

Reflections on the Training of Skilled Talents in Vocational Colleges under the Framework of "Intended Curriculum"

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Abstract: The "Intended Curriculum" framework describes the building process of the course knowledge based on curriculum objectives and how curriculum knowledge flows from the system design level through the teacher implementation level to the student learning level. Finally, it passes the evaluation feedback to the whole process of system design level formation. Based on the "intended curriculum" framework to analyze the shortcomings in the process of training skilled personnel, through the optimization of the curriculum structure to seek breakthroughs in the optimization of skilled personnel training, on this basis, put forward the optimization strategies for the cultivation of skilled personnel in vocational colleges, and establish a new research perspective for the training of skilled talents.

1 Introduction

For a long time, the cultivation of skilled talents in vocational colleges has mostly been explored from one or more aspects such as education subjects, education fields, and educational resources. This kind of research has played an important role in promoting the cultivation of skilled personnel in vocational schools, but it has touched the deep-water zone for personnel training reforms. "Additions and subtraction" from aspects such as education subjects, education fields, and education resources can hardly highlight the effectiveness of personnel training reforms. Based on the framework of the "intended curriculum", the full-scale, three-dimensional approach to the process of skilled talents training of vocational colleges establishes a new research perspective.

In 1994, the International Association for the Evaluation of Educational Achievement (IEA) initiated the Third International Mathematics and Science Survey (TIMSS), and established "Intended Curriculum Model" (ICM) aiming to comprehensively and comprehensively explain the whole process of the cultivation of skilled personnel in higher vocational education from the perspective of curriculum.

2 Analysis of the Traditional Drawbacks of Skilled Talent Cultivation in the Framework of "Intended Curriculum"

"The framework divides the curriculum into "Intended Curriculum", which refers to a curriculum designed at the national or local level, that is, a national document that guides classroom instruction; "Enacted Curriculum", which refers to a teacher's actual teaching course; "Assessed Curriculum" refers to the content of the curriculum involved in the evaluation; in addition to the Planned Curriculum, Engaged Curriculum, Learned Curriculum, and 'Displayed Curriculum'. [1] The 'Intended Curriculum' framework describes the curriculum knowledge building process based on curriculum objectives and how curriculum knowledge flows from the system design level to the student learning level through the teacher plan and implementation level, and finally feedbacks to the system design. A closed loop is formed at the level, which fully shows how the curriculum teaching develops the whole process of the cultivation of skilled talents within the intended curriculum framework. The intended curriculum framework includes static courses and dynamic

courses, as well as influencing factors such as systems, teachers and students. Static lessons include intended courses, implementation courses and acquisition courses. Implementation courses and acquisition courses are concrete expressions of the implementation of the intended courses. Both courses should be based on intended courses and should respond to each other. Dynamic courses include plan courses, participation courses, acquisition courses, presentation courses. The dynamic curriculum is the interaction between teachers and students at the level of "teaching" and "learning." Each should interact and adapt to each other under the guidance of the intended curriculum, as Fig. 1 shows.

