

The Application of Classical Conditioning Theory in Elementary Education

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Abstract: As an important part of China's basic education, elementary education is the first stage of China's compulsory education, which plays an important role in laying the foundation and guiding students' academic development and personal growth. How to improve the teaching quality of elementary education, help students develop good learning habits, and better promote students' academic development is very worthy of deep thinking. Pavlov's classical conditioning theory originated from the dog saliva secretion experiment, and its rich connotation and characteristics have important revelation significance for elementary school teaching and behavioral therapy. Therefore, based on the connotation and main features of Pavlov's classical conditioning theory, it is of great research value to explore its application strategies in elementary school classroom teaching and elementary school students' adverse behavior modification, so as to better promote the sound growth of elementary school students.

Keywords: Classical Conditioning Theory; Elementary Education; Classroom Teaching; Behavior Modification.

1. Connotation and Main Characteristics of Classical Conditioning Theory

Ivan Pavlov, who was awarded the Nobel Prize in Physiology in 1904 for his pioneering achievements in digestive physiology. It was also because of this experiment that he discovered the classical conditioning theory and gradually pushed him into the field of psychological research. Pavlov's classical conditioning theory laid the theoretical foundation for the development of the behaviorist school of psychology and had a significant impact on the development of behaviorist psychology. Therefore, later generations often refer to him as the pioneer of behaviorist psychology. In this paper, we mainly start from the rich connotation and main characteristics of classical conditioning theory to explore its practical application in elementary education.

1.1. Connotation of Classical Conditioning Theory

In his experiment on the secretion of the digestive glands of dogs, Pavlov found that, in addition to food, other stimuli before the appearance of food, such as staff delivering food, footsteps, etc., will also make dogs secrete saliva. Based on this, he applied a bell before each feeding, and after several consecutive feedings, found that the dog continued to secrete saliva when only the bell was rung but no food was given. He called the phenomenon of salivation induced by dogs in response to unrelated stimuli other than food, such as a bell, conditioned firing. Thus, Pavlovian classical conditioning, in which an otherwise neutral stimulus is combined with a stimulus that is already capable of eliciting a certain response, causes the animal to learn to respond to that neutral stimulus with a spontaneous physiological or emotional response[1]. For this reason, the neutral stimulus is also called a conditioned stimulus.

From this, we can see that a neutral stimulus can become a conditioned stimulus, form a conditioning effect, and then change behavior, as long as it is repeated in combination with

an unconditioned stimulus in time. This also reveals that stimuli from the external environment can have a significant impact on human behavior. In elementary education, We can not only help students acquire good behaviors by establishing correct stimulus-response associations, but also correct bad behaviors by changing the stimulus-response associations they have already formed.

1.2. Main Characteristics of Classical Conditioning Theory

Pavlov's classical conditioning theory is rich in content, mainly including the following characteristics:

1.2.1. Acquisition and Extinction

The conditioned response can be acquired and reinforced by presenting the conditioned stimulus in combination with the unconditioned stimulus several times. For example, if the bell stimulus is combined with feeding to a dog, the dog will obtain a salivary response to the bell. After the "bell-salivation" conditioned response is formed, if the bell and food are continued to be repeatedly combined and presented to the dog, the formed "bell-salivation" conditioned response will be continuously strengthened. However, if the conditioned stimulus is repeatedly presented without the unconditioned stimulus, the conditioning will gradually decrease in strength until it disappears, which is called extinction. If the conditioned stimulus is re-enforced, the conditioning will soon return. It is important to note that the conditioned stimulus must precede the unconditioned stimulus, otherwise the conditioned reflex will not be formed[2][3].

1.2.2. Generalization and Differentiation

After the formation of conditioning, irrelevant stimuli similar to the conditioned stimulus will also cause conditioned responses, such as "once bitten by a snake, ten years afraid of grass rope" is the best example of generalization. The more similar the irrelevant stimulus is to the conditioned stimulus, the more likely it is to elicit a conditioned response. Divergence, when only the conditioned stimulus is reinforced but not the proximate stimulus, the

generalization phenomenon gradually disappears, and ultimately only responds to the conditioned stimulus, which is also known as discriminative learning.

