The Construction of Knowledge: A Cognitive Perspective on How We Know What We Know

The Swiss biologist Jean Piaget (1896-1980) is perhaps best known for his theoretical assertion that all of development is an interaction between a biological organism and its environment, between subject and object, or, more colloquially, an interaction between nature and nurture. And, most importantly, that knowledge about both objects and the social world are “constructed” through this interaction. In other words, the child is not a passive vessel into which knowledge and facts are poured, rather the child actively attends to and interprets information from the environment. This was a revolutionary construct at the time, because it is akin to claiming that knowledge is a process, not a static thing. Piaget’s particular focus was on explaining the “how” of development from birth through adolescence, but has enormous relevance for understanding framing, more generally. Piaget’s idea of interaction explains how knowledge about the world gets processed, and how knowledge progresses into coherent views about the world.

Because Piaget was a biologist, it is no surprise that he considered development to be essentially “about” adaptation to one’s environment. Piaget postulated that this “cognitive adaptation” happens by way of two complementary and interactive processes: assimilation and accommodation. Let’s explain these processes by way of an example. Consider a toddler who has come across a toy truck for the first time. He will try to make sense of this new object by applying what he knows to this new case. He tries to “assimilate” the truck into his existing knowledge of objects by applying his existing repertoire of actions onto the truck. So he grabs it, puts it in his mouth, tries to bounce it, shakes it, all in an attempt to understand the truck. But the truck is different, it has new characteristics heretofore unseen! Then he pushes it, like he might a favorite ball, and sees that it moves forward. He then stretches that pushing behavior by picking it up, running the truck along the coffee table. That “bending” of his existing repertoire is “accommodation;” he’s mentally accommodating or adjusting to the demands of this new object. And what’s the result? He assimilates that new knowledge of “how to play with a truck” back into his repertoire, and, in return, gets to rely on an expanded repertoire of actions in the future!

These organized repertoires of actions are labeled by Piaget as “schema” (sometimes referred to as “schemata” or “schemes”). Schema are generalized patterns of understanding and behavior that help us interpret and adapt to the world. As children interact with their environment, constantly accommodating to new objects and assimilating new information into existing schema, these schema become broader and more complex. A child who lives with a Labrador retriever may have a schema for “dog” that is somewhat narrow until she goes to the dog park and sees Shih Tzus and Great Danes and Poodles, all of which are accommodated to and assimilated back into her “dog” schema. If the schema become more complex, you may wonder, then how are they adaptive? Because instead of having separate schema for each dog ever met, there is one organized schema – schema are prototypes, general impressions or representations.
Not all stimuli we perceive are stored as individual cases in our memories – schema are employed to provide a general impression so that when a child confronts something with four legs, wagging tail, that woofs, she knows “dog.” Schema are organized, but flexible mental models. Not surprisingly, as we grow and develop, the schema become less about the organization of overt actions (sucking, grasping, rattling, rolling) and more about the organization of covert mental operations (ordering, classifying, dividing).

In Piaget’s view, as you can see, the development of knowledge about the world is a very dynamic process. We are actively constructing and organizing our schema. Though dynamic, at the same time we strive toward balance, or equilibrium, with the environment. Seeing a Shih Tzu for the first time might be cognitively disturbing to the Lab-knowing toddler – she is motivated to adapt to this new object in order to return to a state of balance. As Hans Furth, a student of Piaget and major translator of Piaget’s research, was known to tell his students, “We can not develop unless we are disturbed!” What he meant was that for our schema to become more complex, more adaptive, we must confront novel information and try to resolve it. We are very motivated toward that resolution, that state of equilibrium.

How is a basic understanding of Piaget’s theory about how knowledge develops relevant to the study of Strategic Frame Analysis™? As developmental psychologist Hans Furth notes (1996:131), the challenge that the world presents to any of us is that of comprehending its complexity. Our inherent motivation to resolve conceptual conflicts, noted above, speaks both to our resistance to take in information that conflicts with our established schema or mental models, and to the absolute necessity of taking in information that conflicts with our established schema if we are to adapt to the world around us. This toggling between conflict and resolution creates room for growth and change, and hence, the opportunity to consider new ways of thinking (a Great Dane is a dog, after all!).

It is well established in political science literature that how issues are framed in public discourse, in the news media, influences which schema are most readily available to people when evaluating social issues. The more the media emphasizes certain aspects of an issue and ignores others, the more dominant the corresponding schema become and the easier it is for those highly emphasized dimensions of a problem to crowd out other considerations. In health care, for example, the dominant news frames are of health care as a consumer good, a commodity. When confronted with such framing, repeatedly, schema related to consumer categories – cost, for example – become more easily triggered and used to evaluate health care reform solutions. When, however, health care is framed as infrastructure, as a system that functions best when more people are a part of it, the public can more easily consider and support step-by-step plans for ensuring the system is working better for all people. In short the schema that get activated determine how the problem gets conceptualized and therefore shapes the solutions that can be seen. Intentional framing, then, seeks to activate or invigorate those schema that may not have had sufficient play in the public debate, but which offer to the public a more complete and nuanced understanding of the causes of and solutions to social problems.

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