LEARNING BEHAVIOR THEORY ACCORDING TO IVAN PAVLOV, THORNDIKE, SKINNER AND ALBERT BANDURA

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Abstract
Seeking knowledge is obligatory for every Muslim, both male and female. Learning requires an atmosphere and a change in behavior from the learner. Therefore learning involves acquiring abilities that are innate. Learning depends on experience; in part and that experience is a feedback from the environment. Scientists such as Ivan Pavlov are best known for his theory of classical conditioning, in which a neutral stimulus acquires the capacity to elicit responses through association with an unconditioned stimulus. Thorndike developed the law of effect, which emphasizes the role of the consequences of present behavior in determining future behavior. Skinner continued to study the relationship between behavior and consequences. As a result, he put forward a form of learning which called operant conditioning. Meanwhile, according to Albert Bandura there are four phases involved in learning through models, namely the attention phase, the retention phase, the reproduction phase, and the motivational phase.

Keywords: Theory, Learning Behavior, Ivan Pavlov, Thorndike, Skinner and Albert Bandura

I. Introduction

Learning is defined as a change in behavior resulting from experience. There are at least five kinds of experiential change behavior and are considered as basic causal factors in learning. First, at the most primitive emotional level, there is a change in behavior resulting from the pairing of an unconditioned stimulus with a conditioned stimulus. As a function of experience, the conditioned stimulus acquires over time the ability to elicit a conditioned response. This form of learning is called respondent learning and helps us to understand how students like or dislike school or fields of study. Second, it discusses learning continuity, namely how two events are paired with one another at a time, and we often experience this. We saw how these associations can lead to learning and to drill and learn stereotypes. Third, we learn that the consequences of behavior influence whether or not the behavior is repeated, and how large the repetition is. This kind of learning is called operant learning. Fourth, learning experience as a result of human observation and events. We learn from models, and each of us may become a model for others in observational learning. Fifth, cognitive learning occurs in our heads, when we see and understand the events around us and learn to dive into understanding.

Learning theories are grouped into learning theories before the 20th century and learning theories during the 20th century. This grouping was carried out because the theories before the 20th century were developed based on philosophical or speculative thinking, without being based on experiments. The theories of learning before the 20th century included the theory of mental discipline, the theory of natural development, and the theory of apperception. The 20th century learning theories are divided into two families, namely the behavioral or behavioristic family which includes stimulus-response theories, and the Gestalt-field family which includes cognitive theories.

II. DISCUSSION

A. EVOLUTION OF BEHAVIORAL THEORIES

All psychologists who support the behavioral view argue that those who research learning should base their conclusions on observations of external and overt behavior and organisms. But they differ in two ways, namely in how they research learning, and in the forms of learning that they analyze. And the title of this chapter shows that in learning theory, five forms of learning are put forward, four of which are included in the family of behavioral learning theories, namely respondent learning, contiguity learning, operant learning, and observational learning. In this discussion, three learning theories will be discussed, namely those concerning respondent learning, and known as classical conditioning and Pavlov's theory, Skinner's operant conditioning theory, and observational theory or also known as social learning theory which is associated with the name Bandura.

The scientific study of new learning began at the end of the 19th century. Using scientific techniques (physical sciences), scientists began to conduct experiments to understand how humans and animals learn.

1. Ivan Pavlov: Classical Conditioning

In the later and early years of the 19th and early 20th centuries Pavlov and his colleagues studied the digestive process in dogs. During the study, they noticed changes in the timing and speed of salivation. In these experiments Pavlov and his colleagues demonstrated how learning can influence behavior that was previously thought to be reflexive and uncontrollable, such as salivation.

The importance of Pavlov's study lies in the method he used and the results he obtained (Slavin, 1988). The tools used in the experiments show how Pavlov and his colleagues were able to closely observe and measure the responses of the subjects in the experiments. Pavlov's emphasis on careful observation and measurement, and his systematic exploration of various aspects of learning, helped advance the scientific study of learning. However, Pavlov's discoveries had little application to learning in schools.

