

Learning Theory Debate In The Perspective Of Behaviorism, Cognitivism, And Constructivism In Learning Practice

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Abstract – In reality, there is a hard debate among instructional practical applies behaviorism learning theory approach, instructional practical apply cognitivism and constructivism learning theory approach until nowadays. The implication of instructional practical becomes extreme and exclusive opinion for followers. They are Instructional practitioners, developers, and scientists that support one approach or another, or apply alternative ways. Some instructional experts have the opinion that behaviorism, cognitivism, and constructivism can't be integrated or mixed because behaviorism is different from cognitivism or constructivism. Applying those theories as one unit integrated is a big mistake. But, so there is the instructional expert who has the opposite opinion, that describes the third of learning theories as one unit that can be integrated, and able to apply in one instructional practically, as learning event is a complex process that needs multiply perspective approach. Which one of the learning theories can be applied in the instructional effectively, efficiently, and interestingly. This article is going to analyze comprehensively the different perspectives of learning theory and how to determine the exact teaching approach in the instructional practice.

Keywords – Learning theory, Instructional Theory, Behaviorism, Cognitivism, Constructivism.

I. INTRODUCTION

Learning and the learning process from time to time continue to develop. Historically, the event of learning and learning itself has started since humans existed until now. Learning and learning are always experienced and inherent in human life from the moment they are born in the world until they die in the grave.

The conception of learning itself develops along with the dynamics of dynamic human life and the changing strategic environment. The development of the concept of learning is always followed by the development of learning practices. Thus, learning and learning are two concepts that cannot be separated.

Practitioners, developers, and learning scientists agree that learning activities and learning actions are not very simple and easy processes to carry out. Why is that? Because the learning event itself is a very complex process, which involves various internal variables within the learner, and requires external stimuli in the form of efforts to teach the learner. So learning activities must always be closely related to learning actions. Therefore, an understanding of the learning process (learning theory) will be very useful for learners (teachers) in developing their learning actions (learning theory), so that the learner will be able to more easily carry out the learning process.

In fact, until now, it turns out that there are still many practitioners and learning developers who are unable to understand and distinguish between the meaning of learning and learning, or between learning theory and learning theory, giving rise to misunderstandings in translating conceptions, which can result in implications for the application of learning actions. in the wrong field.

Meanwhile, on the other hand, there is still a fierce debate among learning scientists about the perspective of using learning theory (behaviorism, cognitivism, and constructivism) in learning practice. Among learning scientists there are still disagreements about the use of behaviorism, cognitivism, and constructivism learning theory approaches in learning practice, the implications of which in learning practice lead to extreme views and exclusivity for its adherents. Among learning scientists some support one particular approach or support another, or take a middle ground (Cook, 1993; Lebow, 1993; Philips, 1995; Von Glasersfeld, 1996). Constructivism is not the same as Behaviorism and cannot be mixed or integrated. This opinion is supported by Bednar, Cunningham, Duffy & Perry (1992). Brooks (1990) underlines that constructivism is described as an internal psychological process, rather than as a unit of teaching practice. Placing the two theories of behaviorism with cognitivism or constructivism in a continuum is a big mistake because it combines two dissimilar elements.

The opposite opinion describes the three theories as contradictory but still in a unified series, namely from External Mediated Reality (Behaviorism) to Internally Mediated Reality (Constructivism) and in the middle there is cognitivism. It can be accepted as a model that provides learning events (learning events) behaviorism, cognitivism or constructivism, or any of the three.

From the background of the problems mentioned above, a formulation of the problems that need to be discussed emerges, namely What is the difference between learning theory and learning? And how to apply the perspective of learning theory to produce effective, efficient, and interesting learning practices? These two issues will be the main subject of discussion in this article.

II. MATERIALS AND METHODS

2.1. Understanding Learning Theory and Learning Process.

The essence of educational activities is learning and learning. These two key terms are educational efforts that are very vital for human life. Without learning and learning activities, there are no educational activities. As a process, learning and learning almost always get a broad place in various disciplines related to educational efforts. Once the importance of the role and meaning of learning and learning activities, an understanding of learning and learning theory is an absolute requirement that must be mastered by every professional in the field of education.

The learning process is a very complex process, which involves many aspects and related variables, so it requires a varied approach to learning methods and strategies. The learning process is always related to the learning process, this means that learning theory is always related to learning theory.

