

# Research on Curriculum Construction Path Based on "DCOI" Concept -Taking Finance Major as an Example

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## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

Curriculum construction is the key field of higher education in China at present and in the future, and also the important focus of connotative development of colleges and universities. Starting from the problems existing in the current curriculum construction and drawing lessons from the educational concept of higher engineering certification, this paper puts forward the DCOI curriculum construction concept, creates the "12345" curriculum construction mode with four dimensions of "system construction - resource construction - teaching implementation - evaluation and improvement", and realizes it through the practice in the major of finance. The construction goal of "curriculum system integration, curriculum resource informatization, efficient classroom teaching and scientific curriculum evaluation" has achieved remarkable construction results and formed a relatively complete curriculum construction paradigm.

*Keywords: Curriculum construction; mode; reverse design.*

## **1. INTRODUCTION**

Curriculum construction is the core element of talent training. Wu Yan, director general of the

Ministry of education, once said: "the depth of teaching reform in colleges and universities is curriculum". Only by building the curriculum well and strong can we really improve the quality of

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talent training and get the most fundamental and solid guarantee [1,2]. The opinions on accelerating the construction of high-level undergraduate education and comprehensively improving talent training ability issued by the Ministry of education emphasizes that returning to teaching and creating "golden courses" is the only way to deepen education and teaching reform and realize the connotative development of higher education [3,4,5]. Therefore, curriculum construction is not only the key field of higher education at present and in the future, but also an important focus for the connotative development of colleges and universities.

## 2. PROBLEMS IN CURRENT CURRICULUM CONSTRUCTION

First of all, till now, curriculum construction in most colleges and universities follows the principle of subject division. There is a lack of connection and coordination between courses. Students only see trees, not forests, lack goal guidance and lose interest in majors. The curriculum system is old, rigid, homogeneous, disconnected from social needs, and can not meet the needs of students' diversity, personalization and characteristics.

Secondly, the construction of curriculum resources lags behind, the update is slow, there is a lack of student-centered programmatic curriculum standards, the number of characteristic teaching materials is small, and the information-based curriculum resources remain in the low-level stage of courseware making and video broadcasting, especially the virtual simulation resources in the practice link are seriously insufficient.

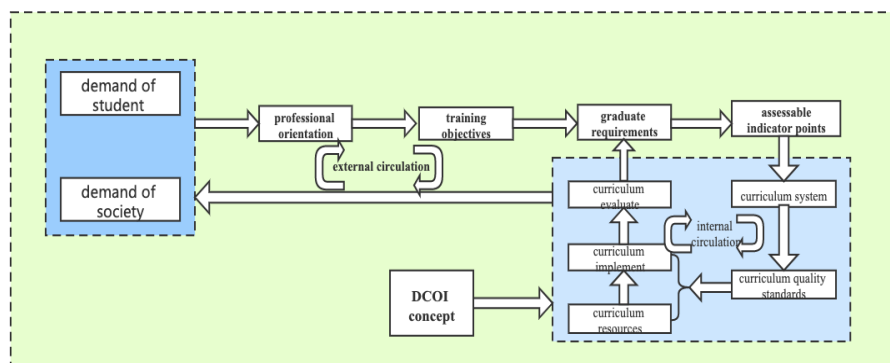
Thirdly, classroom teaching is inefficient, mono and full. Most courses are still teacher centered, emphasizing knowledge transfer, neglecting value guidance and ability training, less interaction, guidance and communication with students, and low classroom participation; The problems of ideological politics and curriculum are common, and the effect of curriculum education is not high. The assessment is mainly based on the final knowledge level test, which can not reflect the achievement of learning objectives.

Fourth, the absence of curriculum evaluation. Teaching evaluation stays at the primary stage of quality monitoring of teaching links, emphasizing teacher evaluation and neglecting students' learning achievements. Valuing teaching results and neglecting continuous improvement. Pay more attention to monitoring than guidance. There is no scientific basis for judging whether the curriculum objectives are achieved.

## 3. GENERAL IDEA OF CURRICULUM CONSTRUCTION

### 3.1 Mode

Guided by the concepts of "student development-learning convenience-outcome-continuous improvement "(hereinafter referred to as DCOI), creating the " 12345 "curriculum construction model with four dimensions of" system construction-resource construction-teaching implementation-evaluation and improvement ", which can provide replicable and popularized experience for curriculum construction of other major.