2. E.L. Thorndike: The Law of Influence

The results of Pavlov's study stimulated researchers in the United States, such as E.L. Thorndike (Hilgard and Bower, 1966). In Thorndike's earlier studies, he viewed behavior as a response to stimuli in the environment (note the correspondence with Pavlov). This view, that stimuli can evoke responses, is the starting point of the stimulus-response theory or S-R theory that is known today. Like previous behavioral theorists, Thorndike related behavior to physical reflexes. Certain reflexes, such as suddenly lifting a knee up when it is struck, occur unprocessed in the brain. It is

hypothesized that other behaviors are also determined reflexively by stimuli in the environment, and not by conscious or unconscious thoughts.

In some of his experiments, Thorndike placed cats in boxes. It is from these boxes that the cats have to go out to find food. He observed, that over time the cats learned how to get out of the box more quickly by repeating exit-leading behaviors, and not repeating ineffective ones. From these experiments, Thorndike developed his law, known as the Law of Effect.

Thorndike's Law of the Effect states that if an action is followed by a satisfactory change in the environment, the probability that the action is repeated in similar situations will increase. However, when a behavior is followed by an unsatisfactory change in the environment, the chances that the behavior is repeated decrease. So, the consequences and one's behavior at one time, play an important role in determining that person's next behavior.

3. B.F. Skinner: Operant Conditioning

Pavlov generally focused on the behavior he thought was displayed by specific stimuli. But Skinner argued that such behaviors represent only a small part of all behaviors. He suggested another class of behavior, which is called operant behaviors, because these behaviors operate on the environment in the absence of any unconditioned stimuli, such as food for example. Skinner's studies centered on the relationship between behavior and its consequences. For example, if a person's behavior is immediately followed by pleasurable consequences, that person will engage in that behavior more often. The use of pleasant and unpleasant consequences to change behavior is called operant conditioning.

Skinner's experiments focused on placing subjects in controlled situations, and observing the changes in the subjects' behavior that were produced by systematically changing the consequences of the subjects' behavior. Skinner's contribution, like that of Pavlov, consisted not only in what he discovered, but also in the methods he employed.

Skinner is famous for the development and use of an apparatus commonly called the Skinner box. With this box he studied the behavior of animals, usually rats and pigeons. Skinner's work with rats and pigeons resulted in a set of behavioral principles that have been supported by hundreds of studies involving both humans and animals. These principles will be discussed in the following sections.

B. PRINCIPLES OF BEHAVIOR LEARNING THEORIES

1. Consequences

The most important principle and theories of learning behavior is that behavior changes according to direct consequences. Pleasurable consequences "strengthen" behavior, while unpleasant consequences "weaken" behavior. If a hungry mouse receives a grain of food when it hits a board, the mouse will press the board more times. But if the rat receives an electrical pulse, it will press the board less and less, or stop altogether.

Pleasant consequences are generally called reinforcement, while unpleasant consequences are called punishments (punishers).

Reinforcement

Reinforcement can be divided into two groups: primary and secondary. Primary reinforcement satisfy basic human needs, for example: food, water, security, intimacy, and sex.

Secondary reinforcement that obtains its value after being associated with a primary reinforcement or other established secondary reinforcement. Money has value for a child when he knows that he can use the money to buy food, for example. The numbers in the new report card have value for students, if their parents give attention and assessment, and parents' praise has value because praise is associated with affection, intimacy, and other reinforcements. Money and report card numbers are examples of secondary reinforcement, because they do not have their own value, but only have value after being associated with a primary reinforcement or other more stable secondary reinforcement. There are three basic categories of secondary reinforcement, namely social reinforcement (such as praise, smiles, or attention), activity reinforcement (such as giving toys, games, or fun activities), and symbolic reinforcement (such as money, numbers, stars, or points that can be exchanged for other reinforcement-reinforcement).

Often times, the reinforcement used in schools are things that are given to students. These reinforcement are called positive reinforcement, and are in the form of praise, numbers, and stars. However, there are times when reinforcing behavior is to make the behavioral consequence an escape from an unpleasant situation. For example, a teacher can free students from homework, if they do well in class. If homework is perceived as an unpleasant task, then being free from homework is a reinforcement. Reinforcement in the form of escapes and unpleasant situations are called negative reinforcement.