Therefore, to produce effective, efficient, and interesting learning outcomes, learning actions need to accommodate the three paradigms of learning theory that are currently developing. Mayer (1999) has seen the learning process from three perspectives at once in a person, namely learning as response reinforcement (behaviorism), learning as knowledge acquisition (cognitivism), and learning as knowledge construction (constructivism). From the perspective of the learning theory adopted, it will produce learning actions that are following the needs to be achieved.

2.2. Differences in the View of Learning Theory and the Learning Process

The main difference between learning theory and the learning process is that in learning theory the main focus is focused on the learning process that occurs within the learner, while in the learning process theory the main focus is focused on the efforts made by the learner in the learning process so that the learner learns. experience the learning process. So, he explained, learning theory focuses on what happens internally to the learner, while learning theory focuses on external efforts made by the learner so that the learner is easy and willing to learn.

The study of theory in the field of learning can be divided into two, namely descriptive theory and prescriptive theory. Bruner (in Degeng, 1989) suggests that learning theory is descriptive because it describes the learning process. While learning theory is prescriptive because the main purpose of learning theory is to determine learning methods. Learning theory is concerned with the relationship between variables that determine learning outcomes, while learning theory is concerned with how one person influences others so that learning occurs.

Learning events experienced by the learner are influenced by the view of the learning process itself (view of learning). There are three major views of the learning process which are divided into three approaches to learning theory that have developed to date, namely: the theory of behaviorism, cognitivism, and constructivism. These three learning theory approaches to guide the level of practice (application) in the form of efforts in learning actions. From this learning theory approach, a learning theory was born.

2.3. Behaviorism Learning Theory

Behaviorist learning theory holds that learning is a process of behavior change. From a behavioral perspective, learning is the process of receiving a response from a stimulus that can be measured and observed. Learning can be achieved through the appropriate behavior of many responses and a reinforcement approach. Humans learn through responses that are expected to form gradually. Adherents of this flow of behaviorism, including Pavlov (1849-1936), John B. Watson (1878-1958), Thorndike (1874-1949), Skinner (1904-1990), and others.

The application of this behaviorism theory provides a set of instructions for systematic and organized learning designs. First, providing reinforcement values based on the individual needs of the learner and his attention, the teacher as the learning designer must follow the steps and individual progress of the learner step by step system and refer to the linearity of the material.

In the view of behaviorism, in the practice of learning, the material needs to be organized and programmed systematically so that someone who learns must follow the sequence correctly. Consequently, design decisions follow the logic of the important relationships that are laid out from the first onwards. For example the first meeting (the teacher presents chapters 1 and 2), the second meeting (the teacher presents chapters 3 and 4), the third meeting (the teacher presents chapters 5 and 6), and so on. The sequence must be followed as a learning activity that is carried out sequentially or systematically (linearly). Materials compiled based on behaviorism theory are usually formulated with very clear, measurable, and quantifiable learning outcomes, and ignore other processes that occur in the mind.

The role of consequences in the view of behaviorism is very important as an application of the concept of stimulus-response. In this case, there are two types of consequences, namely, including pleasant consequences that further strengthen behavior, in the form of increased frequency of behavior events (called reinforcers) and unpleasant consequences that can weaken a behavior, in the form of decreasing frequency of behavior events (called punishers). The following is presented about the principles and applications of learning theory in the perspective of behaviorism and its application in learning practice as described in Table 1 below.

Table 1. Principles and application of learning theory in the view of behaviorism and its application in learning practice (Newby, Stepich, Lehman, Russell, 2000).

PRINCIPLES OF LEARNING THEORY IN BEHAVIORISM VIEW AND APPLICATIONS IN LEARNING PRACTICE	
PRINCIPLES (THEORY)	APPLICATIONS (PRACTICE)
Learning is suspected from student behavior	Statement of the purpose of teaching as the behavior of the learner
Behavior is determined by the events that preceded it	Using cue prefixes to guide students towards behavior
A behavior will be repeated depending on the consequences that follow	Choose consequences that will reinforce behavioral achievement. Arranging consequences to immediately follow the expected behavior

2.4. Cognitivism Learning Theory

Mayers (1999) suggests that learning is seen as the acquisition of knowledge. This is a reflection of cognitive theory, which is dominated by the information processing model of human memory. The cognitive theory began in the 1960s and continues today.

This learning theory emphasizes the study of mental models and processes or internal processes in humans such as thinking, remembering and problem-solving, motivation, intentionality, belief, etc.



