

Understanding and Promoting Learning Theories

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[Abstract] Learning theories deal with the ways people learn. There are a number of different learning theories in our society. For example, there are behaviorist, cognitivist, social and experiential learning theories. All learning theories strive to lead to change in basically three domains: cognitive, affective and psychomotor. Some theorists list more domains and others divide learning theories into different categories. According to this article, all learning theories may contain a general model that can be derived from existing learning theories if special attention is paid to observing these theories. Good learning theories determine the roles for learners and teachers and the relationships between learners and educators. Learning theory fundamentals help users of theories implement effective strategies.

[Keywords] learning theory; behaviorist; cognitivist; social learning; experiential learning

Introduction

Humans have different interpretations of learning theories and different beliefs about how people learn. All these beliefs may come from personal experience, self-reflection, observation of others, research, and through the experience of trying to teach or persuade someone else to one's own way of thinking. In a nutshell, everyone keeps learning every waking minute, using different learning theories. Theories guide one's action in terms how one goes about learning new skills, knowledge, and attitudes. Without learning theories, one's learning may lead to mindless activism. In other words, one's time is spent trying to learn something, but the end result is ineffective. In democratic cultures, people may prefer critical thinking as an effective learning theory, whereas in authoritarian cultures, people may see rote learning or memorization as an effective learning theory. Many journal articles highlight the above-mentioned two schools of thought on learning theories. Some scholars may argue that critical thinking, as a theory, may lead to creativity and innovation, whereas rote learning may stifle creativity. The debate has been going on for decades, and no definitive conclusions have been reached. It is extremely difficult to determine which learning theories are better than others because people are engaged in informal or formal learning to change the way they see themselves, change the way they see other people, and change the way they see situations (Cramer & Wasiak, 2006). It is likely that there is no one best way of promoting learning.

One strong piece of evidence is the result of the 2009 Program for International Student Assessment (PISA) in which Asian students in authoritarian cultures did much better than students from democratic cultures. However, Western educators argue that the Western education system leads to more creative thinkers, problem solvers, and better scientists. This is true to a certain extent. All these learning theories are valuable in guiding one's action in a particular culture, subculture, or even a particular setting. Although scholars have different interpretations of learning theories, the goal of any learning theory is the same. For example, Merriam (2004) explains a learning theory as leading to learners' growth and development. Mezirow explains the theory of transformative learning as helping learners achieve perspective transformation. Abraham Maslow's (1908-1970) primary contribution to psychology is his *Hierarchy of Human Needs*. Maslow contended that humans have a number of needs that are instinctive, that is, innate. These needs are classified as "cognitive needs" and "aesthetic needs." "Neurotic needs" are included in Maslow's theory but do not exist within the hierarchy. Maslow assumed needs are arranged in a hierarchy in terms of their potency. Although all needs are instinctive, some are more powerful than others. The lower the need is in the pyramid, the more powerful it is. The higher the need is in the pyramid, the weaker and more distinctly human it is. The lower, or basic, needs on the pyramid are

similar to those possessed by non-human animals, but only humans possess the higher needs. Maslow considers the end goal of learning to be self-actualization: “the full use of talents, capacities, potentialities, etc.” (p. 150). Some learning theories, such as the theory of andragogy encourage learners to be self-directed in learning, whereas other theories emphasize the roles of teachers as information transmitters instead of learning facilitators, thus placing learners at the feet of master professors.

Over the years, scholars have never stopped debating which learning theories are superior to other learning theories for a certain group of learners. Very often, these scholars are divided into two categories: some who emphasize releasing the energy of learners as a good learning theory from the Western hemisphere, and others who emphasize the passive role of following their teachers as learners from the Eastern hemisphere. Often, this line of division may be blurred as globalization brings different cultures together. The next section addresses how different learning theories came into being and what may be the essential elements in these theories to which both scholars and learners need to pay attention.

