

Comparison of two learning theories education essay



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Learning is “ a persisting changes in performance or performance potential that result from experience and interaction with the world” (Driscoll, 2000, p. 3). The way we process information is as individual as our genetic makeup, but research has shown that there are many different types of learning theories used for classroom education. (Merriam, Caffarella, & Baumgartner, 2007; Weimer, 2002; Steiner, Floyd, Hewett, Lewis, & Walker, 2010). The theories of behaviorist and cognitivist are important to compare because they are a part of the basic foundations in which other learning theories have been formed. In order to apply learning theories to nursing practice, the need to understand the basis of different theories is important. Theories have been researched and tested and have some importance as to how things work across different situations and circumstances. Theories can give some consistent ways of looking at classroom practice and some rational explanations for what happens within the class.

Philosophy

Behaviorism is primarily concerned with observable and measurable aspects of human behavior. In defining behavior, behaviorist learning theories emphasize changes in behavior that result from stimulus-response associations made by the learner. Behavior is directed by stimuli. An individual selects one response instead of another because of prior conditioning and psychological drives existing at the moment of the action (Parkay & Hass, 2000). In education, this type of learning falls into the reward/punishment category. The rewards must be important to the learner in order to give the incentive to respond favorably.

Cognitive science began a move from behavioristic practices which emphasized external behavior, to a concern with the internal mental processes of the mind and how they could be utilized in promoting effective learning. The models that had been developed in the behaviorist tradition were not disregarded, but instead the “ task analysis” and “ learner analysis” parts of the models were elaborated on. Cognitivism is based on the thought process behind the observations. Changes in behavior are detected and perceived to be an indicator of what was happening inside the mind. The new models addressed component processes of learning such as knowledge coding and representation, information storage and retrieval as well as the incorporation and integration of new knowledge with previous information. (Saettler, 1990)

Origins and Authors

The foundation of Behaviorism, trace its roots to the early part of the 20th century. This was during a time when many psychologists emphasized self-analysis of mental processes (introspection) or the psychoanalytic theory of Sigmund Freud. In contrast, researchers like Ivan Pavlov, began to develop a framework which emphasized observable processes (environmental stimuli and behavioral responses). (Kentridge, 2007) Originators and important contributors to behaviorism believed that learning is confined to observational and measurable behavior. The two major schools of thought are based on ideas from Pavlov who showed classical conditioning and Skinner who believed in operant conditioning.

One of the most famous experiments on classical conditioning is from Russian physiologist, Ivan Pavlov (1849-1936). Pavlov originally was doing an experiment regarding the role of salivation in digestion. From his observations, Pavlov noticed when his assistant brought meat into the laboratory; the dogs being used for in this experiment would automatically start to salivate. Further research into this phenomenon formed the famous Pavlov's stimulus and response experiment, known now as classic conditioning. Classic conditioning is a four-step learning procedure involving reflexes. (Fig. 1)

<http://www.simplypsychology.org/pavlov.html>

Fig. 1 Pavlov's Dog Experiment

During classical (or Pavlovian) conditioning, human and animal subjects change the magnitude and timing of their conditioned response (CR), as a result of the contingency between the conditioned stimulus (CS) and the unconditioned stimulus (US). Whereas in classical conditioning, the US and the CS determine the form of the CR, in operant conditioning the strength and frequency, but not the form, of the response is independent of the US.

(Schmajuk, 2007)

B. F. Skinner (1974) coined the term operant conditioning; it means roughly changing of behavior by the use of reinforcement which is given after the desired response. Skinner identified three types of responses or operant that can follow behavior. Skinner believed that we do have such a thing as a mind, but that it is simply more productive to study observable behavior

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rather than internal mental events. In essence, Skinner believed “ we are what we have been reinforced for being” (Olson & Hergenhahn, 2009, p. 76). Operant conditioning has been widely applied in clinical settings (i. e., behavior modification) as well as teaching (i. e., classroom management) and instructional development (e. g., programmed instruction). This theory states that when learning is rewarded, behavior is perpetuated or maintained, while punished behavior is removed. In the classic experiment of “ Skinner Box”, a rat may receive a food reward every time he presses the bar. He presses faster and faster. (Fig 2).

<http://www.simplypsychology.org/operant-conditioning.html>

Fig. 2 Skinner’s Rat Box

The major techniques used in operant conditioning are:

Positive reinforcement – increasing a behavior by administering a reward.

Negative reinforcement – increasing a behavior by removing an aversive stimulus when a behavior occurs

Punishment – decreasing a behavior by administering an aversive stimulus

Extinction – decreasing a behavior by not rewarding it.

Albert Bandura thought Skinner’s theories were too simplistic although he also believed many of the psychological constructs of previous psychological thought were far too laid back, and were neither problem-solving nor action-oriented (Bandura, 1997). He believed in “ reciprocal determinism”, that is,

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the world and a person's behavior cause each other, while behaviorism essentially states that one's environment causes one's behavior, Bandura, who was studying adolescent aggression, found this too simplistic, and so in addition he suggested that behavior causes environment as well. Later, Bandura soon considered personality as an interaction between three components: the environment, behavior, and one's psychological processes (one's ability to entertain images in minds and language). (Bandura, 1997)

Cognitivism considers the learner as an information processor, much like that of a computer. It believes that the "black box" of the mind should be opened and understood. The information comes in, is processed and leads to certain outcomes. The concept believed that people are not just like rats that respond to stimuli but rather, they are rational thinking human beings that require active participation to learn. There are four major contributors to the Cognitivists theory.