Figure 1. Memory in The Human Head is Like a Library.

In Figure 1. it is shown that key memory structures and thought processes are identified and described as computers of the human memory system. Memory and recall depend on the process. New information builds on knowledge structures. Internal implementing controls are needed to get the system fully functional so that it can function effectively. Although the cognitivism approach is often contrasted with the behaviorism approach, it does not mean that cognitive psychology is anti-behavioralism. Only according to cognitive experts, the flow of behaviorism is not yet complete as a psychological theory, because it does not pay attention to psychological processes that have the dimensions of the realm of creativity such as thinking and making decisions.

The learning design is considered to adopt cognitive theory. Learning is designed to promote the activity of thinking like an expert. Lessons and units are developed such as in the form of designing teaching materials, delivering a content framework (epitome, concept map, graphic organizer, schema), presenting a summary, keywords, key sentences, giving exercises, presenting a glossary, index, etc. All of these task structures are based on the learning theory of cognitivism. In the application of cognitive learning theory, students are designed to assist students in processing new information. In the following, the principles and application of theory in the view of cognitivism are presented as listed in Table 2.

Table 2. Principles and Applications of Theory in the View of Cognitivism

(Newby, Stepich, Lehman, Russell, 2000).

PRINCIPLES OF LEARNING THEORY IN COGNITIVE VIEW AND APPLICATIONS IN LEARNING PRACTICE	
PRINCIPLES (THEORY)	APPLICATIONS (PRACTICE)
Knowledge is organized in memory	Statement of the purpose of teaching as the behavior of the learner.
Learning is influenced by students' existing or previous knowledge	Carefully relate new information to existing knowledge.
Learning is made by process components such as attention, encoding, and information seeking	Use of technical variations to guide and support student learning, including a focus on questions, high-level analogies, mnemonics, and similes.

2.5. Constructivism Learning Theory

Since the 1980s, a new view of learning has emerged, namely constructivism theory. In the view of constructivism theory, the learning process is an internal activity of the learner in building or constructing knowledge. The learner builds meaning through the application of knowledge to solve problems, interact with others, and the apprenticeship process. There are many schools or views of constructivism that developed at that time (Philips, 1995). Radical Constructivism views understanding as the totality of individuals and the Piagetian approach views the individual as dominating, and social interaction is seen as a catalyst (Greeno, Collins & Resnick, 1996). Social constructivism (Vygotsky, 1978) emphasizes the social world to define reality and knowledge. Learning objectives and activities are focused on the process of teacher-student interaction. In constructivism, the idea of a learning community is built (Brown, 1994) in which the teacher and student are the learners. In the end, in subsequent developments, this constructivism learning theory developed into two large groups, including:

a. Individual cognitive.

The basic view of this school is taken from the work of Piaget and his colleagues which focuses on activities in constructing individual knowledge. Learning occurs when the learner's expectations have not been met and he must solve the gap between what is desired and the existing reality.

b. Sociocultural.

This view was pioneered by the work of Vygotsky and his colleagues who saw the importance of social and cultural contexts that play a role in the student learning process. This stream focuses on the importance of collective action and social interaction in building meaningful learning. Meaning in learning arises when the learner can build mutualism, interdependence, between fellow social groups to achieve the shared goals set. In the following, the principles and application of theory in the view of constructivism are presented as shown in Table 3.

Table 3. Principles and Applications of Theory in Constructivism View

(Newby, Stepich, Lehman, Russell, 2000).

PRINCIPLES OF LEARNING THEORY IN CONSTRUCTIVISM VIEW AND APPLICATIONS IN LEARNING PRACTICE	
PRINCIPLES (THEORY)	APPLICATIONS (PRACTICE)
Learning is implemented through the application of knowledge to solve problems	Provide opportunities for students to solve real problems and meaningful problems
Learning is carried out through a process of interaction with others	Provide study group activities
Building knowledge can be obtained from the apprenticeship process	Models and process guides build knowledge in a mutually beneficial problem-solving context.

III. RESULT AND DISCUSSION

3.1. The debate around the application of learning theory in learning practice

Actually, until now there is still a fierce debate between learning practices that use a behaviorism approach and learning practices that use a cognitive or constructivist approach. At the extreme is the debate between behaviorism and constructivism. The

implication in the practice of learning raises extreme views and exclusivity for its adherents. Learning practitioners may favor one approach or another, or take a middle ground (Cook, 1993; Lebow, 1993; Philips, 1995; Von Glasersfeld, 1996).

