Application of Active Learning in Classroom Teaching of Vocational Colleges

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ABSTRACT

Through the comparative study of the active learning and the traditional learning, this paper sorted out the characteristics and advantages of the active learning, proposed the necessity of implementing the active learning in the classroom teaching of vocational colleges, and summarized and reflected on the implementation process of the active learning. The research shows that active learning is an effective method and measure that can stimulate students' enthusiasm and creativity in learning, and it is an important way to improve the teaching quality of vocational education.

Keywords: *active learning, vocational colleges, classroom teaching*

I. INTRODUCTION

In order to further improve the vocational education system and education level in Xinjiang, the World Bank has implemented a five-year vocational education project in Xinjiang since 2015. Urumqi Vocational University where the author works is one of the five colleges constructed by the project. In order to improve the classroom teaching quality of vocational colleges, the "active learning" is introduced into the "curriculum teaching evaluation reform" module.

Active learning focuses the learning responsibility on learners. Students should not only listen, but also read, take notes, discuss or participate in solving problems. [1] It involves three areas of learning: knowledge, skills and attitudes, and this classification can be regarded as "the goal of the learning process". In particular, students must engage in higher-order thinking tasks such as analysis, synthesis and evaluation. [2] Active learning is a kind of teaching thought that teachers guide and stimulate students' learning enthusiasm and creativity by changing their own teaching behavior and classroom organization form, and it is an effective way to reform teaching mode and improve classroom teaching quality.

II. THE CHARACTERISTICS OF ACTIVE LEARNING

A. Scientificity of concept

In "The Doctrine of the Mean": "What I hear, I may forget; what I see, I may remember; but what I have done, I will certainly understand." This is the earliest interpretation of active learning in China, which reveals the importance of learning subject experience and practice. In 1946, Edgar Dale, a famous American learning expert, put forward the "learning pyramid theory". This theory divides learning into two types: passive learning and active learning. The main ways of passive learning are listening, reading, seeing and hearing, and demonstration. Using different learning methods, learners' average memory retention rate (the amount of material that can still be remembered after two weeks) is 5%, 10%, 20% and 30%, respectively. The main methods of active learning are discussion, practice and teaching, and the average retention rate of memory is 50%, 75% and 90% respectively. [3] Therefore, the effectiveness of learning depends on the scientificity of learning methods. The active learning is based on the learning pyramid theory, which is student-centered and ability-based. It allows students to actively participate in classroom teaching activities, maximizing the benefits of students.

B. Diversity of methods

Active learning is not a specific teaching method, but a collection of various teaching methods that enable students to actively take participate in. [4] It contains basic methods such as role playing, effective questioning, situational learning, group activities, independent study, project teaching, brainstorming, mind mapping, etc. In the teaching process, teachers can choose one or several methods to cooperate according to the needs of teaching content, and take tasks and activities as the main forms to mobilize students' learning enthusiasm and motivate students to devote themselves to participate in all kinds of learning activities. It is required to return the classroom to students, and fully realize the transformation from "teaching" to "learning" and from "professional orientation" to "ability orientation". In the classroom

teaching process of active learning, in addition to the diversity of teaching methods, there is also the diversity of teacher roles. They need to switch between the roles of guide, organizer and cooperator in different stages of teaching implementation. Students' abilities such as critical thinking, creative thinking, effective communication and effective collaboration will be cultivated and improved in the process of participation and experience, which is in line with the essential requirements of competency-based vocational education.

C. *Comprehensiveness of evaluation*

The traditional teaching evaluation is based on standard answers and scores. The evaluation of active learning is a part of teaching activities. It is an immediate evaluation combining self-evaluation, mutual evaluation and teachers' general evaluation. At the end of the learning activity, students make an objective evaluation of their own (group) and other students' (other groups) activity performance, activity results. Students are not only the subjects of evaluation, but also the objects of evaluation, and the process of evaluation is also the process of learning, experience and improvement. After the completion of self-evaluation and mutual evaluation, teachers evaluate students' learning activities from the aspects of "knowledge and skills", "process and method", "emotional attitude and values", and give timely feedback on whether the learning results achieve the expected learning objectives. However, the purpose of evaluation is not to draw conclusions and grade students, but to guide and encourage students to improve their learning methods, summarize the experience and make a breakthrough in the future learning activities. The comprehensiveness, objectivity and rationality of the evaluation of active learning can give full play to the incentive and guiding role of evaluation, and help to promote the all-round development of students. ("Table I")

