

## Standards for Evaluating a Theory

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In the popular culture the word *theory* often conjures up thoughts of mad scientists or esoteric academics, and the notion of theory is often discarded as irrelevant, unimportant, or impractical. “That’s just a theory” is more often a curse than a compliment.

Theories explain a set of conceptual relationships. Over the years we have heard students similarly dismiss the importance of theory in their work and research, with statements like these:

- I want to focus on applied issues in my field. Theory plays no role in that.
- Why do I need a theory – it just confuses the facts.
- Theory is just for academics. I’m a practitioner.
- I don’t need a theory – I plan to do an exploratory study.

Unfortunately these kinds of beliefs are misconceptions and understate the role theory plays in our lives. The famous social scientist Kurt Lewin (1951) once noted that “nothing is quite as practical as a good theory.” Theories help us make sense of reality, and bring our beliefs about reality to the surface. As Einstein put it, a theory is “a statement about how reality works.” This is an essential step in evaluating the validity of these beliefs, and whether they should be followed. Theories structure our beliefs, and help expose them to the *cold light of dawn* through scientific inquiry. Equally important is the need to appreciate and strengthen good theory so that research conducted about complex problems will advance the knowledge that is relevant to both the discipline and the profession.

We all carry around beliefs in our heads about how things work, and we use them, constantly. Chris Argyris (1979) called these *theories in use*, and we all have them. This could be: the best way to kick a soccer ball, how to get a child to stop crying, what type of teacher is most effective, how to be an effective leader, or how to study for a test. Humans construct theories in order to explain, predict and master phenomena.

Unfortunately, we rarely expose these beliefs to scientific validation, and some of these conjectures cannot even be validated. Only when we structure our beliefs into a conceptual model or framework, which we then validate through scientific inquiry, can we differentiate between reality and ideology. You see this conundrum alive and well in many political debates right now. There is a battle of ideologies underway, but, sadly, relatively few of the arguments are well informed through reasonable scientific inquiry.

Theories help us make sense of patterns in our objective world, and provide a systematic explanation of what we observe. This requires articulating the key building blocks of a theory, which includes understanding the standards for evaluating theory in order to determine validity of the theory (Jarvis, Holford, & Griffin, 2003).

According to Simon (2011), theory is a statement of belief about reality. The purpose of a theory is to describe, explain, predict, or understand human or social phenomena in a variety of contexts. We act upon the basis of theories about people, society, and the world we inhabit (i.e., ideas that explain what people, society, and the world are all about). A theory guides us in thinking about the world, and suggests what is and is not important to consider. It also suggests how things go together and how one thing influences another (sometimes called a cause).

The following are standards for evaluating a theory:

√ *Descriptive and Explanatory*

A theory needs to effectively explain: Who? What? When? Where? How? Why? about a situation or phenomenon. All the terms used in the theory should be clearly defined or explained.

√ *Accuracy*

It is important to determine whether research supports the theory. This requires investigating what a variety of experts say regarding the theory.

√ *Practicality*

Practicality refers to whether real-world applications have been found for the theory.

√ *Simplicity*

A theory should be constructed with the fewest possible steps. We can refer to this as the *Goldilocks* principle, which means that theories should neither be overly simple (to omit important concepts) nor overly complex; it should be just right. A principle known as *Ockham's Razor* states that one should not make more assumptions than needed. When multiple explanations are available for a phenomenon, the simplest version is preferred. A charred tree on the ground could be caused by a landing alien ship or a lightning strike. According to *Ockham's Razor*, the lightning strike is the preferred explanation as it requires the fewest assumptions.

√ *Consistency*

Consistency is determined by looking at two factors: internal consistency and external

consistency. Internal consistency references whether all of the ideas are logically built on each other. External consistency asks if the theory is consistent with other theories.

√ *Acuity*

The theory should have the ability to provide insight into an otherwise complex issue.

Theories are over-turned when they are shown to be false or when a better theory replaces it. Lamarckism is a now discredited theory of biological evolution developed by French biologist Jean-Baptiste Pierre Antoine de Monet, Chevalier de Lamarck in the 19th century. Lamarckism holds that traits acquired (or diminished) during the lifetime of an organism can be passed on to the offspring. Examples of Lamarckism would include: Giraffes stretching their necks to reach leaves high in trees, strengthen and gradually lengthen their necks. These giraffes have offspring with slightly longer necks. A construction worker, through his or her work, strengthens the muscles in his or her arms. Offspring will have similar muscular development when they mature. The theory of genetics and inheritance has supplanted Lamarkism.

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