Vrasidas (2000) argues that Constructivism is not the same as behaviorism and cannot be mixed or integrated. This opinion is supported by Bednar, Cunningham, Duffy & Perry (1992). Brooks (1990) underlines that constructivism describes an internal psychological process, rather than as a unit of teaching practice. So placing three learning theories at once in a continuum is a big mistake because it combines two dissimilar elements.

The opposite opinion is Jonnasen (1991) who describes that the theoretical view even though it is something that is opposite but is still in a single unit, namely from External Mediated Reality (Behaviorism) to Internally Mediated Reality (Constructivism). This means that there is a range that connects the three learning theories, behaviorism, cognitivism, and constructivism which can be described as follows:

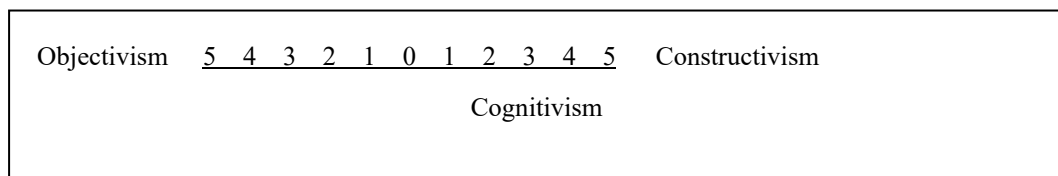


Figure 3: Learning Events Spanning from Behaviorism, Cognitivism to Constructivism (Adapted from Jonnasen's thinking, 1991)

Cronje (2006) then follows the opinion of Jonassen (1991) who argues that "Radical constructivist thinking holds that there is no real goal that can stand alone in human mental activity. Added by Rieber (1992) who introduced the concept of "Microworlds" as a bridge that can connect two different theories. Cronje (2006) suggests that behaviorism is complementary to constructivism, this is described as follows:

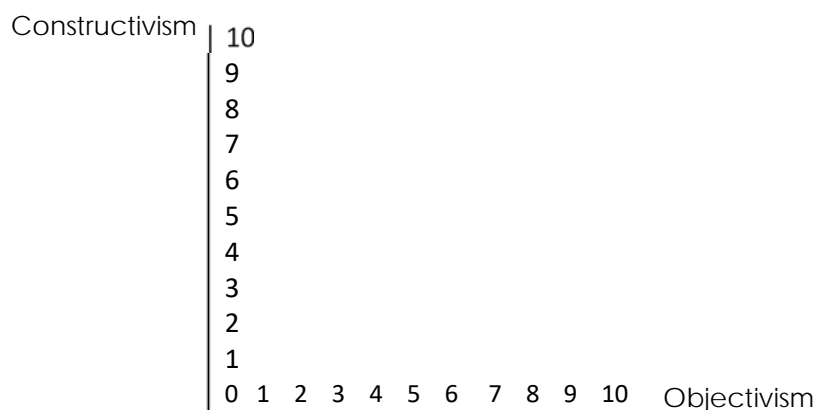


Figure 4: Behaviorism with Constructivism Complementary (Cronje, 2006)

Cronje (2006) then proceeded to create a quadrant scheme in the learning and teaching process which he called the "Injection, Construction, Integration and Immersion Quadrant", as follows:

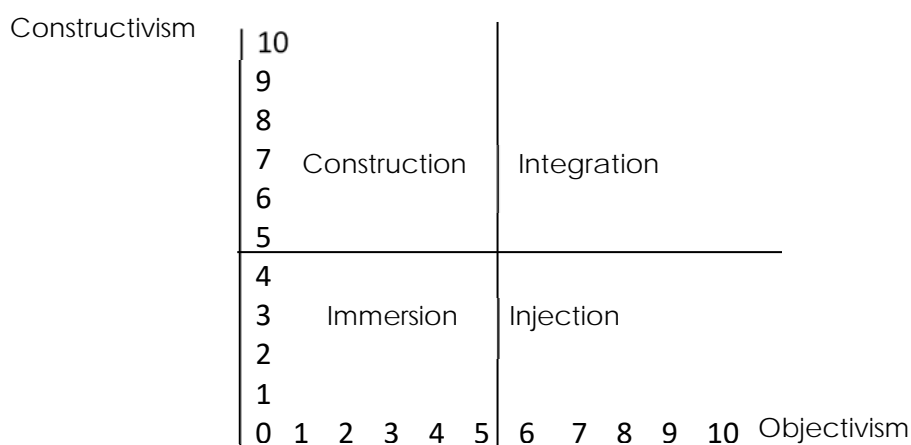


Figure 5. Quadrant Injection, Construction, Integration, and Immersion (Cronje, 2006)