TABLE I.   DIFFERENCES BETWEEN ACTIVE LEARNING AND TRADITIONAL TEACHING METHOD

	Active learning	Traditional teaching method
Teaching objectives	realizing the goals of knowledge, skill and emotion	Achieving knowledge goals
Teaching form	Taking student as the center and student activity as the main	Taking teachers as the center and teacher activities as the main
Learning contents	Using existing knowledge and skills	Imparting knowledge and skills
Teacher's roles	Organizers, guides and collaborators of activities	Imparter of knowledge
Transmission modes	Two-way transmission and interaction	One-way instillation
Incentives	Internally, realizing from the psychological experience of continuous achievement	Externally, score incentive as the main means
Evaluation methods	being diverse and complete	being single and one-sided

III.   THE NECESSITY OF ACTIVE LEARNING IN CLASSROOM TEACHING OF VOCATIONAL COLLEGES

A. *The basic requirements of vocational education personnel training*

The biggest difference between vocational education and general education is its practicality and post ability. The aim of vocational education is to cultivate high-quality, high-level, compound and innovative technical and skilled personnel to meet the needs of national and regional economic development, and its purpose is to improve students' comprehensive vocational ability, which is also the primary task of "creating a highland for training technical and skilled personnel" in the "plan for the construction of high-level vocational schools and majors with Chinese characteristics". The cultivation of comprehensive vocational ability puts forward an urgent requirement for the reform of teaching methods in vocational colleges.

B. *Prominent problems in classroom teaching of vocational colleges*

First, teachers dominate the classroom teaching. They usually use single teaching method to instill students in one direction, ignoring the students' subjective initiative. As a result, there is a "three-three" classroom phenomenon in classroom teaching, that is, one third of students are sleeping, one third of students are playing mobile phones or doing things unrelated to learning, and one third of students are learning inefficiently. [5] Second, teachers often simply "teach textbooks". They do not set up the teaching idea of "using textbooks". They do not add or delete the contents of textbooks according to the requirements of new knowledge and new technology. They also do not integrate and process the module contents of existing textbooks or redesign teaching steps and methods with the application as the goal. They only teach for the purpose of completing the teaching objectives. Students can't get the pleasure in the "process". Third, it is a single evaluation method based on scores. In essence, it

is to judge the students' ability to learn by rote and follow the teaching. "A capable person" cannot be measured by scores alone. A comprehensive combination of practical ability, team cooperation ability and social adaptability ability should be cultivated in the continuous learning experience.

IV. THE INFLUENCES OF ACTIVE LEARNING ON CLASSROOM TEACHING OF VOCATIONAL COLLEGES

The active learning is a basic learning theory that uses effective learning and takes student as the center.

The teachers integrate a series of student learning tasks into the classroom teaching process, guide students to have independent learning, collaborative learning and participatory learning, and display, evaluate and feedback the results of the activity task. Teaching goals are used to achieve students' learning goals, and the process is shown in "Fig. 1".
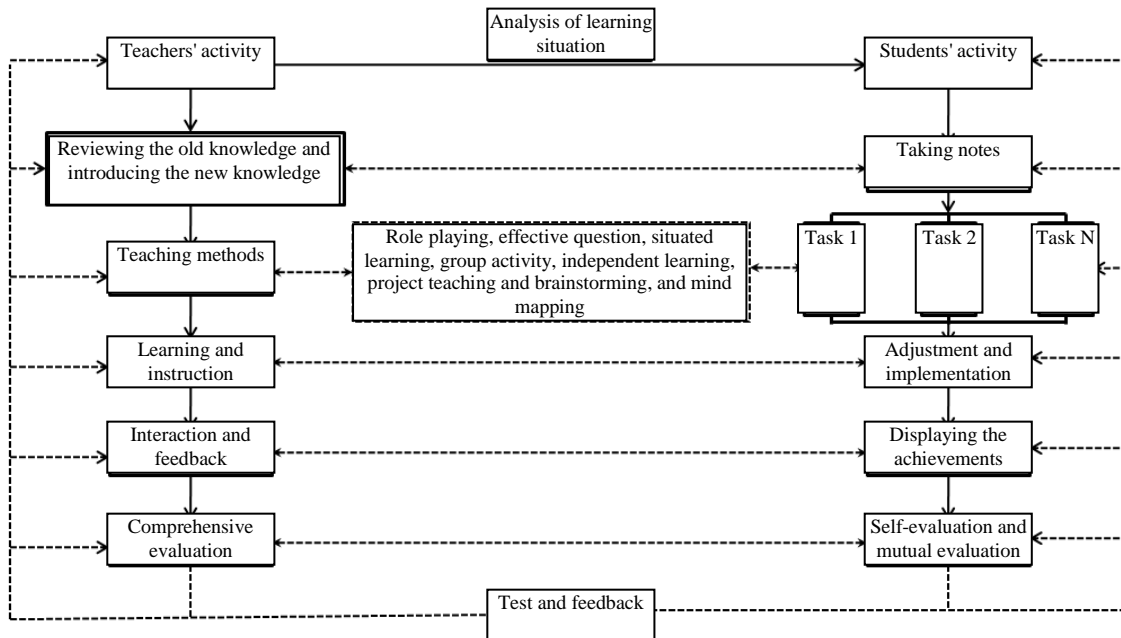

Fig. 1. Implementation of active learning.

