# The Application of Cognitivism Learning Theory in Computer Teaching in Secondary Vocational School

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**Abstract:** Cognitive learning theory is a kind of theory developed after behaviorism learning theory. It is constantly improved and perfected in the historical change. Cognitive learning theory provides a solid foundation for the development of educational theory, enriches the content of educational psychology and promotes the rapid development of educational psychology. Among the courses in secondary vocational colleges, computer course appears as an educational basic course, it is aimed at many non-computer major students, in order to better improve their ability to use computers to process information, especially their ability to learn independently and solve problems, so as to adapt to modern information technology. In this paper, combined with the characteristics of computer courses in vocational colleges, based on cognitive learning theory, the teaching of this course is studied.

**Keywords:** cognitive learning theory; educational psychology; computer courses; secondary vocational colleges

## 1. Introduction

Cognitivism learning theory was first generated in the concept of Gestalt insight, and then it was gradually enriched and perfected through the research and improvement of Tolman, Piaget, Bruner, Ausubel and Gagne etc. This learning theory has exerted a very far-reaching influence on the whole pedagogy research. It resolutely opposes the behaviorism of learning theory, emphasizing the role of cognitive behavioral activities in learning, so that the study of learning theory is more appropriate to the actual situation of human learning, so that the study of learning theory began to be in a dominant position [1]. Bruner in the process of his research found that the teacher should try to design a students' exploratory favorable learning environment, make the students learn in exploratory learning is a process, so as stimulate students' interest in learning. Teachers in teaching design, should as far as possible to link students with the knowledge, gradually from the existing knowledge to new knowledge, and fully explain to the students the connection and the difference between the two, so that the students better understand the new knowledge [2]. At the same time, to give full play to the initiative of the students, so that they actively explore new knowledge.

## 2. Cognitive Learning Theory

Cognitivism not with nouns in cognitive psychology, it covers all has the behavior of cognitive bias position theory, cognitive learning theory point of view different orientation, complex and diverse, it did not form a unified theory system, but their common tendency is the same, mainly displays in: emphasis on stimulus and response of intermediary factors; Emphasizing the structure of existing cognition; Emphasize the initiative of students in learning; Emphasize the structure of knowledge and the role of teacher guidance [3].

### 2.1. Gestalt Insight

This theory was first proposed in 1912 by the German psychologist Koehler, describing that human consciousness is a kind of subjective initiative, which mainly emphasizes the important role of Gestalt Organization in controlling the cognitive activities of brain stimulation. Insight theory not only stimulates behaviorism-mechanism of response linkage is reasonably criticized and lays a solid foundation for the future development of cognitive learning theory.

### 2.2. Tolman's Theory of Cognitive Purpose

Tolman under the influence of gestalt cognitive theory, put forward the cognitive learning theory, he thinks the learning process by the cognitive environment and the impact of the current individuals have experience and knowledge is very big, by identifying learning goals of expectation, so as to get the current symbol learning purpose, gradually formed the cognitive map, finally store it in the brain, so that can go to have a problem is very good the process of working it out.

### 2.3. Piaget's Cognitive Structure Theory

Piaget's famous Swiss psychologist, he thinks learning refers to the students take the initiative to external stimuli feedback, after the formation of cognitive structure of a whole, is a kind of subjective cognition process, the essence of the understanding students use existing

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cognitive system is external things a dynamic process of processing and modification This dynamic cognitive theory, comprehensively expounds the overall characteristics of the learning process.

### 2.4. Bruner's Theory of Discovery Learning

Bruner believes that the best purpose of learning is to be interested in the knowledge, rather than to stimulate students to learn through the external effect of reward. The discovery learning theory by Bruner mainly hopes that students can cultivate the creative spirit and discover more new knowledge through independent observation, exploration and experiment. At the same time, we should pay attention to students' learning enthusiasm and motivation, and we take account the existing knowledge system and textbook structure. In the process of teaching, teachers must make students understand to some extent a set of basic ideas or principles. These basic ideas and principles, for students, is the best knowledge system. Therefore, Bruner believes that play the role of active learning, to strengthen the general attention of the teaching content function, is a teacher should be the focus and the focus in the course.

### 2.5. Ausubel's Cognitive-Assimilation Theory

American educational psychologist Ausubel emphasized that learning theory should mainly focus on classroom learning. His cognitive assimilation theory clarifies that the focus of meaningful learning lies in whether students can acquire new knowledge, which mainly depends on the relevant concepts already existing in the cognitive structure of learners. Therefore, meaningful learning is the assimilation of new and old knowledge, which is generated in the interaction process between the two [4].