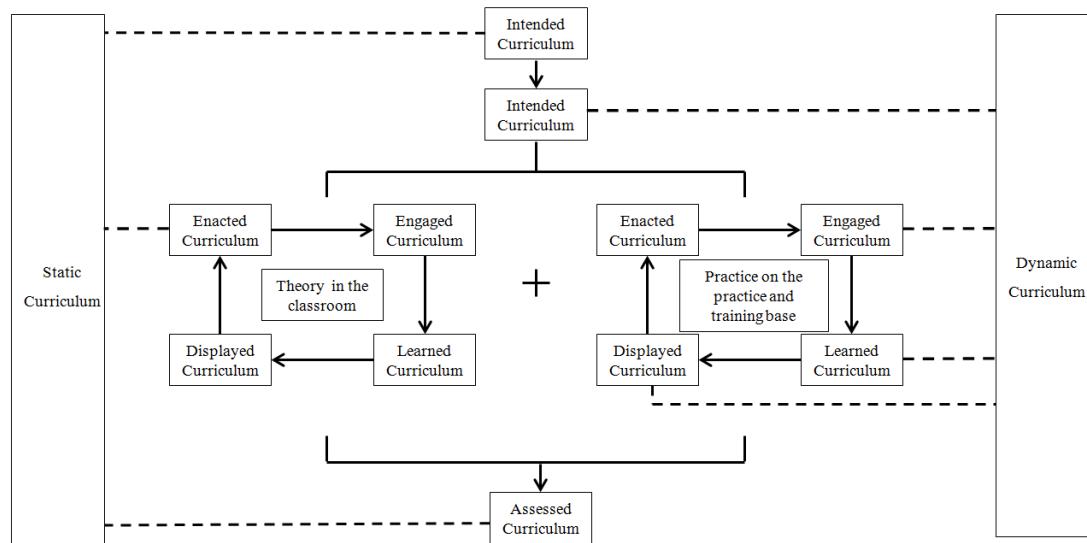


Fig. 1. Analysis of the process of cultivating skilled talents under the framework of "intended curriculum"

Based on the "intended curriculum" framework, it is not difficult to find that the cultivation of skilled talents in vocational colleges is affected by the traditional teaching concepts. It fails to really take into account the special nature of the training of skilled talents. There are two problems as in the following aspects.

2.1 "parallel stitching" of skill training modules

Vocational colleges are different from ordinary college education in their training of skilled talents. "The core purpose is to promote the formation of students' professional abilities and prepare students for initial transition from novice to expert. Therefore, the content should be formed with reference to the basic laws of formation of professional abilities to promote the continuity and completeness of the formation of the ability."^[2] In this sense, the content and design of the professional courses in vocational colleges should point to the working process of vocational behavior, following the law of the formation of students' professional abilities, rather than the traditional structure design based on knowledge as well as teaching module, make the process of curriculum and teaching to the pure knowledge reserves. Based on the "intended curriculum" framework, there exists the phenomenon of "parallel stitching" of skill modules in the curriculum setting of vocational colleges. There are at least two problems in this curriculum setting. On the one hand, there is a problem that the skills training module is "knowledgeable" in the curriculum content, that is, the simple processing of practical vocational skills is transformed into one-time teaching knowledge. Such a curriculum is essentially a curriculum in which knowledge is continuously accumulated. "This is building a warehouse of knowledge. What you are looking for is what you put in each layer, every compartment, and every drawer in the warehouse. It is a stack structure."^[3] On the other hand, in the curriculum content arrangement, there is a problem of "parallel stitching" of the skill training module. The module of the curriculum skill training module does not proceed in a step-by-step manner according to the logic of the internal skills of the professional skills but simplifies the complete work process into a parallel stitching education knowledge. However, the simple parallel splicing of the course content structure cannot meet the

goal of training high-skilled talents. Especially with the continuous upgrading of the industry and the large demand for technical skills and complex situational professional skills, this parallel splicing curriculum structure must deconstructed and reconstructed the new professional skills training of vocational colleges according to the law of professional growth. Only in this course students get the skills to really respond to the expected course of training objectives, achieve the purpose of vocational training of skilled talents.

2.2 The "Dual Separation" of Theory and Practice Training

All along, the training of vocational talents has been influenced by the guiding principle of "combination of theory and practice". The combination of theoretical guidance and practical application has always been the characteristics of talent cultivation in higher vocational education. However, there are often theoretical assumptions about the theoretical concept of rational integration in the training of skilled professionals in higher vocational education: The theory is the foundation for guiding practical application. Therefore, theoretical learning must precede practice and master sufficient theoretical knowledge. Application in practice can master the proper professional skills. Therefore, based on this theoretical hypothesis, the professional curriculum in higher vocational education is mainly based on theory learning and supplemented by practical application. This kind of prior theoretical and post-practice course structure theoretically and practically separated, leads to the disadvantages of the vocational talents cultivation in the following aspects: First, in the course content, theoretical knowledge and practice design are artificially separated, making theory learning and practical applications cannot be effectively integrated. In fact, the training of skilled talents in vocational colleges is not just a matter of simple knowledge and skills. but how to develop students' core abilities and skills through learning of knowledge and skills. Knowledge and skills are always endless. This requires the effective connection between theory and practice, in the specific carrier, in the specific application practice to help students obtain the holistic thinking. Secondly, on the subject of education, professional teachers and corporate masters are independent. Professional teachers are responsible for classroom teaching and practical training, and corporate masters are responsible for students' practical application. The two lack the necessary communication and coordination, and they present professional teacher education at work. the default order of professional teachers' teaching comes first, followed by enterprise teachers, which is a common practice of education teaching in most professional courses in vocational colleges. Thirdly, in the teaching time, the theoretical place learning in the classroom occupies most of the professional learning time of the students, and there are few opportunities for students to study in the workplace. Even though some higher vocational colleges are beginning to realize this problem, they adopt curriculum reform, adjust the ratio between theory and practice, reduce theoretical course study and practice, and add a practical project module. However, it is not difficult to find that this simple reform of "addition and subtraction" cannot highlight its due practical effect because it does not break the barrier between theory and practice.Fourth, in the teaching space, the curriculum teaching design is mostly arranged by teachers in the classroom, and there are few working spaces that are arranged to reflect real situations. Affected by different values, most companies have not really participated in the school-enterprise cooperation. Some companies even fear that they may affect normal work and refuse to cooperate with the college. Some college-enterprise cooperation units also rarely provide real learning opportunities for students. Students' in-depth practice in the workplace become a simple visiting observation.

