Theories of behaviourism

Breadth

The breadth section will discuss behaviorism as conceptualized by three of its major proponents. In this section, the principles developed by John B. Watson, B. F. Skinner and Albert Bandura will be compared and contrasted in an attempt to have a deeper understanding of behaviorism. Watson, Skinner and Bandura are among the greatest proponents of behaviorism and conducted empirical studies to prove their point. The significant aspects of behaviorism, particularly the learning process and controlling of behavior, will be discussed and shall serve as the foundation for discussion in the other sections of this paper.

Behaviorism, as is well-known, takes its roots from Watson's pioneering work, Psychology as the Behaviorist Views It, and remains to be a significant influence in the study of behavior to date. Subsequently, developments have taken place and new concepts and principles are being introduced, such as Skinner's operant conditioning theory and Bandura's philosophy of social cognitive learning. These developments have made an impact in behaviorism, in particular, and in the entire academic field of Psychology in general. The postulations by these authors are among the most significant influences in the current psychological studies and practices.

In this section, behaviorism, based on Watson, Skinner and Bandura, is dissected with an aim to apply it in understanding human development. The similarities, differences and continuity in the principles of the three philosophers will be critically analyzed to create a synthesis and build the foundation for the Depth and Application sections of this paper. The objective of this section is to understand behavior and human development

as discussed on the theories advanced by the above philosophers and develop a synergy of these theories to be used in the later sections.

A Historical Perspective on Behaviorism

Behaviorism is generally acknowledged to have originated from the works of John B. Watson. It was Watson who introduced the theoretical framework of behaviorism and criticized heavily the contemporary psychological theories and principles during his time. Watson tried to bring to psychology the same measure of objectivity of the other fields of sciences such as physics and chemistry (Hart & Kritsonis, 2006). His 1913 masterpiece article entitled Psychology as the Behaviorist Views it, which is also referred as the Manifesto of Behaviorism, established the foundations of behaviorism. Watson asserts that psychology is a purely objective experimental branch of science and that behavior must be studied in its observable state and not by mere introspection, which " forms no essential part of its methods" (1913, par. 1).

Hence, behaviorism is defined as an approach that puts emphasis on the study of objectively observable behavior rather than inner mental experiences (psy1. clarion. edu/mm/General/Glossary). This definition puts into context the significance of environment in influencing an individual's behavior. Subsequently, several other theories have spawned out of Watson's behaviorism and developed into new theories and principles. B. F. Skinner is one of those who developed new trends in behaviorism. Skinner's operant conditioning theory brought new perspectives in behaviorism. The main thrust of Skinner's theory is that people behave the way they do due to the consequences learned from their past actions. An individual's behavior is

induced by a stimulus and could recur or be discarded based on the outcome of such behavior.

Albert Bandura, meanwhile, presents another branch in the development of behaviorism with his social learning theory. Bandura puts forward the principle that a person's behavior is a result of the relationship between the environment, personal or internal factors and the behavior itself. This new development in behaviorism served to cement the validity of Watson's and Skinner's theories and at the same time creates a synergy among the three theories in behaviorism. While there are significant differences in their theories, the development of each theorist's principles served to fill their gaps. This will be covered in the discussion below. The main questions this section attempts to answer are the following:

- What is behaviorism?
- In what ways does the environment affect the behavior as behaviorists claim?
- How does a behavior emerge?
- How does an individual acquire and perform a particular behavior or sets of behaviors?
- How do the principles of behaviorism influence the current principles and practices of behaviorists?

Watson and Behaviorism

John B. Watson attempted to make psychology a natural science that deals with the " behavior and activities of a human being" rather than just focusing on the " consciousness" of the individual (1924, p. 3). In his definition, behaviorism is " a natural science that takes the whole field of human

adjustments as its own” (p. 11). He drastically criticized the old concept of psychology which deals mainly with consciousness, which according to him is merely spiritual and is improvable and unapproachable (p. 5). Psychology’s goal is the prediction and control of behavior (1913).