1.2.3. Advanced Conditioning

After the formation of conditioning, the conditioned stimulus can be seen as a new unconditioned stimulus, and when another neutral stimulus is repeatedly combined with it, a new conditioning can be formed. For example, after a dog forms a salivary reflex to a bell, and pairs the bell with a light, the dog will form a salivary conditioned reflex to the light, which means that secondary conditioning is established through stimulus substitution. Similarly, tertiary conditioning can be established on the basis of secondary conditioning.

2. The Application of Classical Conditioning Theory in Elementary Education

As an important part of China's basic education and the first stage of China's compulsory education, elementary education is a national basic education that benefits all people. By prioritizing elementary education, not only does it need to reflect its basic and compulsory nature, but it also needs to show its foundation, future and individuality[4], so as to lay a solid foundation for students' future academic development. Undoubtedly, good education requires not only excellent teachers and resources, but also effective learning strategies. Pavlov's classical conditioning theory confirms that external conditioned stimulus will have an important influence on individual behavior. In elementary education, we can not only help students to develop good learning habits through the reasonable construction of the "stimulus-response" linkage, but also correct their bad behaviors by eliminating the original abnormal conditioned reflexes or establishing new ones. Therefore, the rational use of Pavlov's classical conditioning theory will greatly help elementary school students' academic development and individual healthy and happy growth. At the same time, since elementary education involves two main subjects: teachers and students, this paper mainly discusses the application of Pavlov's classical conditioning theory in elementary education from the two aspects of elementary classroom teaching and the correction of students' undesirable behaviors, in order to provide effective implementation strategies for improving the quality of elementary education and promoting the development of elementary school students.

2.1. The Application of Classical Conditioning Theory in Elementary School Classroom Teaching

2.1.1. Strengthen the Connection between Knowledge and Life, New and Old Knowledge, and Form a Systematic Knowledge System

Teachers should follow the laws of physical and mental development of elementary school students in the process of teaching, not to pluck up the seedlings, but to establish a teaching program that is suitable for students and easier for them to understand based on their cognitive base. For example, the cognitive ability of first and second grade students is weak, teachers need to establish a link between the knowledge points and the things that students often come into contact with in their lives, so as to better help students understand the knowledge points. For example, when

teaching the article "I am a Chinese", teachers can display pictures of the five-star red flag, teach students to sing the song "I am a Chinese", and let students talk about their respective national customs; when teaching students the operation of addition within ten, teachers should try to use life scenarios to give examples and demonstrations, for example, Xiaoming has two candies, Xiaohong has three candies, and find out how many candies they have in total. In addition, conditioned responses fade, so teachers should arrange for students to review what they have learned on a regular basis to inhibit the forgetting of important content. As the saying goes, to learn from the past to understand the new, on the one hand, teachers can adopt the way of introducing new knowledge from old knowledge in daily teaching to strengthen the connection between old and new knowledge, which not only can be more conducive to students' understanding of the new points, but also can review the old points to deepen their understanding[5]. On the other hand, teachers can guide students to review what they have learned by arranging unit knowledge review assignments or conducting occasional knowledge inspections. Continuously establish the connection between knowledge and life practice, and strengthen the connection between old and new knowledge points will help students to solve practical problems more systematically and flexibly using the knowledge they have learned, and constantly develop their innovative thinking, which is more conducive to their academic development.

2.1.2. Avoid the Formation of the Classical Conditioning of Negative Emotions and Link Learning to Positive Emotions

In specific teaching, teachers should reduce or eliminate the influence of negative emotions such as tension, anxiety, fear and so on on students' learning, at the same time, link the learning process with positive emotions, establish the conditioned response between the learning process and positive emotions, improve the learning efficiency, and promote the cultivation of students' non-intellectual factors. First, teachers should always care for and encourage students, always be the students' confidant, so that students can connect the school with the teachers' concern, and establish a positive psychological connection that is conducive to students' learning and growth. Secondly, teachers should try to link learning tasks with positive and optimistic events, so that when students think of learning, the first thing they think of is what makes them happy and cheerful. The establishment of such a positive connection can not only dissolve the negative emotions of fear and disgust in the face of learning tasks, but also enhance the motivation to learn and stimulate students' self-motivation. For example, if the class is divided into different groups and various groups are formed, the comparison of academic performance will be based on the group as a unit, which will dilute the individual competition, and at the same time, the students will have a sense of belonging within the group and a sense of mission to strive for the group's glory, and weaken the frustration of comparing the performance of individuals[6]. In addition, you can also open the character of advanced individuals, business hobbyists, arts and entertainment standard bearer, the annual fastest progress of the group or individual, and other aspects of the competition, and strive to make every student can get a sense of success and happiness in the school. A civilized and orderly, friendly and warm, book-rich classroom environment will make students feel a sense of security, a sense of

belonging as well as a sense of responsibility, so that they will spontaneously devote themselves to learning. Appropriately to Promote Students' Academic Development

