

Application Strategy of Stereoscopic Teaching Material in Secondary Vocational Practical Training Teaching*

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Abstract—Effective use of Stereoscopic teaching material is one of the important issues in Secondary vocational education. The paper selects "machine electrical control circuit" of secondary vocational education in C school as a case. Based on 20 classes, it puts forward application strategy from the aspects of task design, activity design and evaluation design.

Keywords: *stereoscopic teaching material, case study, applying strategy, task design, activity design, evaluation design*

I. INTRODUCTION

Since the 21st century, the importance of developing vocational education has been increasingly recognized from the Central Committee to the State Council until the local governments. The 11th "Five-Year plan" of national education development particularly stressed the need to vigorously develop the vocational education, strengthen the development of human resources and improve the overall quality of labor force which must be pay high attention to accelerating development. Since the 18th CPC National Congress, the Central Committee with President Xi as its core has attached great importance to the reform and development of vocational education and has placed vocational education at an unprecedented prominent position.

With the rapid development of information technology, the existing vocational education has been unable to meet the requirements of China development strategy for talents. At the same time, the development of vocational education informatization has gradually entered a crucial stage and deep water area, Strategic task at this stage is not the past

extensive type of exploration just like the Chinese proverb "Cross the river by feeling the stones", but in the stage of new concept under the guidance of deep integration. From the early development of vocational education informatization in China, we can find it has made some progress, but the problems and contradictions are still prominent, the reason is the vocational education informatization is still in the stage of curriculum integration and teaching assistance. Students in vocational colleges should be able to solve practical problems in their vocational positions, and have the ability to self-learning and sustained development. A large number of students will also be required to have the ability of innovation and entrepreneurship. Therefore, students should be trained as "highly skilled talents" rather than satisfied with a front-line workforce. As a result, innovation and change of vocational education are needed.

With the influence and change of information technology on human work, learning and the way of thinking, how to effectively use information teaching environment and resources, recombine teaching contents, optimize teaching process, improve learning efficiency and build smart classroom has become the current focus of education.

"Stereoscopic Teaching Material", "online learning", "micro-class" and "flipped classroom" will be popularized in vocational education within a year, according to the 2018 Chinese Vocational Education Technology Outlook: Horizon Project Report [1]. As a kind of new form, stereoscopic teaching materials not only broaden the structure of teaching material resources, but also expand the space-time structure and activities of teaching and learning. Therefore, stereoscopic teaching materials need to adapt the differences of students' personality and learning styles, provide the most suitable learning materials for each student, build the most appropriate media resource environment, and provide the

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most optimized learning methods. As a sponsor and organizer of teaching activities and a practitioner of teaching reform, teachers need to be constructed with their appropriate abilities, that is, in the rich teaching environment of stereoscopic teaching materials, we should innovate the teaching practice ability based on the concept of wisdom education. Therefore, it is an inevitable choice to promote the reform and innovation of the vocational education by training the teachers' concepts and practice methods in the deep fusion stage of vocational education informatization.

II. APPLICATION CASE STUDY

It has a preliminary understanding of how to apply the stereoscopic teaching materials in classroom teaching according to the above content that detailed and comprehensive interpretation of connotation and characteristics about stereoscopic teaching materials from the theoretical level. This paper will analyze the concrete application of the stereoscopic teaching materials through its practical application case. The sample selected in those cases is a representative teacher and classroom under the

stereoscopic teaching materials environment and the teaching way videotape of it conforms to the normality of the actual teaching. After comprehensive analysis, the teacher L of the course named "machine electrical control circuit" of secondary vocational education in C school was selected as a case, and the classroom teaching of teacher L for one semester was followed up. First of all, selecting a case course for qualitative analysis from the observation of a semester case course aimed to get preliminary construction of other case analysis of the basic dimensions, which is used as a basis for the case course of one semester summary analysis to obtain stereoscopic teaching materials of the general application, with a view to find the application strategy of stereoscopic teaching materials in the process of practical training.

A video of the case class including the reviewing old knowledge, teaching new knowledge and training operation together used by stereoscopic teaching materials was selected as the object of qualitative analysis from 20 case classes of one semester, some observations of the records are shown in "Table I":

TABLE I. CLASSROOM OBSERVATION LOG (PART)

Situation on the ground	Direct feelings	Application ways	Analysis & thinking
T: Let's review the contents of the previous lesson firstly. Students use pad to scan AR logo, review the knowledge of the previous class.	Typical traditional teaching method: review the old knowledge	Students themselves use stereoscopic teaching materials to review the old knowledge by watching the video	Teacher L introduces new lesson by recalling the content of the previous lecture, which is a typical traditional teaching method, whether there are other more interesting and effective way to import?
Teacher L controls student pad through the way of screen broadcast, playing PowerPoint courseware and arranging today's tasks of training: wiring. With explaining the circuit diagram of the wiring steps, points, precautions. Students look like to want to try very much.	It seems that the students are more like to operate their own hands than listening.	Teacher L uses the picture and text resources of stereoscopic teaching materials to show the wiring diagram.	Both theoretical and practical courses are very important, so how to arrange the time reasonably, how to balance the time to achieve the best effect?
The students use pads to simulate the wiring operation	This function is very practical	Students use interactive virtual simulation tool software to simulate circuit wiring operation.	Improving students' interest in learning, while preparing for the next training operation.