Watson pointed out that, “ Scientific method has enabled us not only to find the stimulus causing the reaction but also how effectively to control the reaction by removing or modifying the stimulus” (1924, p. 20). For psychology to be truly a natural science, the vestiges of religious or superstitious concepts such as consciousness (which according to him is the modern translation of soul) should be removed and instead focus on the practical activities of man in trying to learn or understand its behavior.

Watson’s theory aims at explaining the relationships between the stimuli, responses and their consequences into an individual’s behavior. He said that there is a causal relationship between the stimulus and the response in that the latter originates from the former and vice versa (Watson, 1920; 1924). Consequently, the individual’s behavior can be conditioned using the stimulus-response model (1920, 1924).

The Stimulus-Response Model

According to Watson (1924), the interest of a behaviorist is not merely to become a spectator in observing one’s behavior, but to predict and control human activity. In order to understand, predict or control a person’s behavior, one must first understand the stimulus that initiates a response and what responses can produce stimuli. In other words, one must understand the interaction between a stimulus and the individual’s response.

Watson said that an individual’s behavior is a result of a response to a stimulus. The stimulus initiates the person to respond or behave in a manner that corresponds to the gravity of the stimulus. For example, an electric shock will cause a person to withdraw his hand or body from the object that releases the electricity. Watson (1924) explained that if the stimulus is conditioned, a conditioned response will likely occur. For instance, if a ray of light is produced, there might be no reaction from the person apart from the pupil constricting, but if the ray of light is shown and simultaneously stimulate the person’s hand with an electric shock and in a repeated manner, the person will behave in a way that when the ray of light is shown he will immediately withdraw his hand.

Watson (1914) theorized that there must be some form of stimulus to make an animal move in a certain way; otherwise habits cannot be forced upon the subject. Human beings, according to him, have been controlled by their fears from their environment, culture and other situations. This can be removed or unconditioned upon the person through conditioning. He warned, however, that controlling or conditioning the person to remove his fears is contingent upon the proper method to be used, i. e. appropriate stimulus and environment.

For Watson, psychology should set the observation of human behavior as its central tenet. It must be a purely objective, experimental branch of science that investigates the behavior of humans and animals in the same plain without appealing to consciousness (Watson, 1913). A person’s overt observable behavior must be the subject of study as this shows the actual behavior of the person. Prediction and control of behavior is dependent upon

the observable behavior as this determines the causal relationship between the stimulus and response.

Conditioned Responses and Behavior

Watson is a strong proponent of the belief that behaviors can be conditioned and thus controlled. In fact, he claims that conditioned responses can be a cause of phobia and conversely can be used to remove it. Watson (1924) contends that the conditioning of responses is as equally imperative as the conditioning of stimuli (p. 23) in order to establish a desired behavior. He argued that every part of an individual's body can be conditioned, and not just his mind or consciousness (p. 33). He likened the environment in the early stages of a child's life to that of a laboratory environment. The child acquires particular responses to various stimuli. Thus, every child can be nurtured to become whatever their parents like them to be if the child's growth is conditioned from birth. Watson exclaimed:

Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors (1924, p. 82).

Skinner's Operant Conditioning Theory

Burrhus Frederick Skinner, a radical behaviorist, developed the operant conditioning theory whereby he concluded that one's behavior can be controlled and is determined by its consequences. He said, " It is now clear that we must take into account what the environment does to an organism

not only before but after it responds. Behavior is shaped and maintained by its consequences" (Skinner, 1971, p. 18). Skinner based this principle upon Thorndike's theory of the Law of Effect and argued that effects occur under " conditions which are optimal for producing changes called learning" (1954, p. 86). He believes that an individual is taught by his verbal community (1971, p. 63) and that one's behavior can be modified by consequences. A behavior that produces good outcomes has higher tendency to be repeated while a behavior with bad outcome will be less likely to recur (Skinner, 1953).

