



Science and Scientific Knowledge: Is the Universe Friendly or Unfriendly to Man?

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Abstract

Throughout the millennia, knowledge acquisition has been deeply intertwined with how individuals and societies conceptualise reality. Metaphysics addresses the nature of reality. However, its evolution is shaped by the epistemological constructs that individuals or societies adopt, believe in, and practice. This paper examines the generation of scientific knowledge and explores the philosophical question of whether humans are the masters of their destiny or merely “worms of the dust.” Religious cosmology posits that humanity, as living souls created from the Earth, serves a divine purpose: the will of God. This assumption views humans as expressions of the ‘prime mover,’ subordinate to God, who governs the universe. Conversely, if humans were the architects of their existence, they would wield the power to dictate every aspect of their reality, including their death and potential resurrection. Still, man’s intrinsic desire for immortality, coupled with his inability to achieve eternal life autonomously, highlights the limitations of human agency. From this premise, humans cannot be the ultimate architects of the universe, as much of its operation exists beyond their control. Despite significant scientific breakthroughs, the validity of scientific knowledge remains subject to the test of time. Acknowledging this enduring truth is essential for cultivating genuine scientific acumen. Einstein famously said, “There are only two ways to live your life: one is as though nothing is a miracle; the other is as though everything is a miracle.” This perspective emphasises that life offers no predetermined opportunities, miracles and success bestowed at birth. Instead, success and opportunities are determined by an individual’s vision, perseverance, and ability to navigate challenges. The willingness to endure internal and external rejections is crucial for achieving personal and collective growth. Therefore, humanity must acknowledge the interdependent relationship between epistemological beliefs, metaphysical realities, and the resilience necessary to overcome life’s adversities.

Keywords: Scientific knowledge, man and the universe, metaphysics.

Introduction

Advocates of scientific realism (i.e., the belief in an objective reality or absolute truths, which exists independently of human perception or sensation) argue for the reception of 'absolute truths' as a panacea to define society's realities. However, scientific or discovery-based methodologies rely on robust experimental data to validate these truths. Notably, the foundational element of theorising has been overlooked in the quest for empirical validation: assumptions-considering that all scientific knowledge- mathematical or otherwise- is built upon conceptualized assumptions to simplify complex realities and build theoretical frameworks. These assumptions are the premise of scientific theories that have been established, modified, reconstructed or revoked because evidence suggests their foundational evidence was flawed.

Within the context of the value of acquiring knowledge through science and its role in human history and development, some natural scientists pay little attention to pre-historic times. During pre-historic times, an oral tradition passed knowledge from generation to generation (Carroll, 2010; Bray, 1984; Matsuoka et al., et al. 2002), which dates back to the development of a writing system. The absence of a system of writing does not preclude human scientific development. There is evidence that during ancient civilisation, there was a systematic collection of astronomical happenings (Hoskin, 2001; Ruggles, 1999). Furthermore, there is evidence that basic facts on human physiology were evident and practised in many civilisations (Needham et al., 1974). Such information reveals that scientific inquiries evolved during many civilisations even before a writing system was developed and that a part of science is ignorance, which is sold as no scientific discoveries. As such, a discussion of science must include the history of science and, particularly, the development of scientific knowledge that should extend to the natural and social sciences. This paper examines science and scientific knowledge and whether a man is the master of their destiny or is the worm of the dust.

Science: Development and history

For centuries, scientific inquiry was based on logic, precision, general principles, verification principles, the standard of rigour, gradual development, "search for truth", and proofs. The proofs were critical to the pure sciences before establishing laws, principles, theories and apparatuses-quantitative research. Therefore, research science was only expressed in natural (or pure) sciences like chemistry, physics, medicine, mathematics and metaphysics. This issue means that scientific inquiry had to be carried out using quantitative thinking (i.e. positivistic epistemologies) as scientists operated within the realism perspective. Researchers and methodologists have argued that it is the theoretical framework and the methodology that is applied to the investigation that makes it scientific and not whether it is quantitative or qualitative research (Weber, 1949; 1974; 1981; Kuhn, 1996; Peters et al., 2012).