Historical Developments of Learning Theories

Experiments on how animals and humans learn went back as early as the late nineteenth century when John B. Watson (1878-1958) conducted a study of learning in animals. Behaviorism as a learning theory resulted directly from Watson’s experiments. Later in the 1960s, B. F. Skinner enhanced and advanced behaviorism. The Russian physiologist Ivan Pavlov (1849-1936) conducted experiments that resulted in the concept of conditioned reflexes (as cited in Knowles, Holton & Swanson, 1998, 2005, p. 25). Upon the basis of these experiments and others, scholars have tried to make comparisons between human and animal learning. The conclusion drawn is animals learn via reflexes and behavior modification, whereas humans learn through reflection (Wang & King, 2006, 2007). That is probably why humans are categorized as “social animals” who are capable of reflection. When animals are described as being social animals, it relies on their need to be with each other, primarily for protection and hunting; however, in terms of their learning, they are primarily reflexive, which may be associated with thinking orders that are much lower than “lower thinking” orders. Lower-order thinking skills are termed as knowledge, understanding, and application in Bloom’s taxonomy.

Higher-order thinking skills are labeled as analysis, synthesis, and evaluation in Bloom’s taxonomy. In recent years, a higher level has been added to Bloom’s Taxonomy, that is, knowledge creation. The first American educational philosopher, John Dewey (1933), addressed the issue of why people learn by stating that learners are faced with learning problems, and these learning problems perplex and challenge the mind so that it makes belief uncertain. Dewey went on to say that it is this perplexity that leads to reflective thinking and, consequently, learning of the learners. In adult education, theorists advanced two principles of andragogy, similar to Dewey’s assertions. These two principles are adult learning is dictated by their developmental tasks and adult learning is contextual; in other words, adults have everyday problems to solve. This line of thought has been widely accepted in the academic world. Later, in the early 1980s, Jack Mezirow advanced the theory of transformative learning, in which he proposes that a disorienting dilemma has the potential to lead to critical reflection and from there to transformative learning. The premise of Mezirow’s theory does not deviate too far from Dewey’s reflective thinking theory.

The early study of how animals and humans learn has sparked widespread study in generating more useful learning theories. The 1960s saw a proliferation of learning theories in the Western hemisphere. Indeed, the Western cultures have produced numerous social scientists in education. Carl Rogers, a therapist, was even nominated for a Nobel Peace Prize for his contributions to learning theories. He had only a master’s degree, yet his thinking/theories (client centered-therapy and student-centered education) are widely studied and applied even to this day. Rogers (1969, p. 5) explains how a learning theory can lead to effective learning by claiming:

- **Personal involvement:** The whole person, including his or her feelings and cognitive aspects, are involved in the learning event.

- **Self-initiation:** Even when the impetus or stimulus comes from the outside, the sense of discovery, of reaching out, of grasping and comprehending, comes from within.
- **Pervasiveness:** Learning makes a difference in the behavior, attitudes, and, perhaps, even the personality of the learner.
- **Evaluation by the learner:** The learner knows whether the learning meets personal need, whether it leads toward what the individual wants to know, whether it illuminates the dark area of ignorance the individual is experiencing. The locus of evaluation, we might say, resides definitely in the learner.
- **Its essence is meaning:** When such learning takes place, the element of meaning to the learner is built into the whole experience.

Without a doubt, the above theory has influenced generations of learners in both authoritarian cultures and democratic cultures. Those scholars, students, or practitioners who have silently applied this learning theory have surely become productive citizens of the world. The primary reason for Rogers coming up with his learning theory was that he did not believe that teachers can teach others directly. According to Rogers, teachers can only be facilitators. However, Rogers advocated that learners, young or old, had to engage the whole person first, and then take the initiative in learning, which may lead to ownership of learning. Finally, evaluation by the learner must be executed. In adult and higher education, the “learner self-evaluation” movement is derived from Rogers’ learning theory through Knowles (1980) development of andragogy.