**Fig. 1. Application of reverse design method in curriculum construction**  
Reverse design method refers to regressing the curriculum system according to the expected

### 3.2 Curriculum System

Focusing on the training objectives and graduation requirements, guided by the ability needs of external posts and the development needs of internal students, reconstruct the curriculum system, covering seven modules: public basic courses, discipline basic courses, professional compulsory courses, professional restricted courses, professional optional courses, innovation and entrepreneurship courses and centralized practice links, so as to meet the diversified needs of students such as employment, postgraduate entrance examination, going abroad and compound. Reduce compulsory courses, increase elective courses, and implement the flexible course selection system based on the credit system to meet the individual needs of students. Add curriculum modules reflecting the characteristics of the school to meet the characteristic needs of students' employment and entrepreneurship.

### 3.3 Methodology

The reverse design method is used to build the curriculum system, formulate the curriculum standards, determine the professional content and ideological and political elements of the curriculum, measure the degree of achievement of the curriculum objectives, ensure that each teaching link closely focuses on the achievement of graduation requirements, finally achieve the talent training objectives, and improve the scientific, accuracy and refinement of the curriculum construction (Fig. 1).

learning results, rather than determining the expected learning results by the curriculum system. Specifically, on the basis of understanding students' needs and social needs, it is to determine professional positioning and training objectives, formulate graduation requirements, decompose assessable index points, set up corresponding courses, support assessable index points, and then form a curriculum system.

### 3.4 Institutional Mechanism

Implement the department run professional system and provide financial support. Encourage to break the boundaries of colleges, disciplines and majors, form a teaching team with professional leaders as the core, and cooperate to develop the curriculum system; Set up a teaching team with the course director as the core, cooperate to formulate the course quality standards, prepare the teaching plan and teaching design, and carry out teaching discussion; Build a collaborative innovation platform for teaching and scientific research, timely introduce frontier knowledge into teaching, and maintain the innovation of teaching content. Carry out school enterprise cooperation and jointly develop practical curriculum resources. Establish an incentive mechanism to reward teaching achievements, and link the curriculum evaluation results with professional title evaluation and performance appraisal to stimulate teachers' enthusiasm to participate in curriculum construction.

## 4. RESEARCH ON THE PATH OF CURRICULUM CONSTRUCTION -- TAKING FINANCE MAJOR AS AN EXAMPLE

### 4.1 Create "12345" Curriculum Construction Mode with Student Development as the Center

"1" is a main line, that is, establishing morality and cultivating people. "2" is two orientations, namely, post ability demand and student development demand. "3" is a three-dimensional goal, that is, knowledge, ability and quality. "4" refers to four-way collaboration, namely discipline collaboration, specialty collaboration, curriculum collaboration and science and education collaboration. "5" refers to five kinds of courses, namely moral, intellectual, physical, artistic and labor courses (Fig. 2).

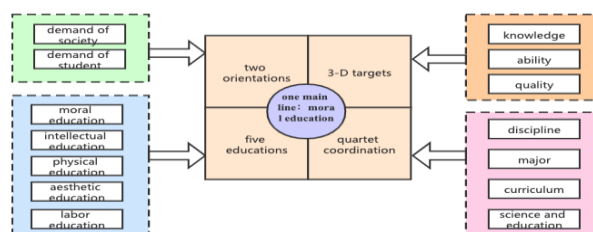


Fig. 2. Mode of "12345" curriculum system construction

The finance major focuses on cultivating high-quality applied talents with growth ability in the financial industry and the front line of transportation, actively serves the strategic needs of the construction of a national transportation power and the transformation of old and new kinetic energy in Shandong Province, fully considers the needs of students' employment relying on the school's transportation background and facing the development of "big finance", and pushes the professional orientation through "demand backward", The specialty orientation reverses the training objectives, the training objectives reverses the graduation requirements, the graduation requirements reverses the curriculum system ", adjusts, optimizes and upgrades the original curriculum system, strengthens the integration between disciplines and courses, and defines the contribution of each course to the graduation requirements. The curriculum system has a clear context, focusing on training objectives and graduation requirements to help students see both trees and forests.

