

# The Science of Integrative Definitions

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**Abstract:** The science of integrative definitions aims to provide a holistic understanding of the essential concepts, which are used in the humanities, natural sciences and daily life. This is why it defines the basic concepts, such as science, knowledge and humanism, through relying on diverse perspectives within the humanities and the natural sciences, leading to the integration of the humanities and natural sciences. In light of this integrative approach, science is defined as a social construct consisting of the development of successful, falsifiable and/or verifiable theories, and aiming at the advancement of humanity. From the same perspective, knowledge is defined as a social, scientific and/or mathematical construct based on and leading to socially and morally valuable principles and conduct, while humanism is considered to be a social, moral and scientific construct, consisting of preserving and advancing nature and all living beings.

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The integrative definitions of concepts aim to clarify the meanings of basic concepts, which we use in the humanities, natural sciences and daily life. Those definitions integrate the diverse perspectives of the humanities and natural sciences with regard to defining and understanding essential concepts, such as science, knowledge and humanism. A basic virtue of this integrative approach resides in leading us to acquire a holistic understanding of those concepts through defining them in light of different disciplines within the humanities and natural sciences.

## An Integrative Definition of Science

A plausible integrative definition of science is the following: science is a social construct, consisting of a self-corrective process, which is successful in developing theories, which are just useful tools for explaining and predicting the natural phenomena and/or theories which are true (or probably true), falsifiable and/or verifiable in light of continuous, iterative and controlled empirical testing, experiments and observations, such that those theories have socially and morally valuable implications, such as being useful for the advancement of society and/or humanity. The integrative definition of science has

several virtues, such as the following: it is successful in integrating the humanities and natural sciences through stating that science is a social construct which should be defined in terms of morally and socially valuable implications in addition to being falsifiable in light of empirical testing. Analyzing science as a social construct accounts for how we could understand science in the humanities, such as within the context of sociology, while analyzing science in terms of being falsifiable in light of empirical testing accounts for how we understand science in the context of the natural sciences.

A second virtue of the integrative definition of science is the following: since science is a self-corrective process, it follows that scientific theories would probably be replaced by other scientific theories. This successfully accounts for the historical fact that scientific theories were replaced by other scientific theories, such as Newton's physics being replaced by Einstein's physics [1]. A third virtue of this integrative definition is that it successfully reconciles between scientific antirealism, which says that scientific theories are just useful tools for explaining and predicting the natural phenomena, and scientific realism, which says that scientific theories are true or approximately true due to their success [2], because it analyzes science as a self-corrective process, which is successful in developing theories, which are just useful tools for explaining and predicting the natural phenomena and/or theories which are true (or probably true), falsifiable and/or verifiable in light of empirical testing. And hence, the integrative definition resolves a basic debate or conflict in philosophy of science, namely the debate between scientific antirealism and scientific realism.

Moreover, since the integrative definition of science says that science is a social construct, consisting of a self-corrective process, which is successful in developing theories, which are just useful tools for explaining and predicting the natural phenomena and/or theories which are true (or probably true), falsifiable and/or verifiable in light of continuous, iterative and controlled empirical testing, it successfully accounts for the fact that some theories are scientific because of their usefulness and success in explaining the natural phenomena, although they aren't empirically tested, such as string theory, while other theories are scientific due to the fact that they could be empirically tested, such as Newton's or Einstein's theory in physics. From this perspective, there are different kinds of scientific theories, such as

those which could be falsified and/or verified and those which, currently, could neither be falsified nor verified in light of empirical testing. The integrative definition of science is successful in accounting for all of those different sorts of scientific theories because it analyzes science in terms of developing theories which are only useful tools for explaining the natural phenomena and/or theories which are falsifiable and/or verifiable through empirical testing.

### **An Integrative Definition of Knowledge**

A plausible integrative definition of knowledge is the following: knowledge is a social, scientific and/or mathematical construct, consisting of justified true beliefs, true perceptions, practical and useful beliefs (such as being useful in solving problems), and based on as well as leading to socially and morally valuable principles and conduct. Some basic virtues of this definition of knowledge are the following: it successfully integrates the natural sciences with the humanities through analyzing knowledge as a scientific construct as well as a social construct based on and leading to socially and morally valuable principles and conduct. Another virtue of this integrative definition of knowledge is that it successfully reconciles between seemingly competing accounts of knowledge, such as Plato's definition of knowledge as justified true belief [3], Aristotle's definition of knowledge as true perceptions [4], and the pragmatist definition of knowledge as consisting of useful and practical beliefs [5].

The integrative definition of knowledge is also successful in accounting for pluralism. Since knowledge is a social construct, it follows that different cultures or social groups are entitled to construct different sets of knowledge. It also follows that the diverse sets of knowledge, constructed by different cultures and social groups, are equally acceptable and valuable, because knowledge is a social construct. In addition, the integrative definition of knowledge is successful in accounting for the objectivity of knowledge because it also defines knowledge as a scientific construct.

### **An Integrative Definition of Humanism**

A plausible integrative definition of humanism is the following: humanism is a social, moral and scientific construct, consisting of preserving and advancing nature and all living beings. A basic virtue of this definition is that it successfully integrates the humanities with the natural sciences through analyzing humanism as a social, moral and scientific construct. Defining humanism as a social and moral construct accounts for how we could understand humanism within the humanities, while defining humanism as a scientific construct accounts for how we could understand humanism within the natural sciences. Another virtue of the integrative definition of humanism is that it implies that the importance of

being human consists of preserving and advancing nature and all living beings. In this sense, the integrative definition of humanism is successful in clarifying the importance of being human, which is an essential component of all versions of humanism. In addition, we can neither preserve nor advance nature and all living beings without being free to do so. Hence, defining humanism in terms of preserving and advancing nature and all living beings successfully accounts for freedom as a basic component of humanism.

The integrative definition of humanism is also successful in accounting for global equality, world peace and living in harmony with nature and others. The integrative definition of humanism successfully accounts for equality among all beings, including equality among all humans, because analyzing humanism in terms of preserving and advancing nature and all living beings presupposes that all beings, including all humans, are equal. Since all beings are equal, all beings should be preserved and advanced. And since humanism is a social, moral and scientific construct consisting of preserving and advancing nature and all living beings, while we could neither preserve nor advance nature and all living beings without world peace and living in harmony with nature and others, it follows that the integrative definition of humanism successfully accounts for world peace and living in harmony with nature and others.

Furthermore, we can't preserve nature and all living beings and lead them to advance without advancing the humanities and natural sciences because we need the knowledge, provided by the natural sciences and humanities, in order to preserve and advance nature and others. Therefore, the integrative definition of humanism is also successful in calling for the advancement of the humanities and natural sciences. From the same perspective, the integrative definition of humanism is successful in emphasizing the importance of human knowledge because we can't preserve and advance nature and others without human knowledge, such as knowing how nature functions and how life grows and evolves.

Life is the highest value because it is the prerequisite for attaining any possible value and virtue. For example, one can't have the values and virtues of being happy, healthy, wealthy and knowledgeable without being alive. Now, since life is the highest value, it follows that all living beings are equally valuable, given that they are alive. And since all living beings are equally valuable, it follows that all living beings should be preserved and advanced. This is why humanism is defined in terms of preserving and advancing all living beings. But we can't be alive and maintain a good quality of life without a healthy and flourishing nature, given that we rely on nature to be alive. And this is why humanism is also defined in terms of preserving and advancing nature.

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