents and the combination of industry, enterprise and occupation on the quality and ability of talents, our school's landscape garden teachers are also based on their own disciplines to explore, research and reform, and actively explore the comprehensive development of landscape garden students. , in line with the teaching model of the application-oriented comprehensive university innovation and entrepreneurship requirements.

(1) The model can solve complex space problems in garden design. The design process is a tortuous process of evolution, generally expressed through three important media: design drawings, computer graphics, and solid models. Although computer graphics can virtualize three-dimensional effects, they are essentially two-dimensional graphic representations. As the design continues to be refined, in order to better express the design ideas from a three-dimensional perspective and perceive the spatial relationship, the solid model becomes an important tool for deepening the design content. In addition, the designer can make the model by hand, and can integrate his own ideas into the model, which not only can express the future space, but also reflect the problems that cannot be reflected on the plan paper, give full play to the designer's spatial imagination, and save the experimental work time, even The intricate spatial problems can be properly solved, making the design more scientific, reliable and predictable [3]. The spatial conditions are easier to show the designer's ideas than the graphical conditions.

(2) Model making course is a comprehensive and innovative practical course for gardening majors. The "Garden Model Making" course has been opened for many years in the gardening specialty of Zhaoqing University. It plays an important role in the cultivation of students' design and practical ability. However, with the increasing requirements for the cultivation of students' innovative and entrepreneurial ability, the past teaching contents and methods There are some shortcomings. Based on the new situation and the goal of talent training, we need to explore more effective methods to adapt to the requirements of the era of students' innovation and entrepreneurship. This project combines the latest 3D printing technology to build a “project + curriculum + innovation and entrepreneurship” teaching model, hoping to achieve the goal of cultivating innovative high-skilled talents, with the aim of enhancing professionalism, training creative thinking and fostering creative personality. The education, practice training and creativity training have an organic and unified educational concept, and carry out overall research, design, exploration and practice on the reform and innovation of the talent training model.

### 3. Problems in the Teaching of Garden Models in Teaching

The model making course is a core course of professional architecture at home and abroad. This course plays an important role in students' spatial thinking ability and practical ability. Most colleges and universities have specialized model machinery and model making laboratories to produce models to showcase teaching results. And my campus forest professional has opened "garden model making" for more than ten years, the author found the following problems in the teaching of "garden model making" for many years:

(1) The traditional garden teaching is taught by techniques. One-sided attention is paid to the training of garden drawing schemes. The students' image thinking ability is poor, the practical hands-on ability is weak, and the students' learning objectives are not clear.

(2) The gap between traditional teaching and technological development, especially 3D printing technology. The students trained in traditional garden teaching are only “drawing tools”, which can not reflect the connotation of professional education in the new era, and it is

difficult to adapt to the needs of the development of the era of innovation and entrepreneurship. (3) The drawbacks of the traditional “segregated teaching” model. Due to the strong practicality of landscape architecture, there are many drawing assignments in various professional courses. There is no communication between teachers, and there are too many overlapping assignments in each assignment, which leads to students' mentality of coping with work. Due to the above problems, the model production is out of line with the professional needs. The teaching content and methods can no longer meet the needs of the “Landscape Model Making” course for the comprehensive talents of innovation and entrepreneurship. It is necessary to strengthen exploration and innovation in teaching content and methods as well as teaching modes.

#### 4. Innovation and Development of Garden Model Making Course under the Background of Double Creation

##### 4.1. Teaching Objective Innovation

Through teaching reform, the teaching model of “Project + Curriculum + Innovation and Entrepreneurship” was constructed. Innovation, entrepreneurship and professionalism, cooperation with enterprises, alumni resources, skill competitions, and internships were combined to guide students to strengthen their sense of innovation, foster entrepreneurship, and create training. Ability to form a good atmosphere to promote innovation and entrepreneurship. Strengthen professional education, incorporate entrepreneurship education into the direction of talent training, and form a talent training model of “professional education + innovation and entrepreneurship education” (Table 1).

**Table 1.** Course system for landscape garden professional model making

Teaching objectives	Teaching grade	Teaching content
Practice synthesis	Design synthesis (fourth grade)	Garden model "project + curriculum +innovation and entrepreneurship" training
Professional ability improvement	Design in-depth (third grade)	Landscape garden planning and design model comprehensive training
Garden design experience	Introduction to design (second grade)	Landscape Planning and Design Based on Spatial Experience
Spatial cognition	Design Enlightenment (first grade)	Space design basic training

##### 4.2. Innovation in Teaching Content

In terms of curriculum content reform, relying on the platform of Zhaoqing University Science and Technology Park, we will cooperate with model-related enterprises to build project courses, mainly to increase the garden model practice module and innovation and entrepreneurship training module, and to train students' innovative and entrepreneurial ability.