Neglecting the cultivation of skilled talents in vocational colleges, the specific historical impact of simply transplanting ordinary college education into the cultivation of skilled talents in vocational colleges, but this can't be the reason to stop the exploration of skilled talents training in vocational colleges. "Thoughts that have originated in science will be absorbed and absorbed into the technology body itself over time, such as integration into the electronics industry or biotechnology. In these fields, they merge with experience and specific applications to create their own theories and practices. So, it's naive to assert that technology is just science." [4] Re-understanding of the relationship between science and technology, theory and practice is an

important entry point for the reform of curriculum settings in vocational colleges. It is the key to the reform of higher vocational skill training.

3 Re-understanding of training of skilled talents under the framework of "expected courses"

The cultivation of skilled talents in vocational colleges needs to be re-understood based on the "intended curriculum" framework, and a more complete and three-dimensional approach to explore breakthroughs in the reform of skilled talents training from the perspective of curriculum.

3.1 Emphasis on the "Complete" setting of the competency building module in the course design

Based on the reflection of the "intended curriculum" framework, the professional curriculum content setting in vocational colleges has the problem of parallel modularization of curriculum content. This is a concrete manifestation of the simplification of training of skilled talents. That is, the actual work process is simplified into a specific teaching module, through the completion of theoretical teaching. Several teaching modules can be combined with one or two practical applications to complete the teaching of a professional course. Therefore, the cultivation of skilled talents in vocational colleges should follow the growth law of talents, take the content of the reform curriculum skills as a breakthrough point, set up the "ladder-in" type course teaching content, and design the course content structure as a systematic teaching process with logical progressive relations, which can highlight the internalization of knowledge, transfer process and work process for teaching. In other words, the side-by-side splicing teaching module is like a small fish. The ladder-like course content that can achieve capacity migration is like a fishing net.

The purpose of education is not only to teach students caught one fish but follow the rules of professional ability formation and students' cognitive regularity helps the student to weave a fishing net, guides the student to catch different fish. Take the example of "analysis and production of toy product model courses" in higher vocational colleges as an example. The traditional course setup is basically arranged in parallel splicing, such as the module of type cognition, material analysis, process flow, production process and quality inspection requirements of toy product samples. After the completion of the complete knowledge module and the practical operation of one or two periods, the learning of the whole course will be finished. Later, the teachers of Guangzhou Panyu Vocational and Technical College followed the skills training pattern, reformed the content structure of the courses, and set up step-in-step curriculum content based on the work process. By setting four learning situations, the course teaching content is integrated with the work process, and the whole process of knowledge transfer, internalization and skill formation is presented. The comparison of the toy product model analysis and production curriculum before and after the reform is shown in Table 1.

Table 1. Reset of “analysis and production of toy product model courses”

Traditional Curriculum	Teaching Modules 1	Teaching Modules 2	Teaching Modules 3	Teaching Modules 4	...	Teaching Practice
Skills Modules Parallel Stitching	Category Cognition	Material Analysis	Technological Process	Manufacturing Process	...	Production Of Toy Model
↓						
Reset Curriculum	Learning Situation 1	Learning Situation 2	Learning Situation 3	Learning Situation 4	...	
Skill Training Complete Reset	Analysis and product the toy model according to the drawing	Analysis and product the toy model according to the sample	Analysis and product the toy model according to the effect	Analysis and product the toy model according to the creativity	...	
	Basic Cognitive	Basic Cognitive	Basic Cognitive	Basic Cognitive	Basic Cognitive	
	Material Analysis	Material Analysis	Material Analysis	Material Analysis	Material Analysis	
	Technological Process	Technological Process	Technological Process	Technological Process	Technological Process	
	Manufacturing Process	Manufacturing Process	Manufacturing Process	Manufacturing Process	Manufacturing Process	
	
