

Prior Knowledge: Its Role in Learning.

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Students vary differently. They differ in the places where they come from and along their journey from places to places to the classroom, they imbibed a broad-range pre-existing knowledge, beliefs, skills, attitudes which could affect how they receive, understand, and organize new knowledge. These broad pre-existing are the prior knowledges of the learners. Prior knowledge may help or hinder the student in learning, depending the nature of prior knowledge (David, 2017).

Several factors highly affect the teaching process. One is the students' prior knowledge. With their prior knowledge and other various characteristics, students may see the world differently and respond to problems in diverse ways (Eberly Center for Teaching Excellence & Educational Innovation, 2008). Making it an integral part of teaching-learning process (Ornstein & Levine, 2008), (Gee, 2012), (ECTEEI, 2008). One of the characteristics of effective teaching is knowing what are situations and problem that may be faced during the teaching process (National Academies of Science, 2001). One way of knowing those possible situations is by assessing the student's prior knowledge. By acquiring relevant information about the students and using it to design and validate the curriculum may help both the teacher and learner in the overall process (ECTEEI, 2008).

The concept of prior knowledge has its roots in different learning theories, principles, and philosophies. Constructivism, is one of those learning theories and educational philosophies that spawns the claims on prior knowledge. Constructivism, as defined philosophically, "is the philosophical and scientific position

that knowledge arises through a process of active construction" (Mascolo & Fischer, 2005). This implies that knowledge cannot be transmitted from one person to another, it is constructed thru active learning process. Furthermore, constructivism is defined as a learning theory that "emphasizes the ways in which learners actively create meaning by constructing and reconstructing ideas about reality" (Ornstein & Levine, 2008). This theory tells that learners build on what they already know and from that, they create, construct, and reconstruct their prior knowledge as they learn from their past and integrate their present experiences and perceptions of the reality (Gee, 2012).

Another theory that relates prior knowledge to learning is the cognitive theory of learning. One of its major tenet is that "learners actively construct their understanding by trying to connect new information with their prior knowledge" (National Academies of Science, 2001). Similar to the view of constructivism, cognitive theory view knowledge as non-transferable; and that it is continuously reconstructed every time new knowledge is encountered rather than knowledge that is accumulated and banked.

Prior knowledge is also related to the philosophy of postmodernism. Postmodernism view knowledge as a "human construct", and "is never complete but is tentative, conjectural and subject to on-going revisions as learners acquire more experiences." Like constructivism, postmodernism also claims that "we make, or we construct our beliefs and knowledge from our experiences" (Ornstein & Levine, 2008). Thus, by interacting

with the reality – environment, we develop our view of knowledge.

All of these theories and philosophies boils to one concept, the concept of prior knowledge. Consistent to all of these, prior knowledge is an integral part of learning, it is the springboard in which a person may jump into another topic, similarly it is the mesh that would connect, link, relate, associate to new information, consequently be reconstructed into a new and improved knowledge.

According to (Roschelle, 1997) educators often focus on the content of the course that is going to be taught. However, it is more prudent to first acquire information about the nature of students' prior knowledge to know whether it is "active, sufficient, appropriate and accurate". Prior knowledge as mentioned earlier could either help or hinder in learning (David, 2017), (Center for Research on Learning and Training, 2016). Prior knowledge that is "inactive, insufficient and inaccurate" could hinder the learning of a person.

One of the characteristics of prior knowledge that hinders learning is that it is inaccurate. Inaccurate knowledge could lead to misconceptions (David, 2017). This is the reason why the nature of prior knowledge should be assessed before the start of any learning process. Prior knowledge that are inaccurate in nature may distort the learners' view of the new information to be grasped (Via, 2016). Although it is difficult, teachers should be able to diagnose and to correct learner's misconceptions beforehand. As constructivists argued, "Misconceptions should be addressed by the teachers prior to teaching new

knowledge" (Smith, diSessa, & Roschelle, 1993) This is because as the misconception is neglected thru time, new knowledge piles up on top on the wrong knowledge, resulting to inaccurate and inappropriate interconnection of knowledge resulting to stronger misconception (Aydin, 2012). "The stronger the misconceptions are, the harder the resistance to corrections. (Djanette & Fouad, 2014)" One classic example of this is on the evolution, students have varied backgrounds on this topic. One of the contributing factors is religion. Religions like any other large group of people congregated, have their own stance and beliefs, these beliefs may affect the student's view. Most religions reject the concept of evolution (Phys.Org, 2015) for some irrelevant reason such as inconsistency with what they believe. This inaccurate prior knowledge imbibed from cultural background may impede the learning of a person.

There are numerous people who developed and still developing the concept of prior knowledge. Jean Piaget and Vygotsky who started on areas of psychology (Ornstein & Levine, 2008), which also supports and relates to the concept of prior knowledge. Prior knowledge has its roots in the Philosophy, among them are Dewey, Plato, Rousseau, and Socrates (Ornstein & Levine, 2008). Dewey, being a major proponent of constructivism, believes that learning is best if it is thru experience; Plato's theory of knowledge, reminiscence, in which knowledge is already present in the mind of a person, however, it remains inactive until it was reactivated thru active learning; Rousseau who like most of the proponents of constructivism believed that learners should interpret their own reality instead of learning it from indirect sources; and Socrates who believed that knowledge cannot be transmitted from a person to another, rather, believed that there exist a true

knowledge present, but buried deep within. Socrates use his prominent Socratic dialogue to bring his student into consciousness of what are the flaws in their thinking.

Overall, like the concept itself and the theories and philosophies that supports it, it has come from the deepest roots to have come into existence and into usage in the teaching-learning process and in the field of education.

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