The Theory of Operant Conditioning

Skinner's theory of operant conditioning was developed based upon Thorndike's Law of Effect. Thorndike said that a person's behavior is " stamped in when followed by consequences" (cited in Skinner, 1953). Skinner (1954) reinforces this principle in saying that " effects do occur and that they occur under conditions which are optimal for producing the changes called learning" (p. 87). The effects that a behavior has upon the person determine the probability of it to recur or be discarded. Positive effects of a certain behavior will therefore make the person to do it again while negative consequences urge him to reject it.

Skinner's theory is also heavily influenced by the theory of Pavlov. The classical (Pavlovian) conditioning is a type of associative learning wherein a behavior is produced based on establishing an association between a conditioned stimulus and unconditioned stimulus. However, Skinner's theory differs with Pavlov's in that operant conditioning aims to modify one's tendency to repeat or discard a behavior in the future (Skinner, 1974).

Skinner believes that an individual’s behavior can be manipulated through operant conditioning by utilizing the reward and punishment method (Skinner, 1953). Through the system of punishment and reinforcement, an undesirable behavior can be discarded by employing a punishment and a positive behavior can be reinforced by giving a reward. This is because every behavior is followed by a consequence.

The above theory was developed by Skinner in his experiments using the “ Skinner Box,” where the organism is placed in a chamber under a controlled condition and cut off from all outside influences and distractions. Through these experiments, Skinner was able to conclude that an individual’s behavior can be shaped almost at will (1954). He further said:

The behaviors classified as good or bad and right or wrong are not due to goodness or badness, or a good or bad character, or a knowledge of right and wrong; they are due to contingencies involving a great variety of reinforcers, including the generalized verbal reinforcers of “ Good!” “ Bad!” “ Right!” and “ Wrong!” (Skinner, 1971).

Hence, Skinner believes that the science of human behavior is the study of conditioning and removal of operants.

This has been demonstrated through the Skinner Box. In his experiments, Skinner proved that behaviors can be modified by employing consequences in each action. Skinner used animals as subjects for the experiments and he argued that the principles derived from these can also be applied to humans. He claimed that the results of these experiments are important because “ it

makes the extrapolation of our laboratory results to daily life much more plausible” (Skinner, 1954, p. 88).

Operant conditioning can redirect and reprimand unwanted behaviors through the use of punishment. Desirable behaviors, on the other hand, can be continued or improved by giving rewards. Thus, a person learns to act or behave through perceived consequences of the behavior. The knowledge a person gains is therefore learned from the consequences of each behavior. Prior knowledge is therefore a key factor in acquiring new knowledge and behavior.

Skinner defined knowledge as “ simply to be in contact with, to be intimate with” (1974, p. 172). He said we know something about a thing and how to do it because of our prior exposures to it. Knowledge is socially constituted and that the acquisition of new knowledge or behavior is contingent upon exposure to it. It is only then that value formation is created and developed.

Operant Behavior

Operant behavior is independent of any stimulus. Skinner said that operant behavior is a product of reinforcements used to produce such behavior. He said:

The consequences of behavior are particularly emphasized in the study called “ operant conditioning.” Behavior reinforced by its consequences is not to be confused with the conditioned reflexes of Pavlov, and only certain instances of operant reinforcement are appropriately called rewards. What is important here is the extraordinary power – fully demonstrated both in the

laboratory and field applications – to change behavior in specified ways through properly arranged reinforcements. (Skinner, 1964, par. 4).

Operant conditioning aims to explain behavior through lessons from past occurrences. This method utilizes consequences to alter the rate of recurrence and various forms of behavior. Operant conditioning targets the redirection of voluntary behavior (Skinner, 1974). Moreover, operant behavior functions on the environment and is sustained by the consequences of the behavior. It refers to associative learning in that it fortifies a contingency between the response and the reinforcer.