	(Learning By Doing)	(Learning By Doing)	(Learning By Doing)	(Learning By Doing)		

3.2 Alteration of "study and practice" in emphasizing ability training in curriculum implementation

Influenced by the thinking patterns of vocational students and the formation of vocational abilities, curriculum reforms in vocational colleges must be based on the deconstruction of scientific knowledge systems and reconstructed in practical applications as a breakthrough point. The carrier of “seeing and grasping” is used to carry relevant information and compare. The aim is to master abstract concepts by means of concrete learning.” [3] Therefore, dynamic curriculum design must break through the barriers of separation of theory and practice, and use “study and do” alternatives as a breakthrough to construct learning scenarios based on work processes. Taking the “home design” major of a vocational college as an example, the traditional design of the course adopts a method of parallel splicing of skill modules, such as the recognition of furniture, the type of furniture, the function of furniture, the shape of furniture, the design of furniture, etc. Finally, the course teaching was completed by visiting enterprises, visiting furniture design process and furniture making process. The reformed curriculum design adheres to “alternation of learning and doing” and reconstructs the theoretical knowledge of furniture design in the specific work process. Taking “study scenario 1: design of solid wood furniture” as an example, “alternation of learning and doing” is based on work flow. The process of alternate ability training should be a student’s exposure to a specific situation. Through the guidance of the teacher, students can use the eyes, ears, nose, hands and other senses as well as specific practical experience to understand solid wood furniture, understand its function, interpret its modelling, understand the principle and method of furniture design, experience the specific process of furniture design. Specifically, as Fig. 2 shows.

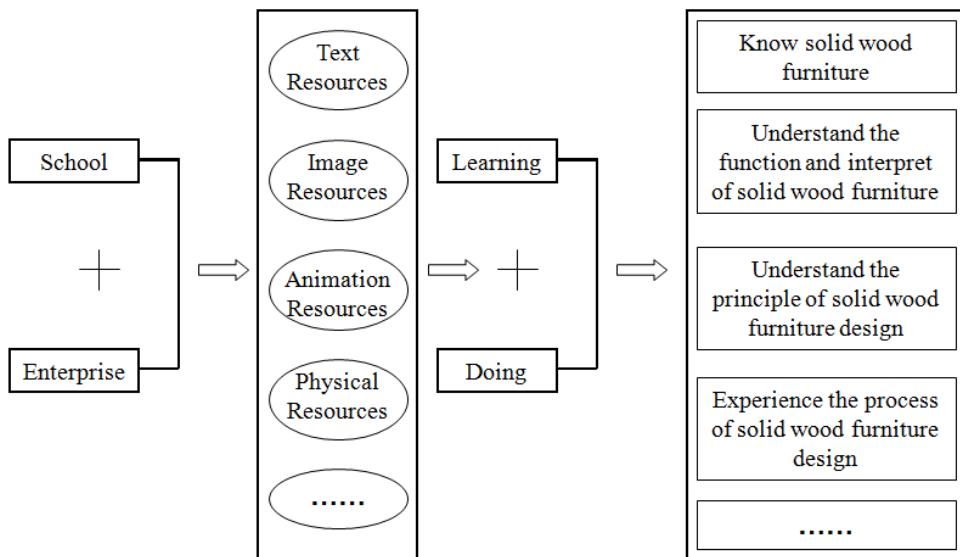


Fig. 2. Curriculum Provision of “design of solid wood furniture” and alternation of “learning” and “doing”

In short, the dynamic curriculum structure reform is based on alternation of learning and doing as a breakthrough, which helps to visualize the abstract knowledge, systematize the knowledge of parallel splicing, and the process of student knowledge acquisition is also the process of internalizing skills and promoting literacy.

