

Pragmatism (A Hitchhiker's Guide to Learning Theory)

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Background

The learning theories we have been looking at in this session have grown in scope from the surfaces of observable behaviors, to the depths of individual minds, to the breadth of minds working together to create knowledge. In pragmatism, we come to a learning theory that is not only *epistemological*, not just about how people come to know about their world, derive meaning from it, and learn to live in it. Pragmatism offers us a theory of learning that is also *ontological*, or descriptive of the essential nature of world. Pragmatism describes a world in which learning is an integral part, not just something people do to understand it. The act of learning is necessary to life, part of its fabric, not something on top of it. Pragmatism describes learning as the result of ongoing interactions, or transactions, between persons (and other living things) and a world in continuous flux. It sees learning as not only something that happens to people, but also to the world, in the changes resulting from those transactions (Dewey 1938/1991)(Dewey 1934/1989).

Consider the following situations to see that this is a true depiction of learning—one from a natural setting and one from a professional setting:

Situation 1

A person lives in a natural environment, and gathers or hunts for food for survival. She discovers that the food supply needed this season is available only on the other side of a large stream, which this season has swelled with water from the heavy rains, and cannot be safely crossed on foot or by swimming. She needs to cross it though.

She sees a tree partially fallen into the water. It doesn't go all the way across the stream, but she sees that if it had, she might be able to cross. She decides to use this example and to chop a small tree to form a bridge. The tree falls, but in the wrong direction, so it goes only partially across the stream.

Learning that the angle in which she cut the tree influenced the direction of its fall, she chooses another small tree and chops from a better angle. The tree falls across the stream perfectly. However, when she tries to cross, she quickly finds that the tree bends into the water. She knows she needs a thicker tree, and more time to chop it.

She finds one, and an hour later, it falls in the intended direction, and she can walk across to the find her food, and the bridge will be there to help her return. Moreover, she now knows how to build such a bridge in the future whenever she needs one.

But the stream is wise as well, and has its own goals. It needs to get all its water down the slope. When the next storm comes, the water has to rise even higher, and the debris it carries runs into the bridge and forms a dam. But the stream doesn't forget its goal, and learns another method.

With the force of its water, it digs a deeper and wider channel, breaking apart much of the dam, and continues moving under the bridge. Eventually, continual erosion or a very large storm causes the stream to undermine and destroy the bridge, and the person needs to find an even bigger tree to cut down—or use a different bridge design.

(Note in this situation that the learning occurs by following through on a goal and the transactions required to achieve it, and, in the case of the person, through observation and reflection.)

Situation 2

A weather forecaster has begun noticing a consistent error in the NWP products for his forecast responsibility area. Finally, he thinks he understands the pattern sufficiently to adjust his forecast based on the past errors—and he is successful in producing a better forecast! He decides to inform the NWP modeling center about his discovery. He also decides to take an online learning module on NWP to better understand why this error might be occurring, and why he has needed to make the adjustments he did.

The modelers at the NWP center are curious about this discrepancy, and sure enough, after being informed, they discover a fault in the physics that can account for this sort of error in this sort of situation. So they adjust the model, run tests on the old analysis, and sure enough, the discrepancy is drastically reduced. Once they inform others of this change, they learn that similar issues existed in other regions of the country. They contact the forecaster who informed them of the discrepancy and thank him for his feedback, tell him why this was occurring, and how they fixed it. What the forecaster learns from them is consistent with what he has learned from his online learning.

As a result of this positive transaction, the modeling center creates a simpler way for forecasters to provide feedback when they think they see consistent errors in the models, and the entire weather service improves as a result.

(Note in this situation that the forecaster learns through following through on a goal to make an accurate forecast, by observing a pattern in the discrepancy, by making a transaction with his available data, and by observing and reflecting on the results. The modelers also learn, as does the NWP model itself, as a result of transactions with the forecaster. They learn how to produce more accurate NWP products now and in the future, by watching for and making similar adjustments, and by seeking more feedback from users.)

