



RESEARCH ARTICLE

REDEFINING THE DEFINITION OF LEARNING FROM AN EDUCATIONAL ASPECT

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ABSTRACT

This essay paper discusses the meaning and understanding of the learning process as it was defined primarily through the eyes and research studies of behaviorists, including Ivan Pavlov, Edward Thorndike, James Watson, and B. F. Skinner. Therefore, the definition of learning, as a mental process, may not be fully explained since it was primarily defined by behaviorists who studied external activities but no other psychologists who studied mental activities that take place within the brain.

INTRODUCTION

I remember my fifth-grade teacher telling us how we should *learn* the material and not simply *memorize* it. Back then I could not quite understand what he meant by *learn it* because I was under impression that I did learn the required material. I knew everything about the lesson. I could recite every single sentence from that particular lesson. But still, it was not enough for my teacher. I did not learn the material according to his requirements. Would he have been satisfied if I have had read the material several more times? Or would he have been satisfied and would he have told me that I had learned the lesson if I had written what I knew? Learning obviously was not about remembering and knowing things. It was something more. Almost thirty years later, I found myself in a similar situation while working with my students. I too kept telling the students in my psychology class that they have to *learn* and not just *memorize* the information. I work with high school seniors attending a dual-credit psychology class, so even though my students are not fifth graders or elementary school students, they still had difficulty understanding what learning is and how learning is different from memorization. Fortunately for my students they learned about both, learning and memorization. We dedicated an entire chapter in our class to learning and one to memorization. Before we started the chapter on learning, I asked the students to define learning in their own words and to ask other teachers what learning is.

At the beginning of the next class I concluded that the definition of learning provided by my students and their teachers is more or less the same as the one I heard in college. According to them, learning is the acquisition of information, knowledge, and skills. I agree. When we learn, we do indeed acquire information and skills. But is this not the same as memorization? When we memorize things that is exactly what we do. And that was my other question to my class: "What is the difference between learning and memorization? How can we tell that we are learning rather than memorizing?" Many of my students were left confused and thinking, about this problem. Even the classroom facilitators who were present in the class and who were full-time teachers were left curious. Therefore, I decided to explain what learning is, not how teachers and educator would define it, but how psychologists would. What is learning? How would you explain this mental activity? The definition of learning can be derived from psychological and educational sources. Both sources, even though extremely useful, have different approaches to learning and subsequently different explanations of what learning is. In many psychology textbooks, learning is defined from a psychological aspects as "permanent change in behavior" brought about by experience. This is how I explained it to my students, and this is similar to the definition they found in their psychology textbook: a permanent change in behavior brought about by experience. Of course, that left my students a little confused, and I was not surprised. I was confused too when I heard this definition for the first time. Learning, as defined by psychologists and the authors of the psychology textbooks, is about behavior and permanent changes in behavior caused by certain events or experiences.

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This and similar definitions that contend that learning is a permanent change in behavior brought about by experience have deep roots that derive from the behaviorist approach and related teachings. Behaviorism is a school, field, or branch of psychology that primarily focuses on the study of behavior or external activities of human and non-human animals, including laughing, crying, smiling, moving, gesturing, and other activities that can be observed. Learning as a mental activity has not been explored enough in other fields of psychology, such as Gestalt psychology, that focus on internal, mental activities. Thus, from the psychological perspective, learning is defined as a permanent change in behavior brought upon by experience. However, I felt that, in my opinion as a teacher, this was not enough to explain the learning process as a mental activity. Yes, learning is about change in behavior. Learning is not successful without a change in behavior. Yet, something was still missing. I strongly believed that learning is about the acquisition of new information and skills too, as teachers, pedagogues, and educators in general would define it. But how does the acquisition of information and skills differ from memorization? I spent numerous hours of thinking about and evaluating learning as a mental activity. I came to my own hypothesis that both psychologists from different fields of psychology and educators should reach a consensus on what learning as a mental activity is because both groups are responsible for exploring and understanding learning as a mental activity.