4 The "intended curriculum" under the framework of the skills of talents cultivation strategy

4.1 To maintain consistency in static courses

The static courses in the "intended courses" framework mainly include intended courses, implementation courses, and acquisition courses. These static courses should be highly integrated in the objectives and contents of personnel training. Specifically speaking, the intended curriculum represents the goal collection of talents cultivation in higher vocational colleges and it is a concentrated expression of the teaching objectives of the school curriculum. Therefore, the teacher must maintain a high degree of consistency with the intended curriculum in the implementation of the curriculum. The implementation of the curriculum content should serve the expected goals contained in the intended curriculum, not only to cover the expected goals contained in the intended curriculum, but also to implement the curriculum teaching process. It is expected that the goals will achieve a high degree of consistency. That is, the implementation curriculum must focus on the training objectives of skilled talents in the intended curriculum, closely follow the training pattern of skilled talents, create a cross-border teaching field through school-enterprise cooperation, and integrate curriculum resources such as text, pictures, animations, objects, and real scenes.

The teaching patterns and methods are based on the process of skill development to carry out experiential teaching, make a complete interpretation of the intended curriculum, and help to achieve the intended curriculum teaching objectives and the implementation curriculum teaching objectives. In addition, the acquisition at the students' level must also be highly consistent with the intended curriculum and the implementation curriculum, so as not to evaporate the students from the prospective curriculum to the acquisition curriculum. The student-level acquisition course must maintain a high degree of consistency with the expected course and the implementation of the course. It is therefore necessary for the teacher to use a goal-oriented approach and use evaluation as a means to teach, evaluate, and evaluate the school. Of course, it is more necessary to be based on the expected curriculum framework, to be goal-oriented, and to fully grasp the mutual adaptability of dynamic courses.

4.2 Dynamic courses to maintain mutual adaptability

Based on the "intended curriculum" framework to optimize the training of vocational colleges and skilled personnel, not only from the static curriculum to grasp the consistency of goal setting, goal implementation, goal achievement, but also the comprehensive analysis of the factors such as curriculum, teachers and students, etc. curriculum content setting, teachers' teaching ability and students' learning opportunities should be balanced and grasped, and maintain the mutual adaptability between teaching content, teachers and students. Specifically speaking, the maintenance of the planning curriculum, participation courses, acquisition of courses, and presentation courses to adapt to each other, to avoid the gradually declining of teaching tension of the curriculum from planning courses through the implementation courses to the presentation course. To enhance the mutual adaptability of dynamic courses, we must first start with the planning curriculum, planning curriculum is between the intended curriculum and the implementation curriculum. It is a guide for teachers to implementation curriculum. The planning curriculum should not only follow the guidance of the intended curriculum, but also to guide the implementation curriculum in turn. Teachers must optimize the training of skilled talents in higher vocational education. They must work hard on the planning curriculum, based on the rules of the formation of professional ability, student information reception habits, and the students' learning foundations, etc. The teaching content adopts an alternate teaching method. Based on the improvement of students' skills, it adopts a development evaluation method. When the curriculum is implemented at the teacher level and the curriculum is presented to the student level, the curriculum continues to maintain its vitality and maximize the students' Participation will increase students' learning opportunities and improve their professional skills.

4.3 University-enterprise personnel training should adhere to dual-subjectivity

In the cultivation of skilled talents in higher vocational education, the curriculum should set up educational teaching content and teaching scenarios through work processes. Schools and enterprises must provide real work scenarios through cross-border integration for curriculum teaching and form a dual-master sportsman mechanism through school-enterprise collaboration. Affected by the concept of cultivation of skilled talents in traditional higher vocational education, most corporate education subjects are in the state of being absent. Most of them are the status of "marginal participants". They participate in the visits to companies and the establishment of internships. The enterprise under the intended curriculum framework, as an education subject, plays an equally important role in the development of professional core skills and plays an irreplaceable role in cultivating students' professional skills.

At the same time, based on the intended curriculum to optimize the training of higher vocational skills, we must also adhere to the cross-border integration of schools and enterprises, break the classroom walls, and establish a practical teaching base for the middle school and the factory's secondary school. "Schools and companies should aim for clear learning for each cross-arrangement. Themes ensure that the students can achieve the deep integration of theory and practice and even the activation of innovative thinking in each rotation." [2] According to the integration of truth and reality, alternative course of learning and doing teaching needs, while breaking the class time limit, with actual work process design teaching scenarios, guide students to master professional core skills in continuous trial and error, imitation, practice, and gradually grow from novice to expert.

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