He demonstrated this in his Skinner Box experiments wherein he concluded that random animal behaviors can be conditioned through a reinforcer. In his still famous rat experiment, Skinner was able to modify the random movement of the rat by providing reinforcers every time the rat performed a particular behavior, which is pressing a bar. The frequency of the use reinforcer was increased or decreased depending on the level of reinforcement given by Skinner. This frequency in use of reinforcement determines the success of modifying the rat’s behavior.

In another experiment, Skinner was able to determine that operant conditioning can also determine how frequently an animal performs an action. He put several pigeons in a cage attached to a mechanism that regularly delivers food to the pigeons regardless of the birds’ behavior. Here, Skinner discovered that the pigeons associate the delivery of the food with whatever they are doing at the time it is delivered. The pigeons then repeatedly perform these actions in a hope of the delivery of their food. This

experiment showed that some form of behavior, such as superstition, is learned as well.

Bandura's Social Learning Theory

Albert Bandura's philosophy of social cognition, originally known as observational learning, is based on the theory that an individual's behavior is influenced by the interaction of three factors – behavior, environment and personal factors – in a relationship called reciprocal determinism. Under this theory, human learning process occurs by taking information from observing other's behaviors, conceptualizing the information from these observations, selecting which of these behaviors are to be adopted and which are to be discarded and later perform the selected behaviors. He said:

Consciousness is the very substance of mental life that not only makes life personally manageable but worth living. A functional consciousness involves purposive accessing and deliberative processing of information for selecting, constructing, regulating, and evaluating courses of action. This is achieved through intentional mobilization and productive use of semantic and pragmatic representations of activities, goals, and other future events (Bandura, 2001, p. 3.

By observing the events occurring around a person, he/she can conceptualize the behavior of others and stores all of the gathered information for later use (Bandura, 1977).

Bandura (2001) criticized the earlier theories in psychology as merely founded on behavioristic principles of an input-output model, which consider behavior as automatically and mechanically controlled only by

environmental stimuli. He said people do not simply absorb information or standard conducts from outside models, rather they create generic standards from the various evaluative rules taken from these models (Bandura, 1991, p. 9). People have the capability to pay attention to these influences in order to determine which of these influences will be retained (Bandura, 1986).

The Observational Learning Process

As mentioned earlier, observational learning is imbued in a relationship called reciprocal determinism – the interrelation between environment, behavior or internal factors. Hence, it is a process of learning that starts from observing the events occurring in the environment and ending in the adoption or rejection of a behavior by one person. Bandura (1986) argued that influences on a person's actions or behaviors are usually lined up with his observation of the actions taken by others. Thus, human behavior is realized or learned observationally through modeling – the act of observing others and forming an idea of how it is performed (Bandura (1977). In his observational learning process, Bandura established four components namely, attentional, retention, motor reproduction and motivational.

Attentional

Bandura said that attentional processes aid people from selecting, visualizing and conceptualizing their models and what they adopt from observing the models' behaviors or actions (Bandura, 1977, 1986). To learn from or imitate the other's behaviors, one must have the ability to pay attention. It is this through the attentional process that a person can conceptualize from the models and learn what model of behavior to retain or

discard (Bandura 1977). He argued that the profundity of knowledge gained from attentional processes is realized when people imitate or reenact the model's behaviors and personalities, the circumstances surrounding the behavior and the structural composition of the exchanges between humans. Essentially, he claims that new knowledge is dependent upon the observer's comprehension and recognition of the relationship between the several factors mentioned.

The observer must be able to associate itself with those that they imitate to provide an opportunity for the acquisition of new knowledge and alter his behavior. Indeed, Bandura (1961) cemented this point by arguing that a large part of acculturation an individual received during childhood come from the people that are closely related and important to them (p. 311). Bandura also postulated that, concomitant with intentional direct training, a portion of incidental learning is instilled in the individual as well. For example, if a child observes their parents showing aggressive behavior towards others, this may be instilled in the child's memory. Bandura (1961) explained that this form of incidental learning can be stored by the child and later retrieved to be used as a guide in their future relationship with others.