For centuries, positivism (quantitative research) was construed as the only primary approach in scientific inquiry (Kuhn, 1996; Balashov & Rosenberg, 2002; Peters et al., 2012; Neuman, 2006; Babbie, 2007) and accounts for discoveries like Newton's Law " $F=ma$ " (Force is equal to the product of mass and acceleration). Scientific attitude was guided by this positivistic thinking (or quantitative research) as science was embodied in proof, verification, validation and

objectification. This matter explains the preponderance of inquiries that utilise the positivism and post-positivistic theoretical framework and methodologies to examine social issues like 1) crime; 2) political culture and voting behaviour; 3) population issues-life expectancy, mortality, migration, and so on; and even 4) human existence and development.

Science, therefore, was guided by positivism, which holds itself to (i) the collection of quantitative data, (ii) separation of the researcher from the research process, (iii) objectivity, (iv) measurability, (v) generalizability and (vi) repetition (Kuhn, 1996; Peters et al., 2012). Thus, when social science was born, the researchers embodied inquiries using the same approaches as the pure sciences and this accounts for the dominance of quantitative research in social inquiry. It follows that what was known about human behaviour had to be discovered through positivism or logical positivism. Science was, therefore, about the study of truth and not meanings (Balashov & Rosenberg, 2006). Why people do things (i.e., meaning) was insignificant in research. It was instead about the discovery of quantitative truths.

It was long after that Max Weber introduced 'Interpretivism' as an approach to examining social phenomenon (Weber, 1949; 1974; 1981). Weber opined that why humans behave the way they do is lost in quantitative methodologies (or positivism). He, therefore, forwarded the use of subjectivity (feelings, beliefs or meanings) in social inquiry. For years, the inquiry of social phenomenon was based on objectivity until Weber introduced an alternative paradigm. This matter gave rise to the emergence of (i) ethnography, (ii) phenomenology, (iii) case study, (iv) grounded theory, (v) feminism, (vi) biography, (vii) historical comparative analysis, and other methodologies (discourse analysis, heuristic inquiry and action research) were in keeping with an alternative paradigm in scientific examination as approaches in understanding human behaviours (Silverman, 2005; Babbie, 2007; Neuman, 2006).

Some scholars believe that quantitative research-embedded in objectivism, measurement, falsification and proof-is the only avenue through which science can be investigated and established and that subjectivity has no place in scientific examinations. Such a discourse is long laid to rest, as Kuhn (1996) opined that science is based on a particular platform. If an investigation is carried out thereby, it automatically becomes a science. As Weber postulates, the social inquiry must include an aspect of the meanings behind actions and that understanding peoples' behaviour cannot be only based on their end product-action. Despite Weber's work and others, quantitative research is dominant in studying social phenomena, including social evolution. In all our constructions and super-constructions, a question that needs answering is how do we know what we say we know, epistemology.

Epistemology

Epistemology is a branch of philosophy that studies "The nature, sources, and validity of knowledge" (Knight, 2006, p. 20). He further said it answers the question of 'what is true' and 'how do we know' (p. 20). Brown University concurred with Knight and added that it deals with rational belief. Unlike Knight, Brown University said more questions that epistemology must answer, and these are:

How can we know that the ordinary physical objects around us are natural (as opposed to dreamed or hallucinated, as in the Matrix)? What are the factors that determine whether a belief is rational or irrational? What is the difference between knowing something and just believing it? (Part of the answer is that you can have false beliefs but only know true things. However, that is not the whole answer-after all, you might believe something authentic based on a lucky guess, which would not be knowledge!) Some other questions that have recently been the subject of lively debate in epistemology include: Can two people with the same evidence be utterly rational in holding opposite beliefs? Does whether I know something depend on how much practical risk I would face if I believed falsely? Can I rationally maintain confident beliefs about matters I know that others, seemingly every bit as intelligent, well-informed, unbiased and diligent as I am, have come to opposite conclusions? (Brown University, 2017)

The issue of knowledge acquisition is based on the view of reality of the individual or society. In other words, while metaphysics deals with reality, how this is contextualised will be based on the epistemological perspective people used, believed and practised. There is consensus among philosophers and methodologists like Knight (2006), Dunn (2005) and Crotty (2005) that knowledge can be by way of a subjectivist or objectivist approach (Knight, 2006, p. 21). The subjectivist approach to learning is based on the viewpoint of personal beliefs, feelings, senses, intuition and revelation. An objectivist approach to knowledge is framed around reasoning, logic, rationality, and empiricism.