#### 4.2 Create "12345" Curriculum Resource Construction Mode under the Guidance of Learning Convenience

"1" is a center, convenience for students' learning. "2" is two modules, namely, professional module and curriculum ideological and political module. "3" is three types, namely quality standards, teaching materials and information theory and practice teaching resources. "4" refers to four channels, namely self-construction, cooperative development, sharing and purchase. "5" refers to

five combinations, namely, combination with curriculum objectives, combination with discipline frontier, combination with information technology, combination with teaching platform and combination with teacher training (Fig. 3).

With the aim of helping to achieve the training objectives and graduation requirements, the major of finance has formulated the quality standards of each course as a programmatic document for teaching design, teaching plan preparation, classroom teaching and course evaluation. Compiled characteristic teaching materials with distinctive application-oriented characteristics. It took the lead in the construction of school level MOOC, actively sought internal and external funds for the construction of internship practice resources, and significantly enhanced students' application ability.

#### 4.3 Create "12345" Classroom Teaching Implementation Mode Guided by Learning Results

"1" is a concept, that is, outcome leading. "2" is two changes, that is, classroom teaching changes from teacher center to teacher leading and student center, and academic evaluation changes from result to process. "3" refers to three standards, namely, high-order, innovation and challenge. "4" is four links, namely, teacher teaching, teacher-student interaction, student-student interaction and flipping classroom. "5" refers to five types of golden courses, namely online, offline, hybrid, virtual simulation and social practice (Fig. 4).

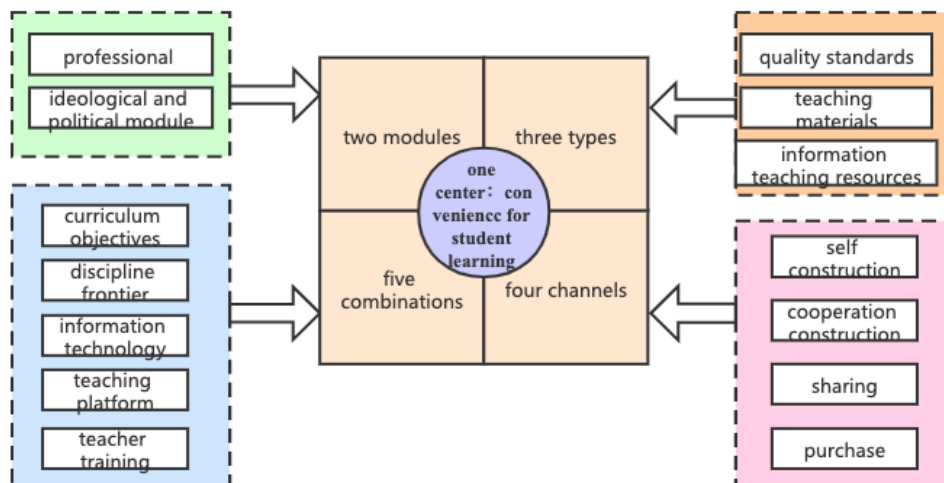
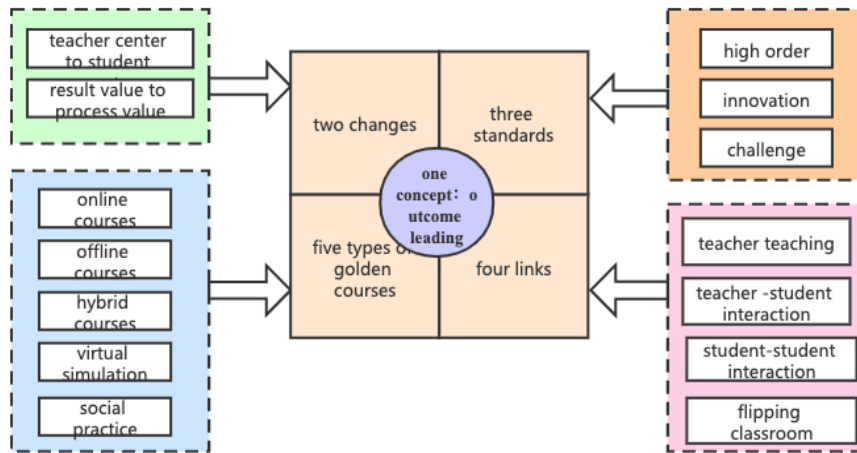
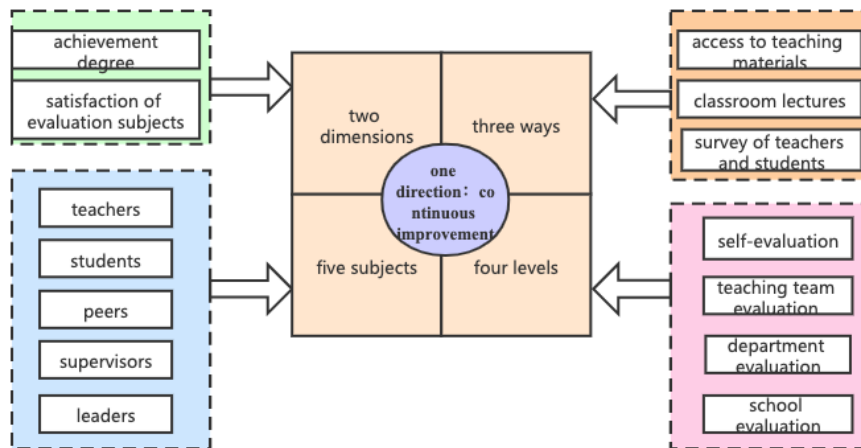