A learning designer needs to think about the polarization of two or three different theories in one. Alessi and Trollip (2001) then introduced a model called the Binary model to accommodate two or three theories in one learning model. I agree with Mayer (1999) who has seen the learning process from three perspectives at once in a person, namely learning as response reinforcement (behaviorism), learning as knowledge acquisition (cognitivism), and learning as knowledge construction (constructivism). From the perspective of the learning theory adopted, it will produce learning actions that are following the needs to be achieved.

3.2. Application of learning theory perspective to produce effective, efficient, and interesting learning practices.

Learning theory has been described as an attempt to explain how a person acquires new knowledge and skills. In the previous explanation, three perspectives of learning theory have been stated that is very influential on learning practice. Each approach from the perspective of learning theory certainly contains strengths and weaknesses. Which is the best theoretical approach to practice learning? Before answering this question, there is another question that should be considered. Which food is the best for the human body (Which food is the best)? The obvious answer is that there is no better food in the world. Humans must eat a variety of foods because each food contributes to donating nutrients that are suitable for health. A teacher must believe and understand that a variety of theoretical perspectives is needed to contribute to producing appropriate learning practices.

The different principles from the three perspectives can be applied in various learning situations and within a certain time unit. For example, the application of reinforcement (behavioral perspective), organizing information in the text (cognitivism perspective), and learning together through collaboration with others (constructivism perspective), these principles can be implemented in units of learning time (Newby, Stepich, Lehman, Russell, 2000). Thus, in addition to the three different views, now the efforts of learning scientists have also developed to look holistically at the three learning theories in learning practice. This holistic view is based on the fact that human learning and learning cannot be separated from the existence of the three theoretical paradigms, because all three can complement each other in building meaningful learning.

Dick and Carey (2004) have proven this by developing a learning design model "The Systematic Design of Instruction" based on multiple learning perspectives, namely: behaviorism, cognitivism, and constructivism. The component model of learning strategy, Dick and Carey (2004) uses the view of Gagne's Condition Learning (behavioristic). To formulate the presentation of learning materials, Dick and Carey apply cognitive information processing theory (cognitivism). For the context analysis component, Dick and Carry (2004, pp.103-104) use the constructivist method.

Likewise with Cronje (2006) developed a learning model "Four Quadrant Model" which applies the theory of behaviorism and constructivism in the practice of learning. Cronje (2006) wrote an article in the journal Association For Educational Communication and Technology (ETR&D) entitled "Paradigms Regained: Toward Integrating Objectivism and Constructivism In Instructional Design and The Leaning Sciences". In the article, Cronje argued that the world of learning design requires a touch of a model that integrates two theories that are considered contradictory, namely between objectivist (behaviorism) and Constructivist. Cronje (2006) argues that the two theoretical approaches tend to complement each other rather than contradict each other. He demonstrated by analyzing two teaching programs that contained learning events in which the two elements of the theory were present. By planning the two approaches to be placed on the right side of each other, Cronje then created the Four Quadrants of Teaching and

Learning (Injection, Construction, Immersion, Integration). Besides Cronje, there is Basson (1998) who views the importance of the multiple learning perspectives of learning theory in learning practice.

The phenomenon of multiple learning perspectives of these learning theories in the practice of learning in Indonesia has been developed. For example, Ki Hajar Dewantara (1977) argued that education involves a psychological process that must be viewed holistically or comprehensively which is called "globalist psychology", which is a view that advocates the integrity of the soul as the basis of human life, which includes intelligence (intellect), intelligence feelings (emotions) and education of the will, all three must be applied to get the whole intelligence of the soul.