A. "Question" instead of "lecture"

Active learning changes the role of teachers from "imparter of knowledge" to "guide of knowledge" by calling the roll and making "questions" in the classroom. Learning is because of thinking, and thinking originates from doubt. "Questioning" is the "core of effective teaching", which is one of the effective means for teachers to control the classroom, promote teaching and improve students' thinking and learning.

According to the idea of "asking a question — exploring a question — answering a question — making summary and evaluation" (the process is shown in "Fig. 2"), the teacher sets questions around the teaching contents. The design of the question should follow the principle of "having enough depth, new angle and slow slope". It is necessary to avoid the

closed question with the answer of "yes" or "no", and ask more open-ended questions with moderate difficulty and no deep thinking. After the students have completed their independent thinking within the specified time, the teacher will call the roll randomly. In this link, it is necessary to avoid the phenomenon of "fishing in troubled waters". In the process of questioning and answering, there will be sparks of thinking. Teachers should encourage the students who make correct answers, which make them have fun from thinking. Also, teachers should guide the students who make the wrong answers, making students' cognition from simple to deep. Finally, the students will obtain the sense of achievement of inquiry. "Calling the roll and making questioning" can cultivate students' ability of independent thinking, problem analysis and language expression while actively participating in classroom teaching.
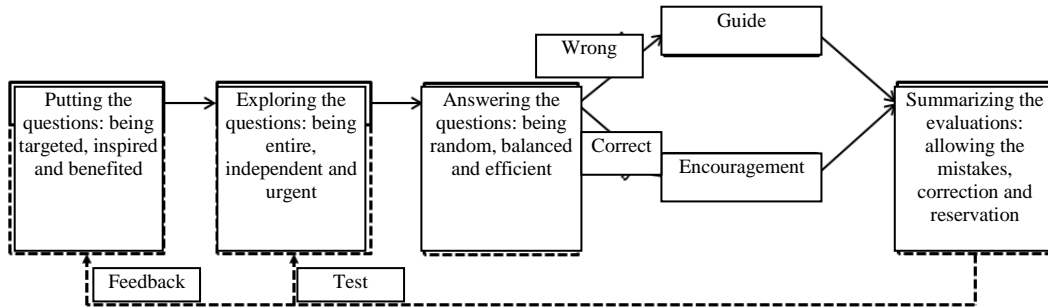
Fig. 2. Flow chart of "calling the roll and making the question".

B. *"Independent learning" instead of "lecture"*

Active learning encourages teachers to change their teaching time into students' independent learning time, and takes the ability to "teach" others as a test standard of independent learning level. First of all, according to the specific teaching content and schedule requirements, teachers guide students to have "bird's-eye view of the key points and difficulties of learning content, do a good job in module division, and provide independent learning reference materials. Secondly, students can use extracurricular or classroom time. On the basis of existing reference materials, they can refer to the network or books, complete independent learning by "reading", and summarize and sort out the main points in the form of mind map, and complete independent learning notes, so that students will have a clear vein of learning content in the mind. Thirdly, students "teach" each other what they have learned in the group or class, so as to increase the retention rate of knowledge memory and make the knowledge learned more solid. Other students can supplement and improve the content of "teaching". According to the students' "teaching" situation, teachers can expand, extend and summarize the learning content to help students complete the sublimation of learning content from perceptual knowledge to rational knowledge. Finally, the teachers can quickly test the learning effect of students by means of classroom quizzes and "detection board" display. The independent learning advocated by the active learning not only increases the depth and breadth of the learning content, but also helps students to establish the consciousness of lifelong learning and active learning.

C. *"Group activity" instead of "lecture"*

"Group activities" need to group the students in the class, so as to establish cooperative learning groups. According to the characteristics of students' ability, gender and personality, teachers should distribute students evenly in each group. The number of members in the group should be moderate, generally 6-8 members. Each group should elect a CEO whose responsibility is to ensure that each member of the group participates in the activities and that the tasks are completed within the specified time. After receiving the instruction from the teacher, all the members of each group think independently and list the answers in their own notebooks. The CEO observes each person's answer list, and gives priority to the group members who write the most to share in the group. Other group members supplement and improve their own content while listening. After all members of the group share, the CEO organizes group discussion, summarizes the points reached in consensus on the big white paper (in the form of mind map), and posts it for sharing and display. The CEO of each group will exchange and report the group's achievements in turn. After self-evaluation and inter-group evaluation, teachers will evaluate and revise the results.