Fig. 3. Mode of "12345" curriculum resources construction



**Fig. 4. Mode of "12345" classroom teaching implementation**



**Fig. 5. Mode of "12345" teaching evaluation**

The major of finance runs through the whole process of talent training with the sense of social responsibility of managing the country and helping the world and the correct concept of wealth of "gentlemen love money and take it in a proper way", constructs the ideological and political goal system of "specialty curriculum classroom" curriculum, skillfully integrates ideological and political elements into the curriculum, and forms an integrated curriculum ideological and political system of "knowledge ability quality". With the construction of golden courses as the starting point, vigorously promote the "3 + 4 + X" mixed teaching mode of "three stages before class, during class and after class" + "four links" of "teacher teaching, teacher-student interaction, student-student interaction and flipped classroom" + case teaching, inquiry teaching and other teaching strategies, so as to create an efficient classroom and improve the

effect of education. Improve the weight of process evaluation, encourage the reform of non-standard examination and diversified evaluation relying on intelligent teaching tools.

#### 4.4 Create "12345" Course Evaluation Improvement Mode in the Direction of Continuous Improvement

"1" is a direction, that is, continuous improvement. "2" is two dimensions, namely, the degree of achievement of curriculum objectives and the satisfaction of evaluation subjects. "3" is three common ways, namely, access to teaching materials, classroom lectures and teacher-student survey. "4" refers to four levels, namely, teacher self-evaluation, teaching team evaluation, department evaluation and school evaluation. "5" refers to five assessment subjects, namely

teachers, students, peers, supervisors and leaders at all levels (Fig. 5).

Based on the concept of OBE, the finance major creatively puts forward the measurement method of curriculum goal achievement by using the idea of reverse design, which provides a scientific basis for teachers' self-evaluation; The design of satisfaction scale based on different evaluation subjects improves the reliability and validity of the evaluation. Full coverage, whole process and immediate feedback promote the continuous improvement and improvement of the course.

## 5. CONCLUSION

Through the curriculum construction path of "system construction - resource construction - teaching implementation - evaluation improvement" and the "12345" mode, the finance major has realized the construction goal of "curriculum system aggregation, curriculum resource informatization, efficient classroom teaching and scientific curriculum evaluation". Students' employment rate and innovation ability have been continuously improved, and their sense of social responsibility has been continuously strengthened. The number of awards obtained from various academic science and technology competitions ranks among the top spears in the University. The student-centered classroom teaching has width, depth and temperature, which improves the attractiveness of the classroom. The process oriented academic evaluation increases the

challenge of the curriculum, makes the students' learning objectives more clearly, and gradually has a strong interest in learning. Teachers' teaching ability has been continuously improved, and many proud achievements have been made in teaching and scientific research.

## COMPETING INTERESTS

Author has declared that no competing interests exist.

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