An important behavioral principle is that less desirable activities can be increased by combining them with more favorable or desirable activities. For example, a teacher says to his students: "If you have finished working on this problem, you may leave," or "Clean your desk first, then I will read you a story." These two examples are examples of a principle known as the Premack Principle (Premack, 1965). Teachers can use Premack's Principle by combining more enjoyable activities with less enjoyable activities, and making participation in activities that are less enjoyable. pleasurable depends on the complete completion of less pleasurable activities.

Punishment

Consequences that do not reinforce behavior are called punishments. It is worth noting the difference between negative reinforcement (reinforcing desired behavior by removing unpleasant consequences) and punishment, which aims to reduce behavior by confronting undesirable consequences.

Behavioral theorists differ on this punishment. There are those who argue that the effect of punishment is only temporary, that punishment creates resistance or aggression. There are also theorists who disagree with the imposition of punishment.

However, including those who advocate the use of punishment, they generally agree that it should be used, where reinforcing has been tried and failed, and that punishment is given in the mildest form possible, and that punishment should always be used as part of a careful plan. , not done out of frustration.

2. Immediacy of the Consequences

One of the principles in behavioral learning theory is that consequences that immediately follow behavior will affect behavior more than consequences that are slow to come.

The principle of the immediacy of consequences is important in the classroom. Especially for elementary school students, praise given immediately after the child

does a job well can be a stronger reinforcement than a point given later.

3. Shaping

In addition to the immediacy of reinforcement, what will be given reinforcement, also needs to be considered in teaching. If the teacher guides students towards achieving goals by providing reinforcement on the steps that lead to success, then the teacher uses a technique called formation.

The term formation or "shaping" is used in behavioral learning theories in teaching new skills or behaviors by providing reinforcement to students in approaching the final desired behavior.

Summary and steps in the formation of new behavior are as follows:

1. Choose a goal - make it as specific as possible.
2. Determine where the students are now. What are their capabilities?
3. Develop a series of steps that could be a ladder to take them and their current situation to a set goal. For some students the steps may be too large, for others they may be too small. Alter the steps according to the ability of each student.
4. Give feedback during the lesson. Keep in mind, the newer the course material, the more feedback students need.

C. SOCIAL LEARNING THEORY

Social learning theory is an extension of the traditional behavioral learning theory. This theory was developed by Albert Bandura (1969). This theory accepts most of the principles of behavioral learning theories, but places more emphasis on the effects and cues on behavior, and on internal mental processes. So in social learning theory we would use external reinforcement explanations and internal cognitive explanations to understand how we learn and other people. Through observation of our social world, through cognitive interpretation of that world, a great deal of information and complex displays of skill can be learned.

In the view of social learning "humans are not driven by internal forces, nor are they "hit" by environmental stimuli. Instead, the function of psychology is explained in terms of the continuous and reciprocal interaction and determinants of personal and environmental determinants" (Bandura, 1977, pp. 11-12).

Social learning theory emphasizes that the environments a person is exposed to are not random; those environments are often chosen and changed by the person through his behavior. A social learning perspective analyzes the continuous relationship between environmental variables, personal characteristics, and a person's overt and closed behavior. This perspective provides interpretations of how social learning occurs, and how we regulate our own behavior. A discussion of the main concepts and theory of social learning will be provided in the following sections.

1. Modeling

Bandura noticed that Skinners emphasized the effects of consequences on behavior, and neglected the phenomena of modeling, i.e. imitating other people's behavior, and vicarious experience, i.e. learning from the successes and failures of others. He felt that most of the learning experienced by humans was not formed from consequences, but that humans learned from a model. The PE teachers demonstrated the high jump, and the students copied them. Bandura calls this no-trial learning, because students do not have to go through a shaping process, but can immediately produce the correct response.