### 2.6. Gagne's Theory of Information Processing

American education psychologist Gagne combined cognition and learning theory of behaviorism, he extracted from these two theories out of their respective advantages, eventually become the information processing theory. It is important to note that in the theory put forward by the Gagne, he put the learning outcomes concrete is divided into five categories, namely language information, intellectual skills, cognitive strategies, skills and attitude. He believes that these five learning outcomes can cover all the current subjects, mainly means that various subjects can formulate appropriate teaching objectives through these five classifications. At the same time, Gagne claims in the process of students learning, to do the most fully guidance to students, and achieve the desired learning effect. Teachers in the teaching process, to stimulate students to recall the existing knowledge and experience, so that the students have a good psychological preparation, in Gagne point of view, preparation is necessary precondition for any kind of meaningful learning.

Therefore, the proper application of cognitivism learning theory in teaching can effectively promote the interaction between teachers and students, help to give full play to the initiative and creativity of both teachers and students, help students to get rid of bad habits, stimulate the interest of students, and let them acquire knowledge in a positive and pleasant learning environment.

## 3. The Computer Course in the Secondary Vocational Colleges Teaching Problems

### 3.1. Students Have Poor Foundation, Bad Learning Attitude and Obvious Lack of Interest in Learning

In recent years, with the expansion of university enrollment and the popularization of compulsory education, a large number of students with good grades and good families flock to colleges and universities, while the remaining high school students with poor learning foundation and poor families flow to middle schools with low threshold [5]. Therefore, the overall quality of students in secondary vocational schools is poor and they lack initiative and enthusiasm in learning.

Most of the students in secondary vocational schools have a very bad attitude and low interest in learning. They not only fail to learn by themselves, but also often affect the learning of others. Most of secondary vocational school students lack basic knowledge and accomplishment, cannot understand digestion of knowledge, at the same time as these students more in the age of 15 to 19 years old, are particularly vulnerable to the surrounding factors, is likely to lead to the learning atmosphere of the classroom, the basis of good students also gradually lost interest in learning.

### 3.2. Experiment Is Disjointed from Theory Teaching

The study of computer course should be a combination of theory and practice, a hands-on course that confers knowledge to students. However, the general situation is to go to the experiment after the theoretical class, but the theoretical class is mostly in the multimedia classroom, where the experiment is in the computer room, although the multimedia classroom teaching equipment can be used to present a rich teaching content, and the amount of information, the teaching content has become more intuitive, but teachers are in the phase of a lecture, students have not for the actual operation, this will make the students understand the can continue to follow the teacher's pace, step by step for memory and learning, and the other part of the students don't know what teachers said, also not listening carefully in class, do their own thing, teachers and the lack of interactivity. During the experiment in the computer room, some students did not know what to do when they went to the computer room. The better students followed the examples in the book to do their homework. Such teaching is time-consuming and inefficient, so we must explore new computer teaching methods.

### 3.3. The Level of Students is Uneven

With the continuous popularization of computers in some places, students in those cities have a certain computer foundation. In these developed areas of the school, computer equipment conditions are very good, there are perfect computer rooms, every week they can go to the information technology Class, most of the students

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have mastered some of the basic knowledge of the computer, and some of the basic operation of the computer is more skilled [6]. In some rural schools, due to the actual conditions, there is not enough courses in computer related equipment and conditions, so that students lack basic knowledge of computer, some even are one blank, even don't know some simple operation. Although some students have a computer in the home, but their knowledge of computer is rare. In this way, there will be a great difference between the computer level of urban students and some rural students, which will bring great challenges to the teaching work of computer teachers.

## 4. Computer Curriculum Design Based on Cognitivism Learning Theory in Secondary Vocational Colleges

It can be seen from the cognitive learning theory that: providing students with interesting learning materials, stimulating students' memory of existing knowledge, stimulating students' enthusiasm for learning, and allowing students to observe, explore and experiment independently are all very effective learning methods for students [7]. Therefore, in view of the above secondary vocational college computer course some problems, the design of the following computer teaching mode.