2.1.3. Use Generalization and Differentiation Appropriately to Promote Students' Academic Development

Once a certain conditioned reflex is established, it can be triggered by a stimulus similar to the original conditioned stimulus, and the more similar the current stimulus is to the original conditioned stimulus, the greater the likelihood of the conditioned reflex being triggered. The phenomenon of generalization is common in teaching, for example, students will often deny their own efforts because of a bad grade or a bad test, thinking that they are just not good at learning, and gradually degrade themselves. At this time, teachers need to care about, encourage students, eliminate the excessive generalization of negative learning, the formation of "a certain subject results or the results of this test does not mean a total denial of their own efforts, sustained efforts to make the road to success," the correct cognition, and at the same time, seriously help students to find the learning problems and improvement strategies, gradually. At the same time, they need to help students find learning problems and improvement strategies, and gradually rebuild students' self-confidence. In addition, teachers should pay attention to avoid putting similar knowledge that has not been learned together, which may cause confusion among students. At the same time, teachers should also make appropriate use of differentiation in teaching to promote students' acquisition of a particular knowledge. For example, when explaining new knowledge, teachers should evaluate and praise the correct answers given by students in a timely manner, and provide positive guidance and correction when the wrong answers appear, so that students can update their knowledge base in a timely manner and quickly master the correct knowledge. In a word, the skillful use of generalization and differentiation in teaching is an important magic weapon to promote students' academic development.

2.1.4. Consciously Establish Correct Conditioned Reflexes to Help Students Form Good Study Habits

As the beginning part of the compulsory education, elementary education plays a key role in laying the foundation, and has an important role in guiding their future academic and personal development. Therefore, elementary education not only needs to pay attention to the comprehensive academic performance of elementary school students, but also needs to pay attention to the cultivation of their good character. Based on this, elementary school teachers not only need to teach knowledge, but also more importantly, to help students form a sound personality and develop good learning habits. For example, first-grade students are lively and active age, attention is easily distracted, but this is also the key period of their good behavior shaping, the teacher can through the "one, two, three, sit upright" and other slogans to let the students form the conditioned reflex of the class to sit upright, so that they develop a good habit of classroom discipline. Teachers can also remind students to take notes in class many times, so that students gradually form the conditioned reflex of taking notes diligently in class, and strengthen the frequency of the conditioned reflex of taking notes diligently through praise. In addition, teachers should also pay attention to the construction of students' interpersonal relationships and classroom culture, and help students develop good etiquette

and behavioral habits by setting an example, praising and rewarding them, such as requiring teachers and students to smile and greet each other when they meet, and to help each other in life. A good classroom learning atmosphere is not only conducive to the formation and long-term maintenance of good learning habits, but also conducive to their healthy and happy growth.

2.2. The Application of Classical Conditioning Theory in the Correction of Adverse Behavior of Elementary School Students

In real life, many elementary school students will be formed because of the weak resistance to pressure or low ability to discern information and other reasons for the formation of bad behavior, such as anxiety, depression, social phobia, etc[7]. These abnormal behaviors are often the result of the formation of inappropriate conditioned reflexes in the later life, if the long-term untreated will be greatly endangered by their physical and mental health and growth. Behavioral therapy is a school of psychotherapy developed based on the theory of behaviorism psychology, and it is also one of the main schools of thought dedicated to the correction of undesirable behaviors. It advocates that we should start from the root of the symptoms, and through specialized therapeutic learning, we can gradually eliminate the abnormal conditioned reflex behaviors that have already been established, or establish a new conditioned reflex to promote the frequency of normal behaviors, and then inhibit or eliminate the occurrence of abnormal behaviors[8][9]. Therefore, as one of the theoretical foundations of behavioral therapy, Pavlov's classical conditioning theory will help to correct the existing maladaptive behaviors of elementary school students, and then help them grow up healthily.