2. Learning Phase

According to Bandura (1977), there are four learning phases from the model, namely the attentional phase, the retention phase, the reproduction phase, and the motivational phase. It should be pointed out, that in discussing these various phases several concepts found in cognitive theory are used. This is necessary, because observational learning also involves cognitive processes, but explanations for each of the concepts used can only be found in the following chapter, namely in the chapter that discusses cognitive theory.

a. Attention Phase

The first phase in observational learning is to pay attention to a model. In general, students pay attention to models that are attractive, successful, intriguing, and popular. This is why many students imitate the clothes, hairstyles and attitudes of movie stars, for example.

In class, the teacher will get the attention of the students, by presenting clear and interesting cues (for example by saying: "Well, pay attention to how you state the number of oxygen atoms in the oxygen molecule, and the number of oxygen molecules that react." Students' attention will also be gained by using things that are new, strange, or unexpected, and by motivating students to pay attention (eg by saying, “Listen carefully, this will come up in next week's exam).

b. Retention Phase

Observational learning occurs based on continuity. The two necessary contiguous events are attention to the appearance of the model and the symbolic representation of that performance in long-term memory. According to Bandura (1977: p. 26):

“Observers who code modelled activities into either words, concise labels, or vivid imagery learn and retain behaviour better than those who Simply observe or are mentally preoccupied with other matters while watching”

And what Bandura put forward shows how important the role of strong words, names or images associated with the activities being modeled is in learning and remembering behavior.

It has been discussed before, that the subject matter will be memorized for a long time, if open repetition occurs. However, loops do not always have to be open. Closed repetition and behaviors learned through observational learning are often performed by student teacher candidates preparing for their first lesson. And the tutor teacher or model teacher, the student learns how to stand in front of the class, how to give introductory lessons, write new concepts or words on the blackboard, give turns to students, give summaries, and so on. Before the student gave his lesson, in his mind he imagined the preparations he had made. Closed repetition of this kind helps the student remember the key elements and patterns of behavior to master. This closed repetition helps establish a match between the student's behavior and the model's behavior.

c. Reproductive Phase

In this phase, images (imageru) or verbal symbolic codes in memory guide the actual appearance and newly acquired behavior. It has been found that the highest degree of accuracy in observational learning occurs when the open action follows mental rehearsal.

The reproduction phase allows the model or instructor to see whether the components of a behavior sequence have been mastered by the learner. There are times when only a part of a sequence of behaviors is properly coded and owned. For

example, a teacher may find after modeling the procedures for solving quadratic equations, that some students can only solve part of the equation. They may need help mastering the entire sequence for solving the quadratic equation. Lack of appearance can only be known, when students are asked to display. That is why the reproductive phase is needed. It should be mentioned the importance of the meaning of corrective feedback to form the desired behavior. Most of operant psychology is concerned with reinforcement and punishment, which we are familiar with for their effects on behavior. However, most of the statements made by teachers were not in the form of reinforcement or punishment - they were only informative. Knowing results, simple feedback, has a powerful effect on subsequent behavior. If a student has seen, given the code, and repeated, and then tried to write a capital "A", or tried to do a long jump, or tried to compose rhymes, the model teacher should give feedback to the students. This feedback can be directed at the correct aspects and performance but, more importantly, it is directed at the wrong aspects and performance. Promptly alerting students to inappropriate responses before unwanted habits develop is a good teaching exercise. This kind of corrective feedback should not be taken as a punishment. Feedback as early as possible in the reproductive phase is an important variable in the development of skills performance in those being taught.

d. Motivation Phase

The final phase in the observational learning process is the motivational phase. Students will imitate a model, because they feel that by doing so they will increase the likelihood of obtaining reinforcement.

In the classroom, the motivational and observational learning phases often consist of praise or points for conformance to the teacher's model. The students pay attention to the model, do the exercise, and perform it, because they know that this is what the teacher likes, and pleases the teacher.

3. Vicarious Learning

We have seen that most of observational learning is motivated by the hope that imitating a model well will lead to reinforcement. However, there are people who learn by watching people be reinforced or punished when they engage in certain behaviors. This is what is called “vicarious” learning.