Epistemology also deals with validating knowledge. Historically, different beliefs about the truth of life and reality have existed, including the notion that 'the world is flat'. Such beliefs or accepted truths have been the hallmark of socialisation traditions rather than scientific empiricism. This paradigm was the framed cosmology taught in schools, sanctioned by authority for decades.

Different philosophical assumptions exist regarding truth, reality, knowledge, and values. Educators must explore these to determine their beliefs and how they could impact their teaching and leadership. The questions posed in these philosophical issues are answered differently by different teachers. Education is the process through which our needed transformation will be accomplished. Hence, our transformation targets must not remain hypotheses about what is desirable. Therefore, philosophy must be seen as the education theory and adopted as a deliberately conducted practice. The issues of metaphysics, epistemology, and axiology are critical philosophical issues that impact educational practice. According to Knight (2006), metaphysics is the branch of philosophy that deals with the nature of reality. However, the answers to the questions of fact are entirely matters of faith and belief of people. In all this search for knowledge, science, and expertise, some critical questions need answering: Is man the destined master of the universe?

Is man the destined master of the universe, or is he the worm of the dust? Is the universe friendly or unfriendly to man, or is it unconcerned? (Frost, 1962)

Is man the destined master of the universe, or is he the worm of the dust?

The question above is well understood in religious cosmology, which predates science to medieval cosmology. Wertheim (1999) postulated that.

In the medieval cosmos, the soul's "place" was beyond the stars, ... with a finite universe, it was possible to imagine -- even if, strictly speaking, only in a metaphorical sense -- that there was plenty of "room" left outside the physical world. However, once the physical world became infinite, where could any spiritual realm possibly be? ... That decision precipitated in the Western world a psychological crisis whose effects we are still wrestling with today (Wertheim, 1999, p. 151)

Having examined the words of Wertheim and the science of knowledge, the question of 'Is man the destined master of the universe or is he the worm of the dust?' partially can be answered by way of realism and more by a religious cosmology. Contemporary science gives the impression that humans are the creators of their universe, the source of their past, their destiny, and, further, the masters of their fate. Although scientific advancement has offered much to human and physical development and understanding of our universe, an unanswered question is, 'Where did we come from?' Science has wittingly used the 'Big Bang Theory' to explain the beginning of life, and the puzzle is unsolved as even realists cannot objectively prove this theory without using some assumptions.

With the acceptance of realism as an explanation of knowledge acquisition, modern men have removed themselves from medieval cosmology. During the medieval era, man interpreted the universe within the context of a supernatural being responsible for navigating the entire system and sub-systems. An Egyptian astronomer opined that the universe was an enclosed sphere with the Earth at the centre and the planets revolving around it. Later, a Greek philosopher schooled in religious cosmology, Aristotle, opined that heavenly bodies were eternal and preordained. He concluded that there had to be a prime mover since the universe was moving systematically. Aristotle could not explain the systematic workings of the universe outside of an eternal God. It could be deduced from Aristotle that man was not the boss, but a God, the prime mover, was responsible for the functioning of the universe and life forms. This means that man was not the master of his universe and was only a part of a grand plan working in keeping with the great plan of the primal mover, God.

Despite the advancement in scientific knowledge and the development of many constructions to explain human existence, it can still not account for what obtains after death. According to religious cosmology, man is a living soul made from the Earth to serve God, Which means that man is an expression of the prime mover and must be subordinate to God, who directs the universe. On the contrary, if a man were the author of his universe, they could determine everything, including their death and possible resurrection. In fact, with man's desire to live forever, he would not die as he wants to live forever. This desire is outside man's directive, so man cannot be the author of the universe. The universe is operating outside of much of man's control. This indicates that man is only an item in the universe and does not know the following

outcome. So, is man the master of his universe? The answer is a resounding no, no and more no, and man can still not predict the future, including their existence.

Is the universe friendly or unfriendly to man, or is it unconcerned?

Scientists are more concerned with objectively explaining existence or reality precisely from observable data. They are infrequently among the masses that use conjecture and social constructions to aid the building of theories. Albert Einstein is among well-known scientists, but having observed much, he asked, 'Is the universe friendly? He believes that with man's capabilities and acquisition of knowledge and technology if the answer to the question is no, man could change this through technology and scientific discoveries. One can easily concur with Einstein that much of the scientific advancement in human history has made the universe friendly to man. Nevertheless, is the universe friendly to man?