2.2.1. The Behavioral Modification of Test Anxiety Disorder

Nowadays, in order not to let their children lose at the starting line from childhood, parents pay more and more attention to their children's education, which also causes the enhancement of academic pressure of students in elementary education. Many students are afraid of exams because they are worried that they will be scolded by their parents and criticized by their teachers if they don't do well. As long as they think of exams, they will feel immense anxiety and nervousness, and even have difficulty in sleeping and eating, and when they go to the exam room, they will have a blank mind and sweaty palms[10]. This is because they have built up the conditioned reflex of "poor examination results - scolding by parents and criticism by teachers" in their brains, and this conditioned reflex of misconception makes them doubt their own abilities and gradually deepen their doubts". This erroneous cognitive conditioning reflex makes them doubt their own ability and gradually deepen the self-psychological suggestion that "this time they will definitely not do well and will be criticized by their parents", which leads to the worsening of the test anxiety situation. At this time, it is necessary to provide psychological guidance to students, so that he formed a "test even if the test is not good, as long as the effort, maintain progress is the best child" the correct cognition, and teach parents and teachers to care more about, encourage students, rather than only the theory of results, slowly help students find appropriate learning methods and gradually rebuild the students' self-confidence and learning motivation. This will slowly help students find

appropriate learning methods and gradually rebuild their self-confidence and internal motivation to learn, thereby easing their psychological burden and reducing test anxiety. If test anxiety is too serious, it is necessary to seek professional treatment, such as systematic desensitization therapy.

2.2.2. The behavioral Modification of Social Phobia

Similarly, many elementary school students suffering from social phobia do so because of the formation of inappropriate conditioned reflexes. Often, they are afraid of saying the wrong thing and get offended and disliked by others, afraid of being laughed at by classmates and teachers for not performing well in class, so they dare not speak, dare not express their opinions in public, unwilling to communicate with others, and even eliminate social activities and unwilling to go out in the public place. At this point, it is often necessary to correct their wrong perception that everyone is in need of continuous learning to improve themselves, not to care too much about gossip, and to be assured of doing what they want to do and what is right. In addition, it is also necessary for teachers, parents and peers to accompany and encourage them to take the first step bravely[11], provide them with opportunities to speak on stage and participate in activities, and give them timely praise and advice on improvement of their performance, so as to cultivate their optimistic and confident mental attitude, and in turn overcome their social fear. Accordingly, for elementary school students who are socially phobic and have an aversion to learning, we should first create a good learning environment and interpersonal atmosphere for them[12], and then help them eliminate negative emotions such as fear and rejection. A civilized and orderly, comfortable and warm campus environment, friendly and kind teachers and classmates, help to make students feel a sense of security and sense of belonging in a friendly and harmonious atmosphere, so that they consciously put down the resistance to school, learning psychology. Secondly, teachers can also target the conversion of teaching methods to improve the fun of learning, so that students gradually appreciate the beauty of campus life and the fun of learning.

3. Conclusion

Elementary education, as an important part of China's basic education and the first stage of China's compulsory education, is the national basic education benefiting all people, and is an important cornerstone for the students' future academic and professional development to the better. The elementary school stage requires not only excellent teachers and rich teaching resources, but also the use of correct learning strategies. Most studies have proved that Pavlov's classical conditioning theory in elementary education helps students to develop good learning habits, which in turn helps them to better engage in learning and thus achieve better development. In conclusion, in daily life, both parents and teachers should give students enough care, patience and love. They should not only pay attention to students' academic performance, but also pay more attention to students' physical and mental health. They

should create a safe, comfortable, warm and loving living and learning environment for students, improve their cognitive and discerning abilities, and help them form an optimistic and confident outlook on life, so as to prevent the occurrence of undesirable behaviors. When elementary school students have undesirable behaviors, they should intervene in a timely manner. First, make them clear about the harm of such behavior. Then, patiently help students build up their confidence and courage, encourage them to actively engage in rehabilitation training, and soothe their emotions and psychological pressure. Finally, if the symptoms have not been significantly improved, it is necessary to demand professional behavioral therapy, using scientific methods to correct the undesirable behaviors as early as possible, to avoid more far-reaching effects and hindering the healthy growth of students.

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