Teachers in the classroom always use the principle of vicarious learning. When a student misbehaves, the teacher looks at the children who are doing well, and praises them for their good work. The naughty child sees that work gets reinforcement, so he goes back to work.

4. Self-regulation

Another important concept in observational learning is self-regulation. Bandura hypothesized that humans observe their own behavior, judge that behavior against self-imposed criteria, and then reinforcing or punishing themselves. We all know when we do less than we really do. To be able to make these judgments we must have expectations about our own appearance. One student may already be excited about getting 90% correct on a test, but another child may be sorely disappointed.

The question is, where do we get the criteria we use to judge our appearance? Sometimes these considerations seem to arise on their own, like a painter, a writer, or a teacher, working over and over again to get a painting, an essay, or a good lesson.

But social learning theory suggests that most of the criteria we have for our performance, we learn, like many other things, and models in our social world.

We learn a lot by being exposed to models. If we look at model behavior, and create verbal or imagery codes for what we have observed, we will learn from the model. Both open repetition and closed repetition help us acquire the new behavior we are learning. At some point we should try to reproduce the behavior of that model. Corrective feedback, given long before the reproductive phase of learning from models, has a powerful effect on behavior. Reinforcements and punishments that are directly self-inflicted and experienced vicariously determine the extent to which the new behavior will be displayed. In the view of social learning, learning and performance are two different phenomena.

Our cognitive responses to our own behavior allow us to regulate our own behavior. By observing, we collect data about our responses. Through internalized standards of performance, often learned through observation, we consider our behavior. By rewarding or punishing ourselves, we can control our behavior effectively. We do not need to be controlled by environmental forces or desires that come from within. We can learn to be social human beings with personality. By applying social learning ideas and theories to ourselves, we can become better teachers and students.

D. STRENGTHS AND WEAKNESSES OF BEHAVIORAL THEORIES

Several behavioral theories have been described. Just as any theory is never perfect, neither are behavioral theories. Besides its strengths there are also its weaknesses.

The principles underlying behavioral theories are firmly established in psychology, and this has been demonstrated in a variety of situations. These principles are useful for explaining most of human behavior, and are even more useful for changing behavior.

However, it is important to recognize that behavioral learning theories are limited in scope. With the exception of social learning theorists, behavioral learning theorists focus primarily on observable behavior. This is why most of the examples given in this chapter involve controlling behavior. Less obvious learning processes, such as concept formation, study and books, problem solving, and thinking, are difficult to observe directly, and are therefore under-researched by behavioral theorists. These processes belong to the domain of cognitive learning, although social learning theory, which is a direct outgrowth of behavioral learning theories, helps bridge the gap between these two perspectives.

Behavioral and cognitive learning theories are often presented as competing and conflicting models. In fact, it is better to see these two kinds of theories as theories that address different problems, so they are complementary rather than competitive.

III. CONCLUSION

Learning involves acquiring abilities that are not inborn abilities, so they are not innate. Learning depends on experience; in part and that experience is a feedback from the environment. Previous research on learning investigated the effects and stimuli on reflexive behaviors. Ivan Pavlov is best known for his theory of classical conditioning, in which a neutral stimulus acquires the capacity to evoke responses through association with an unconditioned stimulus. Thorndike developed the law of effect, which emphasizes the role of the consequences of present behavior in determining

future behavior. Skinner continued to study the relationship between behavior and consequences. As a result, he put forward a form of learning which he called operant conditioning. Consequences exist in the form of reinforcement that increase the likelihood of a behavior occurring, or punishments that reduce the likelihood of a behavior occurs. Reinforcement can be positive or negative, and can be primary or secondary. Punishment weakens behavior by confronting undesired consequences or by eliminating reinforcement. Formation is the process of breaking down a task into several steps, and providing feedback on each step that has been carried out. Learning from modeling occurs by observing the behavior of other people and their consequences. According to Bandura there are four phases involved in learning through models, namely the attention phase, the retention phase, the reproduction phase, and the motivational phase.

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