Through comparative research, the curriculum content was redesigned, and the garden curriculum integration module, 3D printing model module, professional model company practice module, model entrepreneurship project management module and garden model innovation and entrepreneurship module were added to the main courses.

Class hours increased from 32 hours to 40 hours. Construct a new teaching system of "Landscape Model Making" course of "Project + Curriculum + Innovation and Entrepreneurship".

**Table 2.** Organization and teaching time allocation of teaching content

Teaching content	Lecture hours	Practice class	other	total
1 garden model theory module	4			4
2 garden model innovative design module	2	6	3D modeling drawing plan	8
3 garden curriculum integration module	2	1		3
4 garden model making practice module	1	6		7
5 professional model company practice module		4	Batch to the Merrill model company training	4
6.3D print model module	2	2		4
7. Model entrepreneurial project management module	2	2	Model project management	4
8. garden model innovation entrepreneurship module	2	4		6
	14	26		40

### 4.3. Innovation in Teaching Methods

(1) Interactive teaching: In the study of basic theory, teachers and students interact and discuss, exchange roles to actively study professional depth issues and frontier issues, adopt interactive learning and lecture-style learning, and use boring theory in rich case forms. Knowledge is vividly taught to students.

(2) Practical teaching: In design practice teaching, this needs to play the role of the practice base inside and outside the school, and implement the teaching practically through the specific operation and the support of social enterprise technology.

(3) Context-based teaching: real-life, practical training, project and curriculum content are fully integrated, and the actual project is introduced into the teaching.

(4) Project teaching of simulating the nature of the company: Implementing the simulation company teaching method, that is, setting up a design team according to the industry project standard model, each group setting the model design and production content of the project, starting with the market survey, collecting valuable model design and Make reference materials. According to the research materials, discuss the plan and implement the plan. In the implementation process of project teaching, teachers play a role in solving and guiding, and control the quality of each group project. The team members worked together to complete the model design and production project. Project group-based teaching can improve students' collaborative spirit, achieve enhanced communication skills, organizational skills, and then master the whole process of model design and production.

### 4.4. Innovation in Teaching Assessment Methods

(1) Diversification of performance assessment: The overall innovation of model production is completed, and the post-effect is the main evaluation basis. Combined with each model project book, the total score of patent application and teamwork is carried out.

(2) Semester general assessment: Students can write innovative project research reports, can write papers, or can be a physical model, according to the student's specialty best score. This course is mainly for the students of landscape architecture and architectural design. In the teaching, the students should pay attention to the overall design ability of the students. Specifically, the model's ability in material performance, physical production and overall space control. Its teaching objectives are divided into three phases:

The first stage: the design stage of the model, the main goal is to develop students' overall planning ability for model design.

The second stage: the model production stage, the main goal is to develop students' practical ability, cognitive ability to spatial sense and overall grasp of the effect.

The third stage: guided by the actual project, to cultivate students' innovative and entrepreneurial ability in model design and production.

Through study and practice, students can understand the various shapes of architectural garden models, master the process of model combination, give full play to spatial imagination and aesthetic ability, and comprehend the sense of collective creation. The following picture shows the planning model of the Zhaoqing College University Science Park and the model of the Zhaoqing Shuangchuang Center. It has been adopted and exhibited in the exhibition hall of the Science and Technology Park. Students feel the sense of accomplishment in the model making (Figure 1.2).



**Fig 1.** Model of Zhaoqing University Science Park (Results)



**Fig 2.** Model of Zhaoqing City Center (Results)

#### **4.5. Project-Oriented Reform of Tthe Curriculum Module Content to Achieve the Goal of Integration**

The essence of innovation and entrepreneurship lies in practice. The curriculum incorporates the concept of innovation and entrepreneurship into the construction of curriculum modules. The garden model making course, the formation of innovative models, the use of innovative methods, and the guidance of innovative entrepreneurial Activities are the supporting points, comprehensively summarizing the practices and effects of curriculum construction in recent years, and re-creating the curriculum system and modules to The cultivation of innovative ideas

and abilities is the core, the integration of rationality is the goal, and the Curriculum content based on project orientation is constructed. It is necessary to further focus on the actual innovation competitions such as "Model Innovation Design Competition", "Yuanye Cup", "Guangdong University Students Innovation and Entrepreneurship Competition" and the decomposition of teachers' scientific Research work, and include them And the teaching of the form of project,. Replaced in time, and the teaching and competition are completely docked.

## 5. Conclusion

In the context of dual innovation, we need to adjust the teaching objectives of garden model making, improve the teaching plan, and enhance the various forms of innovative entrepreneurship courses. In addition, it is necessary to enhance students' ability to innovate and innovate from society and individuals. Encouraged by the government's entrepreneurial policy, we can explore a new model of school-enterprise cooperation, use the platform of the University Science Park, and carry out various forms of innovative entrepreneurial garden model courses to cultivate students' awareness of innovation and entrepreneurship.

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