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Opinion

The Essential Characteristics of Scientific Theory

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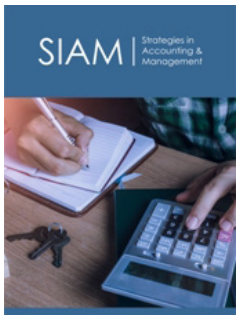

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Opinion

When we look at a piece of management literature, we will see that different scholars have certain diversities towards the definition of theory. Dubin [1] sees theory as simulations that people attempt to carry out concerning some aspects of the real world, while Corley [2] claim that theory is the formulation of concepts and the interrelation among them, and its goal is to illustrate how and why the given phenomenon occurs. In the behavioral science domain, Kerlinger's [3] definition of theory is more popular, viewing theory as a group of interrelated constructs, definitions, and propositions, which reveal phenomena through specific relationships between variables, with the goal of explaining and forecasting them. However, Zhang [4] find that such a definition of theory has been misleading management studies. What is theory? The example below may help us understand. In the natural world, water in its liquid form changes into solid ice or gaseous steam under definite conditions. We explain this commonly occurring physical phenomenon by the fact that water goes through changes of state along with alterations in external conditions. Obviously, this description is made according to observed phenomena, without revealing the reasons for these changes in state. We can go a step further and explain that according to changes in temperature in the environment, changes of state occur in water. At high temperatures, water changes into steam, and into ice at low temperatures. This explanation reveals a real situation: temperature is the main reason for water's changes of state. However, it still does not explain why water is in liquid form under normal temperatures, why iron is in a solid state, and why oxygen is in gaseous state. It also does not explain why the boiling point of water will rise with an increase in atmospheric pressure. Therefore, it is often hard to construct a profound theory by confining oneself to facts. Not only do we need to describe fully the phenomena we observe, we also need to reveal the mechanism or process behind the phenomena, and the entities contained in this mechanism or process. In the above example, if there is no conception of water being composed of molecules and molecular movement, it is hard to provide a satisfactory explanation. Molecules–unseen by the naked eye and intangible–are the entities behind this phenomenon. However, they exist objectively. Molecular movement changes according to the temperature and pressure; this is the process behind the change of state. That is to say, physical scientists only came to understand the theory and rules behind the phenomenon when they looked more deeply into the structure of water and the laws of its molecular movement. From there, they were able completely and accurately to understand, explain, and forecast water's changes of state. They could also make use of this theory to create conditions for changing the state of water, making it even more useful as a natural resource. Based on the analysis above, I believe that Hempel [5] can better generalize the essential characteristics of theory in order to define it. As he sees it, theory seeks to explain regularity, and views phenomena as the appearance of the entities and processes behind or under it. These entities and processes are controlled by specific theoretical laws or principles, thereby providing a more in-depth and accurate understanding of the research object. Even though Hempel's theory and analysis concern natural science, I believe that they have the same applicability in psychological research and organizational management. For example, in motivation theories, we can draw support from the "entities" (for example, needs, goals, self-concept) behind the phenomenon of motivation, and "process" (for example, expectation and goal activation) to understand,

explain, and forecast the attributes and functions of motivation. Perhaps some will say that management is a social science, and that it does not have universal theories or laws like natural science. We acknowledge the complexity of the organizational system, but it is not the case that organizational management does not have laws to follow. There is not enough factual evidence and reason to support such a suggestion. Actually, claiming that management does not have universal theories is exactly why scholars have understood theory wrongly. This phenomenon exists in management research, in confusing successful management practice models with management theories, and in equating the context/contextuality and culture/culturality of management practice to that of management theories. These are all results of understanding theory incorrectly.

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