

The Limitations of Mental Models
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Jon Monday

The ability to form mental models is perhaps a defining milestone in the development of human consciousness, although it is not an exclusive human trait; it has also been demonstrated in other higher primates. It's my conclusion that mental models help form worldviews, and thereby govern what a person believes and how they should lead their lives. However, I also believe that mental models are limited – and the impact of those limitations, if not recognized, can lead to narrow and erroneous worldviews.

But before embarking further, let's define some terms:

Mental Model is the ability to picture situations and predict outcomes in the mind. I saw a graphic demonstration of this in an experiment to show exactly when in normal human development this ability arises. Young children under age 4 are shown a scale model of a room with furniture. They are shown a model Coke can, and the researcher "hides" it in a model closet. The child watches carefully, and seems to understand the game. The child is then taken into the real room, and is asked to find the real can of Coke, which has been hidden in the closet. The child looks everywhere, under cushions, behind chairs, and eventually finds it in the closet. A 7-year-old, equipped with a mental model of the room, will look in the closet first – so will a mature chimpanzee. Mental models are the mind's way of analogizing the world, but a word of caution here, it is said that an analogy is like a leaky bucket: it can carry water, but only so far.

Worldview has been defined as the overall perspective from which one sees and interprets the world, or a collection of beliefs about life and the universe held by an individual or a group. One's cosmology, as Gerald Heard used the word, is a person's philosophical worldview—the core beliefs that they espouse about the universe and themselves, and the frame of reference by which they interpret and understand life. Most people come by their worldview through their formative environment. A person's family or community will usually instill it in them as part of growing up. A few people will form their own independent worldview through analyzing their personal experiences.

In a biography of Neils Bohr, one of the founders of quantum physics, I was surprised to learn that he had a great deal of difficulty accepting the implications of his own discoveries, specifically the wave-particle dual nature of matter. If an experiment is set up a certain way, it will show that photons are waves; set up another way photons are shown to be particles – but it defies logic and physics that they should be both. He struggled for nearly twenty years trying to find a satisfactory mental model that would help him fully understand and accept it. He finally came to acknowledge that it was just true and that there was a fundamental reason he could never find an appropriate mental model: reality on the Newtonian physics level does not provide us with any experience of quantum reality.

The biggest conceptual obstacle that Bohr had to overcome was that Newtonian physics works so well in explaining how the observable universe operates. It seemed unlikely to him that it would have to be abandoned at the quantum level. But, higher truth is built upon lower truth. Aristotelian worldview was replaced by Newtonian physics, which was then replaced by Einstein's physics, which was then replaced by Quantum physics. Aristotle, Newton, and Einstein weren't wrong, but they only carried truth to a certain level.

Our mental models can only be formed by the experiences gathered on the plane of existence that our minds and bodies inhabit. Our experiences in day-to-day life do not provide us with the proper tools to form a competent mental model of certain things that are beyond what we perceived from birth through our senses. Aldous Huxley put it this way, "Man is an intelligence, not served by, but in servitude to his organs". Shakespeare said it more succinctly in *Henry IV, Part One*, "Thought is the slave of life."

Materialistic scientists (those who believe only in the observable universe) and dogmatic religious fundamentalists both have a common failing in that their mental models work so well to explain and support their worldviews that they extend the interpretations to extremes that are beyond reasonable limits. They carry the leaky bucket long after the water has completely run out.

The dogmatically religious typically come to believe that since their faith is rewarded and confirmed by their subjective experiences, their way must be the one true path for all people. If they are literal fundamentalists, they will ignore and even resent all evidence that seems to contradict their dogmatic beliefs. Their worldview will often lead them to see science as the enemy of religion. The purely materialistic scientist will find such comfort in the predictive power of the scientific method and its great discoveries that he will believe that all questions about the universe and its origin can be explained by his worldview.

But, if we only rely on our normal senses, mental capacity, experiences, and beliefs what can we logically envision of what came before the Big Bang. To a mystic, the question of what came before is not perplexing because God is defined as the Uncaused Cause, but on a Newtonian level, it's the final and unanswered (and from a pure scientific perspective, unanswerable) question in a string of causes and effects going back to the moment before the Big Bang.

It is an understandable failing in all humans that we cannot form a competent mental model for God. Nothing we experience in normal consciousness provides information about what mystics call the transcendental state. It is beyond the material plane of existence, the senses, and the mind. We are told that it is ineffable, and yet we hear from mystics of every age, from every religion, the analogies they use to describe it. Here is but one example from Hinduism (which names that part of God who dwells in the body Atman, Christians call it the Soul, and the name used for God is Brahman):

Beyond the senses is the mind, beyond the mind is the intellect.
Higher than the intellect is Atman. Higher than Atman is Brahman.

Katha Upanishad 2.3.7-8

Like the levels of physics – going from Aristotelian to Newton to Einstein to Quantum – the mystics report their rise in consciousness from the material senses, to the human mind, to the individual Soul, and finally to the ultimate source. And what analogies do the mystics give us of the actual experience of the highest level of reality? Here is one report, again from Hinduism:

As rivers flow into the sea, and in so doing lose name and form,
so even the wise man freed from name and form, attains the Supreme Being,
the Self-luminous, the Infinite. He who knows Brahman becomes Brahman.

Mundaka Upanishad 3.2.8-9

These examples happen to be from Hinduism, but there are parallel teachings in all of the world's scriptures.

Lacking the foundation for a proper mental model for God, some people may scoff at all this as just unfounded speculation or self-deception. However, as richly documented in Huxley's *The Perennial Philosophy*, the fact that by so many different paths, a person can arrive at the same mystical state should at least give some credence to the idea of a universal and absolute transcendental Reality. Plus, there is a unique advantage of mysticism over theoretical quantum physics or cosmology (or dogmatic religion for that matter) – mystics do not have to settle for mere acceptance of beliefs or theories. They insist that each of us can experience it for ourselves – verify the truth of it through personal experience. The controlled experiment is going on everyday, here and now, all over the world.