To Gagne (1972, pp. 3-41), an effective learning theory must lead to change in five domains of the learning process:

1. **Motor skills**, which are developed through practice.
2. **Verbal information**, the major requirement for learning being its presentation within an organized, meaningful context.
3. **Intellectual skills**, the learning of which appears to require prior learning of prerequisite skills.
4. **Cognitive strategies**, the learning of which requires repeated occasions in which challenges to thinking are presented.
5. **Attitudes**, which are learned most effectively through the use of human models and “vicarious reinforcement.”

Gagne’s five domains are derived from the most popular three domains of educational objectives. Educators and scholars often address these three domains when writing course objectives. For example, when they ask the question, “By the end of this lesson, can my learners think differently?” they address the first domain of educational objectives, that is, the “cognitive domain.” When they ask the question, “By the end of this lesson, do my learners act differently?” they address the second domain of educational objectives, that is, the “psychomotor domain.” When they ask the question, “By the end of this lesson, do my learners feel differently?” they address the third domain, that is, the “affective domain.” When examining Gagne’s five domains, one cannot help but think of the widely accepted three domains of educational objectives. Whether detailed or addressed in general, these domains of educational objectives guide educators and learners to learn more explicitly in different fields.

Later, Gardner (1983) developed the theory of multiple intelligences theory that is widely applied in the field of teaching and learning. According to Gardner, humans possess at least eight different kinds of intelligence. The traditional Intelligent Quotient (IQ) test, which tests command of language and mathematical reasoning skills, does not account for the six other intelligences. When this theory is applied to the adult learning field, adult educators are cautioned that adult educators inform themselves of the various intelligences so that their teaching methods may reflect an absence of “bias” towards certain adult students who perform well under traditional methods. We now understand that learners are diverse in the way that intelligence is manifested.

Easterners do not seem to have conducted as much research as Westerners regarding how humans learn. Their learning theories seem to have been derived from either Buddhism (Buddhism is a dharmic, non-theistic religion, a philosophy, and a system of psychology. Buddhism is also known in Sanskrit or Pali, the main ancient languages of Buddhists, as Buddha Dharma or Dhamma, which means the teachings of “the Awakened One.” Thus was called Siddhartha Gautama, hereinafter referred to as “the Buddha.” Early sources say that the Buddha was born in Lumbini (now in Nepal), and that he died, aged around 80, in Kushinagar (India). He lived in or around the fifth century BCE, according to recent scholarship. Buddhism spread throughout the Indian subcontinent in the five centuries following the Buddha's passing, and thence into Central, Southeast and East Asia and Eastern Europe over the next two millennia.) Today, open any textbook in the field of teaching or learning written by either Westerners or Easterners, and there will be at least one or two prevalent learning theories expounded on with the intention to guide both educators and learners. With so many learning theories existing, how can educators and learners make a smart choice as to which ones apply to them in practice? This remains a question to be addressed in the next section, which addresses some essential components of learning theories. Essential components of learning theories can be labeled as fundamental features of learning theories.

Fundamental Features of Learning Theories

Researchers have made great efforts in their attempts to categorize learning theories. To date, educators and learners are not unfamiliar with the 11 categories identified by Hilgard and Bower (1966):

1. Thorndike's Connectionism
2. Pavlov's Classical Conditioning
3. Guthrie's Contiguous Conditioning
4. Skinner's Operant Conditioning
5. Hull's Systematic Behavior Theory
6. Tolman's Purposive Behaviorism
7. Gestalt Theory
8. Freud's Psychodynamics
9. Functionalism
10. Mathematical Learning Theory
11. Information Processing Models

The Stanford Encyclopedia of Philosophy defines connectionism as a movement in cognitive science which hopes to explain human intellectual abilities using artificial neural networks (also known as "neural networks" or "neural nets"). Neural networks are simplified models of the brain composed of large numbers of units (the analogs of neurons) together with weights that measure the strength of connections between the units. These weights model the effects of the synapses that link one neuron to another. Experiments on models of this kind have demonstrated an ability to learn such skills as face recognition, reading, and the detection of simple grammatical structures.