Complexity theory, which is at least partially an outgrowth of the theory of evolution theory and therefore has the same roots as pragmatism, sees life as a phenomenon that occurs at the edge of stability. In fact, for life to exist, it cannot be closed and isolated. It needs to remain semipermeable and unstable (open to inputs from the world and able and willing to change in response to changing conditions—willing to learn). Otherwise, it dies. Think of any living creature, or species of creatures, and you can recognize this semi-permeability and instability as allow it to either navigate or metamorphose, to find or take in food, and to either alter its environment in favor of survival or makes accommodations itself to survive. In a similar way, the species as a whole adapts to a changing world through natural selection. It is instability that triggers learning. Without it, no learning is required. We learn in order to

address the instabilities we find as we engage in transactions with the world, and how well and how much we learn depends on how well we embrace our conditions of instability and how much we are willing to change.

After all this theoretical explanation, you might be wondering what happened to the pragmatic roots of a theory with the name, “Pragmatism.” But look again, and you’ll see that the learning described is future-oriented, not directed toward a knowledge that is abstract, fixed, and only to-be-found. Pragmatist learning is active, creative, and oriented toward felt needs and goals. It is learning is founded not on “if-then” facts, but “what-if” consequences.

Applications

Pragmatism may be conceptually the most challenging of the learning theories we’ve discussed, but its recommendations are among the most simple. In fact, according to pragmatist theory, people cannot avoid learning as long as they are engaged in experiences that involve open transactions with the world. The quality and utility of any particular learning experience can vary, but learning in the broadest sense, as responsive change over time, is a necessary outcome of any transaction.

Pragmatism suggests that human learning results from reflective experience. It results from learners being placed in situations in which transactions need to occur to reach a goal, having opportunities to make decisions about those transactions, and being encouraged to reflect on the outcomes. It suggests that the most effective learning situations are the ones that are the most practical, or the ones that are designed to call for practical decision making and reflection about it. Reflection, or the opportunity to see the linkage between goals, actions, and outcomes, is a critical step in learning. Kolb’s model of Experiential Learning (1984) is based on pragmatism, but is not entirely pragmatist in its conception of learning as divided into phases of *active experience*, *reflective observation*, *abstract conceptualization*, and *active experimentation*. The pragmatist view is that these are all necessary, but that they are embedded in the situation simultaneously.

John Dewey, the central figure in Pragmatist thought, operated an experimental school in which students worked in the practical operations of the school, like running the school kitchen, for example, as a way to embed their learning in pragmatic activities. For professional training, Pragmatism suggests reducing the separation of training and operations, both in making training more like operational practice, and making operations more open to and nurturing of learning opportunities. It does not completely disapprove of formal learning approaches, but it suggests that teachers should design formal learning that involves learners in the process of creating knowledge, and not present knowledge as fixed. In pragmatist learning, the learner is considered an inquirer just like the past researchers, practitioners, and theorists whose outputs they are studying. Learners should be empowered to question and change accepted knowledge. Formal learning situations in which this is more likely to occur are those that include at least some elements of discussion-based learning, inquiry-based learning, project-based learning, problem-based learning, and case-based learning, including simulations. Informal learning approaches, such as on-the-job training, reflective practice, communities of practice, and mentoring, are also responsive to pragmatist descriptions of learning.

Another recommendation derived from pragmatism is to attend to the quality of the learning experience itself—not just its instrumental outcomes, but how they are achieved. The most effective learning is not so much an instrumental process as it is an attitude or orientation toward the world, a way of being. A learning orientation, a willingness to engage in learning for its own rewards, is as important an outcome of education and training as the immediate goals and objectives. For this reason, teachers need to ensure that learning is demonstrated as valuable and even fun, in and of itself. Learning must be meaningful, intrinsically rewarding, and enjoyable in order to create the positive attitudes toward learning that will make learners pragmatists in their orientation to the world and its ongoing potential for learning opportunities. Learning should be aesthetic, and not only goal-oriented. Learning should trigger curiosity, sustain a degree of intrigue, and provide satisfactory reward for becoming engaged. These are all things an educator and trainer can strive to achieve.

Limitations

Pragmatism is a holistic theory of learning, and while it suggests broad guidelines, like making learning situations practical, goal-oriented, inquiry-based, and aesthetically rewarding, it says little directly about the specific means to achieve these. For this, we need to look to other learning theories, or outside the literature on learning and into theories of art and design. We can also be reflective and responsive to the opportunities of a particular learning event and call upon the situational specifics and the general pragmatist principles to guide us.

References

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