To put it briefly, the individual will mirror himself with those persons or behaviors that he imitates. For the model behavior to be effective, the learner must identify himself with the model to build greater confidence and motivation to imitate the model behavior. Furthermore, the model has to cultivate or create an avenue or way to allow the learner from envisioning the importance and the existence of the relationship between him and the model behavior. The learner must generate some form of relationship with

the model behavior that he emulates in order to generate new information and change his behavior.

The attentional process has a greater impact or influence if the behavior a person wants to emulate is coming from somebody who is close to him, most especially his, parents, elder siblings or close relatives (Bandura 1961). The greater the similarity between the model and the learner, the more likely the model behavior will be perceived as desirable and as a result increases the probability for it to be emulated (Bandura 1986). Additionally, if the model's actions produce positive consequences, this will further strengthen the observer's resolution that their actions would produce similar or comparable results and increases the likelihood of the continuation of similar behaviors. The closer the connection between the learner and the model, the greater the influence of the model behavior to the person would be.

A final point that is often times overlooked is the importance of nurturing in the learning environment. Bandura (1961, 1963) hypothesized that nurturing facilitates learning. He found that children display a significant amount of social learning through incidental learning and that if they perceive the learning environment as one where they are valued and there is a genuine sense of caring for them, they will be more inclined to imitate the model.

Retention

The second process in the social learning theory advocated by Bandura is the retention processes. Bandura puts forward that learning will not be possible if the learner cannot retain what they have learned or observed. Learning through observation is essentially useless if the observer is unable

to store the information learned from the model behavior (Bandura, 1977). The learner must build some system of " response patterns" that allows him to withdraw the information learned in the absence of the model (p. 25). Through this method, the learner creates abstract or verbal representations that put the models' actions into his memory permanently.

If the learner is constantly exposed to the stimuli that remind him of his observations, it will initiate the extraction from his memory of the images, actions and behaviors of his models (Bandura, 1977, p. 25). Therefore, an individual can arouse the behavior that he observed if he will associate the model's actions with something that reminds him of the particular actions displayed by the model from the previous circumstance. He pointed out that abstract representation and visualization is used more often by younger children since their verbal skills were not yet fully developed. Bandura, meanwhile, stated that human behavior is regulated by the cognitive process of learning through verbal representation more than visual representations. He explained that when an individual verbalize what he has just observed, he transforms this data into a system of codes for comfortable storage and later retrieval.

Motor Reproduction

The learner now comes to act or put into action the behavior learned from his model. Through motor reproduction, people demonstrate the learned behavior by recalling the imagery and verbal representation of modeled behavior. This is realized by " organizing our responses spatially and temporally in accordance with the modeled pattern" (Bandura, 1977, p. 27). In simple terms, people collect and store what they have learned and

proceed to reenact or imitate what we have those stored information. And, through a system of trial and error, people aim to attain some level of mastery by self-evaluation and gathering feedback from others.

Bandura (1977) also stressed the importance of skills, apart from knowledge, in reproducing the modeled behavior. The level of success in imitating the model behavior depends on the competency of the learner to reproduce it. Although the learner may have efficiently and effectively coded and visualized the information from the model behavior, a certain level of skill and competency is still required to demonstrate it in action. The learner must develop the necessary skills in order to reproduce the model behavior; hence if there is a disparity between his knowledge and skills to reenact the behavior, the learner should enhance his skills through practice. Nevertheless, the learner may be unable to exactly imitate the model but he can achieve a " close approximation of the new behavior" (p. 28).

Although people have the ability to observe, codify and reproduce behaviors, they will simply not apply or reenact the behaviors they have learned. There needs to be a motive for them to do what they have learned. This is called the motivational process of social learning. The person must be pushed by some outstanding benefit in order to apply what he learned (Bandura, 1986). Bandura added that standards alone do not drive people to act (1991b). However, self-beliefs on efficacy play a crucial role in the self-regulation of motivation (1991c). People motivate themselves to act through proactive controls by setting exigent objectives and mobilizing their skills to attain such objectives, and those who have higher sense of self-efficacy set even

higher goals to achieve after pursuing and achieving their previous objectives (Bandura, 1991c).

