

**REASONING PATTERNS AS DETERMINANT FACTORS
FOR PROPER EXPLANATION OF
BIOLOGICAL PHENOMENA**

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Abstract

Phenomenon can be seen as something that happens or exist in society, science, or nature, especially something that is studied because it is difficult to understand .They have rare quality or ability that identifies them as being unusual. They are facts or events of scientific interest susceptible to scientific description and explanation. It attracts attention to identify the underlying cause so as to find out why and how it occurred This paper therefore, considers the reasoning pattern that are determinants factors for proper explanation of biological phenomena. It analyzes different premises of reasoning and their implications to every explanation. It emphasizes finding out cause-to- effect and effect-to- cause of any phenomenon through causal reasoning.

Introduction:

It is worthy of mention that proper articulation of concepts, ideas and knowledge is a veritable tool for understanding and explanation of any phenomenon. Phenomenon is a fact, occurrence or circumstance observed or observable, especially one whose cause or explanation is in question.

Every phenomenon has underlying cause that must be identified in order to know the reason behind the occurrence. Scientists

use both inductive and deductive reasoning to address biological challenges. When using inductive reasoning, specific observations and measurement may begin to show to show a general pattern. This pattern will allow for the formulation of a tentative hypothesis that can be further explored and might finally end up in making some general conclusions. On the other hand, deductive reasoning is used for testing existing theories and hypotheses by collecting experimental observations that put those ideas to test.

Knowing the reason behind any

phenomenon helps to understand the character, the purpose or the intent of the phenomenon. It takes reasoning to understand the character, the intent or the purpose of a phenomenon involves reasoning.

Reasoning can be seen as the process of thinking about something in a logical way in order to form conclusion or judgment and is the ability of the mind to think and understand things. Reasoning is the act of thinking about something in a logical and sensible way.

To reason mean to have the capacity for consciousness. It requires making sense of things, applying logic, establishing and verifying facts and changing or justifying practices, institutions, and beliefs based on new or existing information. Reasoning is closely associated with such human activities as philosophy, science, language, mathematics and art and is normally considered to be definitive characteristics of human nature.

Foucault (2003), said that reason or reasoning is to be associated with thinking, cognition and intellect. Reason, like habit or intuition, is one of the ways by which thinking comes from one idea to a related idea. For example, it is the means by which rational beings understand themselves to think about cause and effect, truth and falsehood and what is good or bad.

Reason is a consideration which explains or justifies some event, phenomenon, or behavior. Physiologists and cognitive scientists have attempted to study and explain how people reason. In Wason test according to Manktlow (1999), the focus was on how people perform on tests of reasoning such as intelligence or IQ tests, or on how well people's reasoning

matches ideals set by logic.

Johnson-laird (2006), states that experiments examine how people make inferences from conditionals example, If A then B, and how they make inferences about alternatives, e.g. A or else B. They test whether people can make valid deductions about spatial and temporal relations, e.g. A is to the left of B, or A happens after B, and about quantified assertions, e.g. all the A are B. In his own submission, Byrne (2005), said that experiments investigate how people make inferences about factual situations, hypothetical possibilities, probabilities and counter factual situations. Nevertheless, all human reasoning has the premise from which they originate and through which conclusions are rightly or wrongly derived. Each premise has inherent reasoning patterns that will guide in achieving logical explanations of biological phenomena.

Reasoning Premises

Individual's level of idea and knowledge about any issue forms the basis he/she uses in explaining or making argument about the issue. Argument or explanation of any phenomenon could be on any of the following premises:

Essentialism;
Spiritualism;
Functionalism,
Intentionalism

Essentialism.

This is a believe that this have stated best of characteristics that make them what they are. Medim and Ortong (1989), stated that psychological essentialism give rise to essentialist beliefs in the unique identity of each living kind.

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leads to the outcome.

Crane (2009), submitted that the conscious character of a state of mind is determined by its entire intentional nature. Intentionalism is therefore, the theory that the meaning of any action is determined by the intentions of the actor, and intentions may be expressly stated or otherwise.

Reasoning

Reasoning as earlier stated is the capacity for a person to make sense out of things, to establish and verify facts, to rationally work through data, information, facts, and beliefs. It is the process of forming conclusions and judgments from facts or premises. Thus, it is the ability to coherently think from perceived premise to a logical conclusion.