Application in learning practice, Ki Hajar Dewantara (1977) introduced the "Among" system. The word Among refers to Momong, Ngemong, or in Dutch "opvoeding" or "paedagogiek". That is the basis of the national education system which is extracted from the noble values of the Indonesian nation itself. There is no coercion (constructivist) but still has to interfere in the child's life when he is on the wrong path (behavioristic). The basis of national education according to Ki Hajar Dewantara (1977) is the order en Vrede (orderly and peaceful, peaceful system). The teacher must always maintain the continuity of the inner life of the child and must be kept away from any coercion (constructivism). However, this does not mean cursing or allowing children (behaviorism). Teachers must observe and convey values gradually so that children can grow according to their nature (cognitivism). Order means order, in the Western sense it means coercion, therefore the basis of national education is ordered en Vrede (orderly and peaceful, peaceful order) that punishment is only carried out in the context of upholding justice and carried out with accountability.

From the various views above, it can be concluded that in fact problems in the human learning process because they are very complex cannot be solved only through one approach, but must use a multi-perspective approach. Complex events in the human learning and learning process can be described in the following cycle:

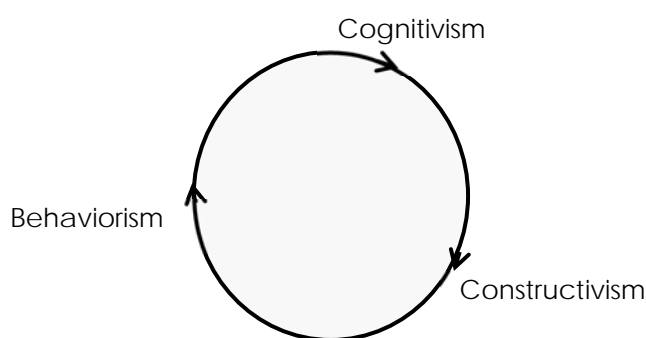


Figure 6. The Cycle of The Learning and Learning Process in Human Life

This concept is supported by Alessi and Trollip (2001) who argue that theories of world education today are a triangle, with behaviorism, cognitivism, and constructivism at the top, and educators in the middle of the triangle. The triangle can roughly be described as follows:

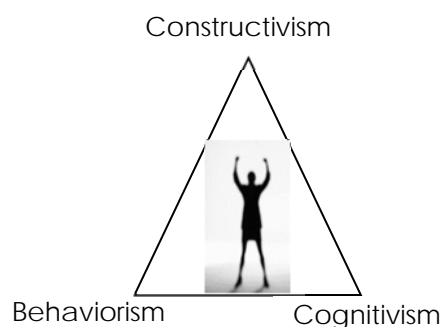


Figure 7. Educational Theory Triangle in The View of Alessi and Trollip (2001).

The internal process that takes place when a person learns, to be effective, efficient, and attractive, it is necessary to improve the quality of stimulants from external variables, which Glaser (1976) calls "the science of designing" learning or what Degeng

(1989) calls "learning science" (instructional science). The study of learning science according to Reigeluth (1983) includes three learning variables, including learning conditions (instructional conditions), learning methods (instructional methods), and learning outcomes (instructional outcomes).

Learning conditions refer to the factors that influence the effect of the application of a method to improve learning outcomes. Learning methods refer to different ways to achieve different learning outcomes under different conditions. Learning outcomes are all effects resulting from the application of learning methods under different conditions. Of the three taxonomies of learning variables, the center of study in learning science is the learning method variable. In the learning method, there are activities to choose, determine and develop optimal learning strategies. Learning strategies are referred to as structuring ways so that a sequence of procedural steps can be realized that can be used to achieve the expected learning outcomes. According to Degeng (1997), these activities are the core of learning.

IV. CONCLUSION

From the results of a study that discusses the debate on learning and learning theories, the following conclusions can be drawn.

- a. Learning and learning theory is a very complex process and must be viewed holistically and integrated, considering that the two terms are interrelated as a system that must be understood by every practitioner, developer, or learning scientist to carry out their duties professionally.
- b. There are three different views of learning theory that are very influential on the act of learning. The three learning theories are behaviorism, cognitivism, and constructivism. At the application level of learning activities, the three views will produce different ways or methods that are varied and can support the achievement of more effective, efficient, and interesting learning.

FUTURE WORK

The success of learning is measured by the extent to which the level of effectiveness, efficiency, and attractiveness of the learning processes and outcomes have been implemented. For this reason, appropriate next steps are needed in applying learning theory into learning practice so that the expected process and results are achieved. On this occasion, it can be informed of further work to practitioners, developers, and learning scientists so that they always build a multi-perspective mindset on learning theory to create varied patterns of action and attitude patterns in learning actions.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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