According to Tolman's theory of sign learning (purposive behaviorism), an organism learns by pursuing signs to a goal, i.e., learning is acquired through meaningful behavior. Tolman (1948) emphasized the organized aspect of learning:

The stimuli which are allowed in are not connected by just simple one-to-one switches to the outgoing responses. Rather the incoming impulses are usually worked over and elaborated in the central control room into a tentative cognitive-like map of the environment. And it is this tentative map, indicating routes and paths and environmental relationships, which finally determines what responses, if any, the animal will finally make. (p. 192)

Gestalt Theory refers to a school of researchers who maintained that phenomena could only be understood if they were viewed as structural wholes; they had a great influence on early learning theory.

The Stanford Encyclopedia of Philosophy defines functionalism as the doctrine that what makes something a mental state of a particular type does not depend on its internal constitution, but rather on the way it functions, or the role it plays, in the system of which it is a part. This doctrine is rooted in Aristotle's conception of the soul and has antecedents in Hobbes's conception of the mind as a "calculating machine," but it has become fully articulated (and popularly endorsed) only in the last third of the 20th century. Though the term "functionalism" is used to designate a variety of positions in a variety of other disciplines, including psychology, sociology, economics, and architecture, this entry focuses exclusively on functionalism as a philosophical thesis about the nature of mental states.

Among the eleven learning theories, Dewey's pragmatism stood out as an effective learning theory that was widely accepted by both educators and learners. It must be pointed out that not all learning theories fall into certain categories. The beauty of categorizing learning theories will help educators and learners understand and promote these theories. Otherwise, both educators and learners will get overwhelmed by the vast number of learning theories, wondering which ones to use to guide their action. To understand and promote learning theories should be the first step towards application of these theories. In Eastern cultures, there is a saying, which goes like this: "Educators and scholars should unite theories with practice." It is evident that the implication of such a saying is that educators and scholars should walk on two legs: one leg represents theories and the other represents practice. Theories are advanced to guide one's practice.

An important feature of learning theories is that any theory presupposes a more general model according to which theoretical concepts are formulated (Reese & Overton, 1970). Unless a general model is successfully derived from a learning theory, educators and learners may find it hard to apply in practice. Such is the case with the theory of transformative learning. Many people have heard of the theory but do not understand how to apply it in practice. Wang and King (2006, 2007) developed a model that summarizes an in-depth comparison between transformative learning and Confucianism. As educators and learners ponder the model, they probably can relate to the theory and, consequently, may be able to apply it step by step. The model given below illustrates how a general model can be derived from any learning theories:

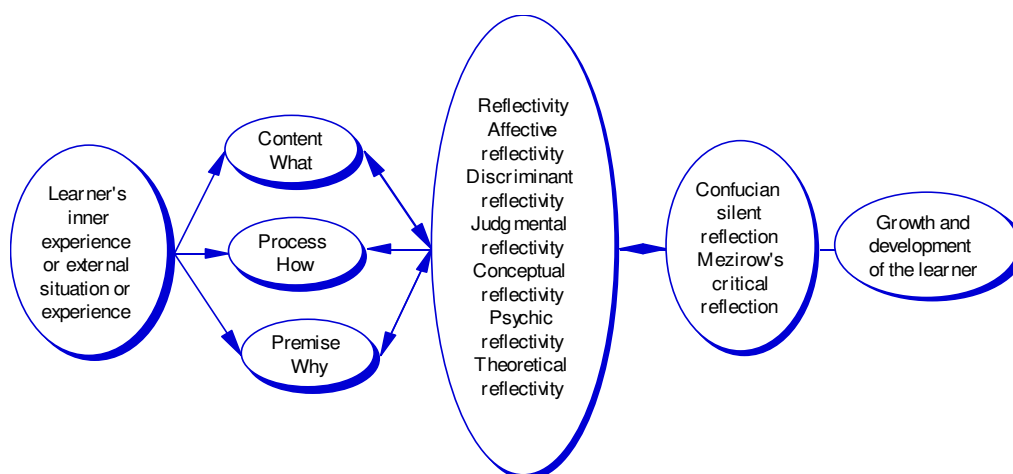


Figure 1. Model of Learning through Critical Reflection by Wang and King (2006, 2007)