### 4.1. Sample Stage

Just at the beginning of class, to make a review of previous curriculum content, teachers can use short words, guide students to memory and will introduce to the course content before in this learning class. Through some stimulating learning materials for the students to stimulate the students' knowledge and experience in the last lesson learned memories. The teacher can present “Student achievement sheet” for students, this worksheet directly takes the results that students are concerned about as the practical data. The teacher then puts forward specific requirements in class and lets the students operate by hand, the table shows the records of the personnel whose math scores are greater than 90 points. Since automatic screening is the premise of mastering advanced screening in this lesson, this design stimulates students to recall the steps of automatic screening, which lays a good foundation for the following content.

### 4.2. The Problem to Import

When students remember the lesson of learning content and review them effectively, the teacher to them again for another appropriate mental stimulation: through conversion screen control condition, if put forward in the example above questions based on the screening, just add a "or", screening conditions becomes a "mathematical or scores greater than 90 points", how should do. The main condition here is to add a word, which not only directly leads to the question, but also allows students to think and analyze positively, and may directly arouse some students' interest in this lesson.

Teacher after the given problem, to set aside time for students to think, to let them discuss solutions. When students couldn't solve the problem using the known knowledge, teachers should adopt heuristic way to help them to analyze the relationship between the two conditions before and after the change a word, use language to illustrate the use of advanced screening rules and skills.

### 4.3. Prompts

Advanced screening process more complicated than automatic screening, according to the characteristics of the secondary vocational student's understanding lets the student independently to explore advanced screening is has the certain difficulty, Gestalt the proposed reinforcement learning guidance to reasonable use of the teaching process. In order to make the student to the advanced screening a variety of settings and steps to have a deeper understanding, teachers should inspire, prompt students and make a reasonable teaching, the use of these three ways to promote students to master the advanced screening process and specific steps, and let students carry out practical operation, to achieve the teaching goal of combining teaching and doing.

This combination of language prompts and heuristic teaching can guide students, so that students can understand the steps of advanced screening, according to the language of the teacher to consciously think, is conducive to the students to establish their own knowledge system.

### 4.4. Steps to Comb

Specific and general language for students to master a system of knowledge is more effective. Inspire students after the completion of the operation, the teacher can through the language description of the operation steps, so that the advanced screening operation steps are clear, and explains the operational process matters needing attention, so that students can more clearly understand the learning of the operation process.

### 4.5. Consolidation and Improvement

According to the strengthening principle of cognitive learning theory, to timely to strengthen improve learned knowledge. First of all, let all the students in the worksheet prepared before, to do an advanced screening training of existing data, but the screening condition is able to change, is to filter out “the nursing and accounting professional, a total of more than 95 points”, this form of operation can help students to grasp the specific operation steps more accurately.

### 4.6. Outward Bound

Learning activities in the end, is to just the students to master the knowledge, training students the knowledge migration ability So, the teacher in the classroom to the students put forward a different operation: show the results of advanced screening in a blank worksheet, it sounds simple, but in the concrete operation process is likely to be a lot of problems. In this way, students can not only deepen the proficiency of advanced screening procedures, but also enable students to find the knowledge they do not know in the process of hands-on operation, and to study seriously,

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so as exercise students' awareness of exploring and solving problems actively.

4.7. Summary of Class Content

In the whole teaching process, teachers take cognitivism learning theory as the guidance, according to the difficulty of knowledge, course requirements and students have to master knowledge, inspire students to think independently and found that the problem first, and then through the teachers' teaching to students clearly combed the whole operation process, the students in autonomous learning and peer mutual way, further to the operation of the advanced screening methods for consolidation. This curriculum design through the combination of teaching, learning and doing mode, not only mobilizes students' learning enthusiasm, but also enables students to have a deep understanding of the teaching content of this lesson, improves students' problem-solving ability and practical operational ability, and achieves the final teaching objectives of the course requirements.

## 5. Conclusions

To sum up, students' learning is not formed in long-term repeated practice, but a kind of expectation formed on the basis of personal existing cognition; Learners' learning mainly depends on his understanding of existing knowledge levels and learning environment, learners is decided by his own thought, and not be used [8]. So, in the secondary vocational computer teaching, should pay attention to student's main body status, give full play to students' initiative in the learning process, moreover, we should pay attention to the important role of independent thinking in the learning process. Because the learning motivation of secondary vocational students is not strong, it is a very common phenomenon, so we should pay attention to the strengthening function of cognitive learning theory, strengthen the knowledge learned in time, and strengthen the students' mastery of knowledge. Therefore, we should combine the cognitive learning theory with the teaching of computer courses in secondary vocational colleges, give full play to the advantages of the theory, and promote the better and faster development of students.

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