After dedicating some time to thinking about learning and how learning can be defined, or redefined to achieve a more general and detailed explanation rather than a partial explanation that focuses on one particular domain, I began to understand the limitations of the current definitions of learning provided by psychologists and educators. I also began to grasp how those limitations must be overcome so that the definitions of learning do not remain attached to only one small segment of science, whether it is psychology or education. The psychology-based definition of learning and the notion that learning refers to a permanent change in behavior brought about by experience primarily derive from the work of a group of scientists who conducted experiments on animals and whose findings greatly contributed to the field of psychology, especially behaviorism. Those scientists are Ivan Pavlov, Edward Thorndike, and B. F. Skinner.

Ivan Pavlov, the oldest among them, was a Russian physiologist who studied the digestive system of dogs to understand how dogs salivate. In his famous experiment involving dogs, Pavlov noted that dogs naturally salivate when they see food. Thus, food is a stimulus for salivation, or an unconditioned stimulus. Pavlov also noticed that dogs do not salivate when exposed to other stimuli such as the sound of a bell, which he considered a neutral stimulus since it had no effect on dog's salivation. In his experiment, Pavlov paired food (unconditioned stimulus) with the sound of a bell (neutral stimulus) by ringing a bell each time he fed the dogs. After repeating this step several times, the dogs began to salivate not only in the presence of food but also at the sound of the bell. The sound of the bell was no longer a neutral stimulus but had become a conditioned stimulus. The dogs learned to salivate at the sound of the bell, something that they did not do in the past. Hence, the experience gained through Pavlov's experiment changed the dog's behavior.

The learning was successful even though the dog was learning and changing his behavior unintentionally and most likely unconsciously. Therefore, this type of learning, or changing behavior, became known as classical conditioning or, simply, involuntary learning. Further, Edward Thorndike and B. F. Skinner conducted similar experiments with animals, but using different participants and slightly different methods. B. F. Skinner conducted his experiment with rats; Edward Thorndike conducted a similar experiment, if not the same one. In his experiment, Skinner placed a rat into a box with a little lever designed to drop a piece of food each time the rat would press it. The experiment revealed that the rat would step on the lever each time he wanted the food. The reward (getting food) changed the rat's behavior by making him perform the desired action (hitting the lever). B. F. Skinner's experiment explained that behavior can be conditioned (learned) by reinforcement.

The results of these two experiments by Ivan Pavlov and B. F. Skinner later led to the formulation of the definition of learning informed by the psychological, or behavioral, approach that states that learning is a permanent change in behavior brought about by experience. However, this definition derives from the behaviorist point of view and not from the fields of psychology focused on mental activities such as critical thinking, creative thinking, and intelligence. When I did research for my doctoral dissertation titled *College-Level Second Language Courses and Creative Thinking Skills: An Ex Post Facto Study*, I reviewed numerous research studies that revealed that, for instance, people who acquire a second language usually have a different way of thinking than those who speak only one language. The results of my dissertation and another research study I later conducted supported the contention that learning a second language affect the way we think.

Therefore, learning is not just about permanent change in behavior but also mental activities and the way we think, solve problems, perceive things and situations, memorize information, and much more. For example, every time I explain learning process to my students in psychology class, I like to tell them a story about me and my little niece, who was few months old at that time. We were attending one of our family barbecue parties that we usually have every Friday and Saturday during the summer. I remember how she became extremely excited by seeing flames coming out of the grill for the first time and wanted to touch the flames and play with them. Of course, she had not yet learned what fire is, how fire should be handled, and what the consequences of mishandling fire are. I could have let her touch the flames and most likely she would have burned herself and been severely injured. That experience would not only change her behavior, it would primarily change her mental perception of fire first, and then that perceptual change about fire would change her behavior. I strongly believe that learning as a permanent change, not only in behavior but also in mental activities, is something that is missing in Ivan Pavlov and B. F. Skinner's explanation about learning since they primarily focused on behavior. Learning has also been defined by educators, including teachers, pedagogues, educational administrators, and others involved in traditional schools and classrooms. From the educational aspects, learning definitions do not mention any changes in behavior or mental activities. Educational aspects primarily state that learning is the acquisition of new information and skills. This definition of learning largely defines and explains the learning process in modern-day schools where students