In the process of "group activities", while students are thinking and discussing, teachers should make inspections to effectively control the whole process of activities, provide individual guidance, pay attention to different individual needs, and timely correct errors. "Group activities" transform teachers' teaching into students' activities, and cultivate students' team spirit, cooperation ability and creative ability.

V. THINKING ON THE IMPLEMENTATION OF ACTIVE LEARNING

In the classroom teaching that implements the active learning, the teaching interaction and participation have been improved obviously, which has active role on the improvement of teaching quality. In order to effectively improve the classroom teaching effect, it is required to pay attention to the following aspects in the specific implementation process.

A. *Transformation from "changing behavior" to "changing concept"*

Usually, in order to carry out a new teaching method, the more common way is to "train teachers", hoping to improve the quality of teachers, change the concept, and then change the classroom behavior of teachers. Due to the complexity of the implementation process of active learning, higher requirements are put forward for teachers, and teachers need to "change their

behavior first and then change their concepts". Firstly, in the process of training teachers, they should use active learning to make the training in the whole process. Teachers can feel the charm of teaching method in the form of role playing, and solidify the concept through experience. Secondly, they should have the training first and then make the practice with the task, and then come back to the classroom with practical difficulties and problems to continue to receive training, and then practice again, that is, the application of teaching methods can be improved and optimized through the gradual and cyclic training mode of "training — practice — training — practice — retraining". [6] Third, it is to encourage teachers to change their behavior in classroom teaching, emphasizing the change of attitudes and concepts in practice. And then, teachers can improve the ability, quickly and better guide the classroom teaching behavior to the student-centered and ability-based track.

B. Realizing the optimized combination of teaching methods

In the classroom teaching that uses active learning, the realization of its teaching goal should be accomplished by means of a series of activity tasks. From the planning, implementation, evaluation and inspection of one activity task to the next, teachers can choose one or more methods according to the needs of teaching content and teaching objectives to optimize the combination, so as to effectively stimulate the enthusiasm of students and achieve the goal of effective teaching. Taking "group activities" as an example, in an activity, teachers can combine "group activities" with teaching methods such as role playing, independent learning, project teaching and brainstorming. In addition, teachers can choose separate group activities or merge two groups into a large group activity according to the specific situation of course content and class size. Groups can be either cooperative or challenging. Teachers should really understand the essence of active learning — the organic combination of "diversity, flexibility and systematicness" of teaching methods. Activities serve the content, not activities for the sake of activities.

C. Doing well in "two norms"

One is to take notes as a normal. Note taking is the simplification and refinement of textbooks. The process of taking note is the process of knowledge internalization. Students who can take notes must be good at summarizing and thinking positively. In the classroom of active learning, teachers should regularly remind students to "take notes". For example, in the process of independent learning, teachers should encourage students to read actively, that is, taking notes while reading, so that notes can become the knowledge in the mind. The second is to "review the old

knowledge" as a normal. It is required to have a cycle of memory for learning new knowledge. What students think they have mastered in class may become vague memory after class. The process of review is not only the process of consolidation, but also the process of stimulating students to produce new ideas. The review advocated by the active learning is to arrange a fixed review time before class teaching. First, the teacher requires students to close their notebooks, and the teacher or the students designated in advance will lead them to review. Secondly, all students should record the review contents synchronously, and they can choose to list the main points in the form of mind mapping.

D. Improving the evaluation system of teaching quality

Colleges should pay more attention to the reform of teaching methods. In the process of implementing active learning, it is necessary to establish a new evaluation system of teaching quality with the classroom evaluation standard of "pursuing effectiveness, striving for high efficiency, improving inefficiency and eliminating inefficiency", so as to promote the establishment of incentive mechanism including personnel system, welfare system and management system, and change teachers' focus on completing teaching plan regardless of the students' learning desire, learning ability and learning results. Finally, the ideas of "learning something, applying what they have learned, and combining morality and technology" will be the core value goal of classroom teaching, and the sustainability of teaching method reform will be ensured.

VI. CONCLUSION

The reform purpose of "teachers, textbooks and teaching methods" is to improve students' comprehensive professional ability. The author believes that the implementation of the reform of "teachers, textbooks and teaching methods" needs to use the most suitable teaching methods to teach students the knowledge, ability and accomplishment that can best meet the needs of the society. As an advanced educational thought, active learning is in line with the concept of vocational education reform, and is suitable for the promotion and application in the classroom teaching of vocational colleges.

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