Howard Gardner believed that students learn in different ways. According to Gardner, "we are all able to know the world through language, logical-mathematical analysis, spatial representation, musical thinking, and the use of the body to solve problems or to make things, an understanding of other individuals, and an understanding of ourselves. Where individuals differ is in the strength of these intelligences – the so-called profile of intelligences – and in the ways in which such intelligences are invoked and combined to carry out different tasks, solve diverse problems, and progress in various domains." (Gardner, 1991)

Fig. 3 -Multiple intelligences

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Robert Gangne developed information processing theory identified eight levels of intellectual skills including: signal, stimulus-response, chaining, verbal association, multiple discrimination, concept formation, principle formation and problem solving. He also explained that there are five areas of learning outcomes: verbal information; intellectual skills; cognitive strategies; motor skills and attitudes.

www.classweb.gmu.edu

Fig. 4-Levels of Intelligence

Allan Paivio discovered “ Dual coding theory” that states people process information in two different ways; processing of images and the processing of language.

Fig

<http://cslsrv.ice.ntnu.edu.tw/LabNews/Minutes015/20010412joseph.htm>

Fig. 5- Dual Coding Theory

Benjamin Bloom described six levels of learning in his model of critical thinking. These levels are also known as “ Bloom’s Taxonomy”.

<http://taspd.edublogs.org/2007/04/23/revised-blooms-taxonomy/>

Fig. 6- Bloom’s Taxonomy

Literature Review

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The two movements differ particularly in their views on behavior.

Behaviorism, whose research subjects were mostly animals, views behavior as an irreducible consequence of environmental stimuli, whereas

Cognitivism, whose research subjects are often humans, sees behavior as a point from which to abstract the mental processes behind the behavior.

Skinner's studies of operant behaviors have become very useful in the field of learning and cognition (Corey, 2009). Studies have shown that behavior can be conditioned by reinforcements, positively, which increases the probability of the behavior happening again, or negatively, which decreases the probability the behavior will happen again (Olson & Hergenhahn, 2009). Skinner's theories still remain in wide use, helping users understand and control behaviors in many disciplines as well as in issues ranging from advertising to parenting (Olson & Hergenhahn, 2009). According to Corey (2009), the research of Kazdin (2001) and Spiegler & Guevremont (2003) revealed that behavioral therapy is generally as effective as alternative therapies, and in some instances, more effective.

The Cognitive Learning Theory supports the idea that learning includes different kinds of memories, motivation and thinking. One of the other important factors is that of reflection. Those that promote Cognitivism believe that the learning process is internal and depends on memorized information from pre-existing knowledge. (Ausubel, 1974) The theory argues that the degree of which a person learns is not affected by the ability and quality of mental processing. (Craik & Tulving, 1975; Craik & Tulving, 1975)

Cognitivism maintains that memory is stored by using a connective pattern

of information that networks with other patterns by means of some type of a relationship. (Stoyanova & Kommers, 2002)

Use in Nursing Education

Writing behavioral-based instructional objectives seems to specify clear, measurable terms to assist learners. According to Morrison (2001), behavior based objectives become “ the end rather than the means for instruction.” Morrison continues to point out that cognitive focused instructional objectives overcome this problem by “ first stating a general objective to communicate the intent.” Additionally, they observe that “ cognitive objectives are well suited for describing higher levels of learning.” (Morrison et al., 2001, p. 97)

In behaviorism, the learner is actively involved in learning, practicing, and demonstrating new behaviors and is extremely dependent on receiving feedback from the educator. The educator is responsible for identifying behavioral outcomes, controlling the environment, and providing feedback. Current use of behaviorism in education is most often associated with education and training (Merriam et al., 2007). Behaviorism does well in education because it

promotes good behavior and recognizes that unwanted behavior has consequences. Students learn by observing and interpreting the behavior, and associated consequences, of others in a process termed vicarious reinforcement or modeling (Bandura, 1977). Learning by modeling involves a complex process of interpreting, coding, and retaining the information for future application, then engaging in the modeled behavior (Bandura, 1969).
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Cognitivists have influenced educational strategies by including prior knowledge in influencing how new information is digested. Cognitive learning theorists believe that learning is an internal process in which information is integrated or internalized into one's cognitive or intellectual structure. Learning occurs through internal processing of information. From the cognitive viewpoint, how new information is presented is important. In the first or cognitive phase of learning, the student learns the overall picture of what the task is and the sequences involved. In the second, or fixation learning phase, the learner begins to gain skill in performing the task. In the last phase of learning, the automatic phase, the student gains increasing confidence and competence in performing the task. (Elias et al., 1984)

Personal Use

I believe that we all use a part of the behaviorist's way of learning, to some extent. We all like to be awarded for the work or behavior that we have accomplished. We know there are repercussions and consequences for not adhering to the rules. Our behaviors represent how we are perceived by others in society. The determination of how others behave is by the use of checks and balances of stimuli and response. The way we act and/or behave, teaches people how to respond to us. I believe that I am motivated to learn and acquire more knowledge. The ability to mentally organize, rehearse and comprehend new learning materials is one I strive to obtain.

The motivation that has driven me to succeed in both by personal and professional lives has been founded on realistic and challenging goals.

Conclusion

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There are many different ways of learning and teaching. Two of the earliest methods of learning can still be utilized in today's classroom. The foundation of theories helps us as a framework to base our learning and teaching upon. We can use positive and negative reinforcement as well as modeling to teach our students how to absorb and maintain new materials. Behaviorism is a teacher based concept full of structure and rules. Examples are class lectures, note taking and role modeling. Cognitivism is a student based concept in which students can find out information by themselves by using case studies, research and discussions. These two types of learning theories can help to shape our future generations.