acquire new information and skills in traditional and online classrooms by studying math, literature, science, and other academic subjects. Students acquire the ability to read, write, count numbers, understand civic processes, and other similar academic skills. This may also include life skills necessary for survival, such as learning to walk, speak, operate a vehicle, and similar skills. However, the acquisition of information and skills as defined from the educational approach chiefly changes learners' skills and abilities. For example, learning to walk and later to run will mainly change our ability to move and create an environment which might lead to a change in behavior and mental activities. I say might because it does not mean that an individual who cannot walk will not develop mental skills or certain patterns of behavior. Or that the mental skills of individuals who could previously walk but who lost the ability to do so will not deteriorate and that these individuals will not significantly change their behavior. Steven Hawking, the world-famous physicist, preserved his mental skills and behavior even after he lost the ability to walk. Thus the definition of learning that stems from the educational point of view is also incomplete because learning is not just about the acquisition of information and skills, it is also about changes in behavior and mental skills. The acquisition of information and skills without changes in behavior, mental skills, and other abilities is nothing more than pure memorization. And that is the difference between learning and memorization. Memorization is receiving, storing, and retrieving information from the brain. If stored information does not change behavior, mental skills, and abilities then it is not learning. If the changes in behavior, mental activities, and abilities are changed after certain information is retained, then learning occurred.

By reviewing the definitions of learning that stem from both psychological and educational theory, it could be concluded that, both provide a partial definition or explanation of what learning is as a mental activity. The definitions of learning deserve to be redefined to provide a more comprehensive explanation of learning as a mental activity. But how can we define the learning process so that the definition encompasses all scientific points of view and provides us with general but detailed information about learning so that it can be clearly understood by different individuals from different academic backgrounds?

Learning, as I would define it and present it to my students, would be a *positive change in behavior, mental activities, and abilities brought about by experience and the acquisition of new information and skills*. In this updated definition of learning, I have excluded the word *permanent*, which many psychologists like to include, because learning is not permanent. Instead, I replaced it with *positive*. Think about all the procedures, protocols, and passwords you had to learn at some of your previous jobs. You acquired that information, and this process changed the behavior, mental activities, and abilities you need to perform your job successfully. However, that information and skills may no longer be available in your memory, and the absence of that information may mean you would no longer be able to perform that job successfully if you decided to return to that position.

Most likely you will need to be retrained and to relearn that information and skills all over again. Learning, in this case, can be compared with memory. Just like memory, learning can be *short-term learning* and *long-term* or *permanent learning*. Learning to walk, swim, operate a vehicle, read, and write is permanent, while learning a new phone number that will change in the near future or the names of your students may not be information you retain permanently. In addition, the objective of learning is to bring a positive change, not just a change. Negative changes are changes in which behavior, mental activities, and abilities deteriorate and decline. Learning without positive change cannot be considered learning.

The learning process as a mental activity is not just about changes in behavior. Behavior does change, and that change is an inseparable feature of learning. But the changes in behavior are accompanied by the positive changes in mental activities and abilities. Positive changes in mental activities refer to the improvement of critical thinking, creative thinking, analytical skills, and cognitive skills; increased IQ; and other mental activities that guide our minds and enable us to survive. Changes in our abilities refer to both physical and mental abilities and skills that enable us to function normally and survive in the environment. Those abilities include the ability to walk, run, speak, read, write, swim, cook, shower, brush our teeth, fix broken things, operate vehicles, and other abilities. Finally, the definition of learning, like any other definition, has as strong roots in philosophy as in science. While learning can be defined differently in different schools of thought and in different scientific fields, the goal of academic community is not to introduce a variety of definitions and explanations of phenomena occurring in our world. The goal is to achieve one definition and explanation for each phenomenon even though it might be difficult and even impossible due to a lack of evidence and necessary data. For example, we can provide definitions and explanations of electricity. Every textbook and every engineer in the world will provide the same or a similar definition of electricity, but providing one explanation of why the great empires collapsed might be difficult. Nevertheless, this does not mean that academic communities should not stop searching for the answers that would lead to one definition.

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