Good learning theories always specify the role of the educators, the role of the learners and above all the relationship between the educator and the learner. This line of thought has become important simply because more and more people buy into the concept that it is in relationship with others that humans learn. Human beings are often referred to as "social animals." The theory of andragogy, for example, has clearly defined the role for teachers and learners and the relationship between teachers and learners. In order for adult learners to maximize learning, teachers are required to serve as learning facilitators, resource

persons, and process managers instead of being information transmitters. This role of the teacher specifies that teachers must release the energy of learners by encouraging learners to be self-directed. The role of the learner specifies that learners cannot be submissive followers of their teachers. Learners must take the initiative to become self-directed learners. Wang and Cranton (2012) consider self-directed learning an effective adult education model. Cranton (2006) indicates that through the discussions of andragogy, one becomes mindful of the seminal model of transformative learning, creating the interconnection of the two models in adult education.

The relationship between teachers and learners is specified as a “helping relationship” instead of a “directing relationship” (Wang, 2005). Upon the basis of this analysis, it is natural to conclude that the theory of pedagogy (the art and science of teaching children) specifies some different roles for teachers and learners and, therefore, the relationship between teachers and students may differ from the relationship between educators and adult learners. According to Knowles, Holton, and Swanson (2011), the pedagogical model assigns to the teacher responsibility for making decisions about what will be learned, how it will be learned, when it will be learned, and if it has been learned. Knowles (1980) saw pedagogy and andragogy on a continuum rather than a dualism; more recent work in K-12 education includes a fair amount of student self-direction and self-evaluation. Unfortunately, the trend toward increased standardized testing (especially in the US) has put some limits on what can be done in this respect.

It may be the case that few people, other than theorists, get excited about theories (Torraco, 1997). This is because most people do not pay enough attention to learning theory fundamentals. If they do pay attention to the categories, the general models theories can generate and the roles and relationships learning theories can specify, people will find value in almost every existing learning theory. Besides, most theories, except those that are truly revolutionary, such as the contributions of Newton, Einstein, and Darwin, just do their jobs quietly behind the scenes (Torraco, 1997, p. 114). Once the learning theory fundamentals are applied, both educators and learners and even the general public can make the theories do their jobs out there in the open instead of behind the scenes. After all, theory is meant to be united with practice to guide one’s action (Elias & Merriam, 1995, 2005).

Conclusion

In the course of pursuing knowledge about learning theories, many learning theories have been generated and discarded. The ones that have endured are the ones that truly guide one’s action in learning. The theory of andragogy has endured because it has successfully explained how adults learn differently from children. The theory of transformative learning has endured because it can address how learners are engaged in deep shifts in their meaning perspectives. Gardner’s multiple intelligences theory has endured because one’s IQ score does not account for other intelligences that learners may have. The list can go on and on. However, the central point is no one can afford not to pay attention to learning theory fundamentals. Without these learning theory fundamentals, it is hard to learn to apply theories in practice. Theories are meant to be united with practice. But the learning theories fortified by learning fundamentals provide guiding principles from which people can successfully discern theories and, hopefully, apply them to practice. If learning is defined as a process that leads to a change in a learner’s disposition and capabilities that can be reflected in behavior (Gagne, 1985), then learning theories are meant to guide one’s learning. To understand how learning theories work, efforts must be exerted to understand learning theory fundamentals.

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