There is ample evidence that, generally, the universe is not friendly to man because of things like hurricanes, storms, flooding, landslides, earthquakes, famine, rain, drought, and cyclones. Those happenings have caused the deaths of millions of humans, which are signs of the unfriendliness of the universe to man. The unfriendliness of the universe has resulted in many scientific discoveries of man as they try to live in an unfriendly environment. Such a statement is not precisely true, as man relies on the universe for good and other things that it provides him promptly. It can be deduced that the universe has some friendliness to man's needs.

Man's answer to the question is primarily responsible for their actions because this determines their paradigm and accounts for actions taken. Like Einstein, one of the most fundamental life questions is, 'Is the universe friendly or unfriendly to man?' The answer is that it is somewhat friendly and unfriendly to men. As such, man must prepare to correct the challenges, but they must understand that there is no need to destroy the universe to address some unfriendly situations.

Man must understand that nature gives them life, children, increases, food, and all the tools to create things needed to better their existence. In addition, with a prime mover concerned about the better of life for man, then all things work together for good, and therefore, there is no need to see challenges as unfriendly outcomes that require solutions. In reality, man is a product of this universe and should not believe they are the authority there. This perspective can be supported by John Muir, who summarised this in 'Man's Place in the Universe'. He opined that "the presence of animals, plants, and diseases prove that the Earth was not made for man alone." The researchers concur with Muir that "Man assumes that everything on Earth is meant for him and that nothing is out of his element. Man cannot seem to grasp that the Earth is divided amongst humans, animals, plants, and diseases-there is a designated space for everything to grow and prosper." As such perspective, as mentioned earlier, the universe should not be interpreted as 'friendly or unfriendly' but more as a set of all things, and this means that man must dwell therein without believing it is against them.

If a man believes that the universe is 'for' or 'against' them, this is a simplistic and one-sided argument, so the researchers concur with Muir that man has been interpreting the world through

a single lens. Muir aptly forwarded it this way: "... Man's Place in the Universe", depicts a narrow-minded perspective from man and why it is so ridiculous and naïve (see also Wallace, 1903). The power in his work was strong and bold enough to evoke a long-term change for the future." Within Muir's perspective, man is merely an element in this universe, and they must understand that to take their rightful place is to act under the grand plan of the Almighty in harmony with all things. Man must recognise the complexity of this universe, and Basham (2016) puts this into some perspective when she says, "I do not mean what if we turned our back on others, pretended things were always easy for us, or buried our head in the sand when it comes to world events. What Einstein suggests has to do with how we see things, not the things we see." Furthermore, Einstein summarised a didactic perspective that is of critical importance in this way

"If we decide that the universe is neither friendly nor unfriendly and that God is essentially 'playing dice with the universe,' then we are simply victims to the random toss of the dice, and our lives have no real purpose or meaning," he said. "But if we decide that the universe is a friendly place, we will use our technology, scientific discoveries and natural resources to create tools and models for understanding that universe because power and safety will come through understanding its workings and motives. God does not play dice with the universe."

Man needs to understand that they are not the pinnacle of this universe; they are an Almighty God controlling the synergy of all things for His will and purpose. Hence, man is just an actor/actress in God's universe, which he/she needs to recognise to change his/her simple concept that the universe is 'unfriendly' to him/her. Despite the advances in science, to date, Bell (2016) opined, "My father is a scientist, and he has shared that science can never truly prove a theory—only disprove one", that offers yet another perspective that there is no absolute truth in human discoveries. With many discoveries to date, only time will reveal the correctness of science, and man must recognise this as a fact. So, in all our ways, we need to understand, like Einstein said, "There are only two ways to live your life. One is as though nothing is a miracle. The other is as though everything is." As such, the universe is friendly to man, and man must be understood as the prime mover of his purpose, and there is no wheel of fortune to live in this realm. There is no miracle to life or warranted opportunities, and success is not predetermined at birth for anyone. However, success and opportunities are determined by the vision and willingness of the individual to work through challenges and endure the process of internal and external rejections.

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