III. APPLICATION STRATEGY DESIGN

Through the above the analysis of the teacher's case study and the application effect, this paper refines: linking up new knowledge, consolidating old knowledge, understanding new knowledge and simulating operation are the effective application opportunities of stereoscopic teaching materials. In order to promote students' knowledge system construction, transform textbook knowledge to application knowledge, apply knowledge promotion to ability promotion, and cultivate talents with practical ability and innovative ability, it is necessary to fully display the application efficiency of stereoscopic teaching materials through task design, activity design and evaluation. It is necessary to fully display the application efficiency of stereoscopic teaching materials in the above opportunities of the application efficiency through task design, activity design and evaluation design.

A. Task design

Teachers can design different learning tasks according to the logical order of the teaching content in the actual task.

Teachers can use stereoscopic teaching materials to create task situation.

Situational teaching is based on the needs of teaching and teachers can be based on the teaching objectives (theme) to create a specific image as the main body. Rich emotional color scene and atmosphere stimulate and attract students to active learning [2]. Therefore, teachers can use stereoscopic teaching materials to create problem situations to stimulate students' interest in learning, cultivate students' ability to discover problems, explore problems and solve problems in the two aspects of linking up new knowledge and understanding, so that students could choose the content to follow their own basic level, to learn and participate in the

corresponding problem discussion, to explore and solve problem. In the simulation operation part, the interactive simulation virtual software can be used to create the simulation situation, which can guide students to experience and personalized learning.

Using stereoscopic teaching materials to design cognitive tasks (in the connection of new knowledge and understanding of new knowledge, teachers can present knowledge by choosing to design pictures, video, voice and other media materials to achieve the purpose of cognition), inquiry learning tasks (in the simulation of operation part, teachers can use simulation virtual software design inquiry learning tasks to make the students carry on the inquiry and the verification).

B. Activity design

According to the needs of teaching content, the appropriate type of activity is selected, and the type of learning activity is related to teaching strategies or teaching methods to a large extent [3]. Common types of activities include: the activities of students' self-discovery, the activities of students' analysis, the activities of students' evaluation, the activities of students' reflection, the activities of students' expressing views, the activities of students' group cooperation, the activities of students' initiative inquiring learning, etc...

Design of activity goals: all human behavior is goal-oriented [4]. The activities target should be consistent with the learning objectives and the curriculum objectives.

The design of classroom activities: including the design of the import of activities, can use stereoscopic teaching materials to create situation import. The design of classroom organization activities and teachers can use the stereoscopic teaching materials of the classroom interactive function for the online roll call, screen demonstration, students' learning results sharing and so on. The design of interaction activities: teachers can use resources of stereoscopic teaching materials to design forms and types more diverse interaction problems, which can easily attract students to actively enter the process of problem solving, rather than passive participation. At the same time, the interaction between students and students should be designed in classroom teaching or practical training to support collaborative learning, the behaviors of exchange and sharing among peers, which will improve personal progress, train students' thinking, contribute to the cultivation of cooperation and team awareness and adapt to the rapidly development of society easily in the future.

C. Evaluation design

Evaluation is an important link in classroom teaching and learning activities, to some extent the evaluation content and how to evaluate affect the effect of teaching [5].

- Combination of teacher-student evaluation and self-evaluation.
- Using the function of stereoscopic teaching materials to design evaluation

In the course of classroom teaching, firstly, teachers can take photos of the operation of students' training or homework, then upload pictures to the pad, at last reflect the degree of students' approval by voting which can be either single choice or multi-choice. Teachers can also split screen of students' pads to designate some students to answer the questions through the whiteboard answer area, the other students choose whether to click the button "like" about this student's answer through the students' terminal of pads. By the statistics data of "like", we can measure the views and opinions of the recognition. Teachers can use the quizzes provided by stereoscopic teaching materials to test students in-class, and stereoscopic teaching materials will be based on the results of the test to generate automatically the SP curve analysis of the evaluation of students, according to which teachers overall grasp the situation of students to make targeted guidance to the students.

After the end of a class, both teachers and students can self-evaluate their own teaching and learning behavior of this class. Teachers should define the theme of this evaluation which aimed to the future evaluation management. Teachers' self-assessment can be keep the preparation situation, teaching state, classroom interaction and knowledge explanation; Students' self-assessment can be the preview situation, classroom observation status, classroom interaction, operation effect, etc., by which the stereoscopic teaching materials will store these data in the cloud and form big data, the data analysis technology will provide data basis for evaluation management.

IV. CONCLUSION

In summary, the application strategy design based on case analysis of stereoscopic teaching material, mainly from five dimensions (the target design, task design, activity pattern design, teaching mode design and learning evaluation design) put forward some design methods, and gave some specific design methods and suggestions, such as the different teaching process for the function, interactive, effect and application of stereoscopic teaching material, how to improve the students' interest in learning, media application, etc. in order to promote teachers to change their teaching concepts in education, improve teaching methods and raise teaching level [6]; accelerate the application of advanced teaching methods and modern means of teaching to improve teaching the effect; promote the continuous optimization of teaching links to make the stereoscopic teaching materials better serve the vocational education training course and create a better teaching environment for the training of application-oriented talents.

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