To give a proper explanation for any biological phenomenon, one should be able to identify the causality. Causality on cause and effect is the efficacy that connects one process (the cause) with another process or state (the effect) where the first is understood to be partly responsible for the second, and the second is dependent on the first. In general, a process has many causes, which are said to be causal factors for it and effect can in turn be a cause of many other effects. Causality or causal reasoning is the process of identifying the relationship between a cause and its effect.

This helps to identify cause-to-effect and effect-to-cause of any phenomenon. It can be done by asking why this happened creating curiosity and then explaining why. Ahn & Kalish (2000), identified three types of causal reasoning the following;

Deductive reasoning

This is the form of reasoning in which a

conclusion follows logically and coherently from the factual premises and proposition. It is based on the concepts of sound and consistent reasoning. This involves using general ideas to arrive at a precise conclusion. According to Herr (2007), deductive reasoning draws specific conclusions from general principles or premises.

Inductive Reasoning:-

Inductive reasoning is a form of reasoning that uses observations, and experiences to form conclusive propositions. It is used mostly to explain properties and relations to objects or types based on previous observations. This involves using specific ideas to arrive at a general conclusion. Herr (2007) stated that scientists use inductive reasoning to formulate hypothesis and theories.

Abductive Reasoning

Abductive reasoning or abduction is the process of explaining something that is experienced, or observed in some way and where there is no existing knowledge to explain the phenomenon. It creates a Hypothesis that may or may not be true and which may require further work to verify. According to Thagard & Shelly (1997), abductive reasoning forms and evaluates explanatory hypotheses. Abductive reasoning takes away a logical assumption, explanation, inference, conclusion hypothesis. It is best describe as guess from observation or set of observation.

Explaining Biological Phenomena

Generally speaking, a phenomenon is something that can be observed and studied and that typically is unusual or difficult to understand or explain fully.

is the view that for any specific entity there is a set of attributes which are necessary to its identity and function. Humans act as if each living kind has an underlying essence that makes it what it is.

This view was highlighted by Smith (1995), when he stated that Aristotle's categories proposes that all objects are the objects they are by virtue of their substance, that the substance makes the object what it is. It then means that the essential properties of an object are those qualities that make the thing what it is, and without which it would not be that kind of thing. Essentialism is the view that things have essences, the attribute that make object what it fundamentally is.

Spiritualism

This is the belief that spirits of the dead influence the living through communication and manifestations in different forms. In most cases, the spiritualist believes that the spiritual controls the physical, that most of the visible phenomena were already determined in the spiritual. Some spiritualists will speak of a concept they refer to as "spirit guides". In Carroll, (1997), Spirit guides is seen as a term used in describing an entity that remains a disincarnate spirit in order to act as a guide or prospector to a living incarnated human being. Spiritualists attribute most biological phenomena that are unusual to spiritual manipulations.

Functionalism

In functionalism, mental states are identified by what they do rather than by what they are made of. What makes something a mental state is not what it is made of, but what it does or its purpose.

Some things may be essentially constituted by their relations to other things, and by what they can do. The most obvious examples are artifacts like mousetraps and keys. A key is a key because it is used to open a lock. Likewise, a lock exists only in relation to a key. There may be metal keys, wooden keys, plastic keys, digital keys or keywords. What makes something a key is not its material?

Composition or lack thereof, but rather what it does, or could do, or is supposed to do. In his submission, Block (1996), stated that functionalism's core idea is that mental state (beliefs, desires, being in pain, etc) are constituted solely by their functional role – that is, they have causal relations to other mental states, numerous sensory inputs and behavioral outputs. Thus, in Marr (1982), functionalism is seen as a theoretical level between the physical implementation and behavioral output. Since mental states are identified by a functional role, they are said to be realized on multiple levels, in other words, they are able to be manifested in various systems, even perhaps computer, so long as the system performs the appropriate functions.

Intentionalism

In Eze (2012), it was stated that human beings are naturally inclined to attaching meaning to issues and events. Human minds and behaviours can be read from a very early age than reading books. According to Malle (2001), human behaviors are to be treated as special. Behavior is likely to be considered as intentional if the agent believes that his or her behaviour will lead to an outcome and if the agent has the skill and awareness required to perform the behaviour that

for proper understanding of 'why' or 'How' an event occurred, the cause and the effect of the event. The ability of the mind to think logically and understand biological events helps in explaining what the phenomenon is, its purpose and its intention.

It is important to mention here, that for explanation of any biological phenomenon to be logical, one must be conscious of the reasoning premise and the ability to articulate the causality.

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