Motivation

Apart from observing, codifying and retaining the models of behavior, people also have the ability to reproduce, reenact or imitate these behaviors. Bandura (1977) theorized that people demonstrate this reproductive process by applying in practice the modeled behaviors. This is achieved by organizing " our actions spatially and temporally" in line with the model behavior's patterns (1977, p. 27). People reproduce all what they have learned from the modeled behaviors and aim to master such behavior and improve their own knowledge of that behavior through self-evaluation.

While the learner learns some behaviors, codifies it and knows how to perform or reenact the model behavior, it does not necessarily follow that they will reenact what they have learned. The learner must envision some salient benefit that will propel them to want to participate or engage in the said activity (Bandura 1977, 1986). The observer needs to distinguish the consequences of performing the action by perceiving its value to him. Bandura stated that the learner assesses the consequences of performing an action. If the consequences of not participating are negative then they are more likely to perform the task.

Bandura clarified however that the individual still maintains some level of free will that ultimately regulates their decision to act or not. Even the status of the model may not necessarily lessen the power of autonomy within the learner. According to Bandura, it is not simply because the model, who is not

a teacher but a well-known personality, teaches students in classroom does not necessarily guaranty student participation. And if the students do participate in the class, it does not guarantee that they have stored, coded, or even considered the " underlying processes" that they employed. Hence, motivation should take on many forms and will involve personal factors as well.

Bandura (2001) stated that, " An agent has to be not only a planner and forethinker, but a motivator and self-regulator as well" (p. 8). The individual also has to become self-reflective. He claims that a person's belief that he can carry out actions required to deal with complex situations is self-efficacy (Bandura & Schunk, 1981). Self-efficacy is acquired by a person through performance accomplishments, vicarious experiences, verbal persuasions and emotional arousals (Bandura, 1977). " Performance accomplishments are based on personal mastery of experiences" (Bandura, 1977, p. 195). These factors help an individual learn, retain, imitate and motivate to perform a particular behavior.

While the self is socially constituted, a person acts generatively and proactively – not reactively – by exercising self-influence and self-control (Bandura, 2001). Self-efficacy does not necessarily result to " individualism feeding to selfishness" but rather it promotes a prosocial orientation such as cooperativeness, helpfulness and sharing (ibid, 2001).

Discussion

The three principles outlined above create a synergy in understanding behaviorism – that is the prediction, formation, and control of human

behavior. While there are differences in the theories developed by the three philosophers, particularly in the understanding of how a behavior is formed, there is unity among them that behavior can be predicted and controlled, particularly in the aspect of conditioning. One point of agreement among the three philosophers is the belief that behavior is learned. They vary, however, as to how behavior is learned and how it can be controlled or conditioned to produce a desired behavior.

Learning

John B. Watson, the first behaviorist to make serious challenge against the predominant thoughts during his time, believes that understanding behavior should be done objectively and removing mentalism or spirituality in the learning process is the central tenet of psychology. He said that Psychology should discard subjectivism and introspection in order to understand how a behavior is formed and how the person performs such behavior. In other words, Watson is advancing a methodological approach to the study of human behavior.

Skinner agreed with him in rejecting mentalism in the study of human behavior. He asserts that it is the environment that has the greater impact on behavior; that is behavior is learned from the environment and not acquired from birth. The phenomena surrounding the display of the behavior must be observed in order to understand the causes and the actions an individual performs. Bandura also agrees in the sense that behavior is learned from external conditions and not in-born. He said that behavior is a result of the interaction between cognitive and environmental factors.

Behavior is learned from observing, retaining and imitating the acts of others.

By applying the classical conditioning method, Watson believed that behavior is a result of contiguity of environmental occurrences. People associate two events when they occur simultaneously in time and continuously for a per