

THE IMAGE OF SCIENCE AND THE CHALLENGES OF POSTMODERNISM: A CRITICAL INVESTIGATION

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ABSTRACT

There is an image of science painted and presented by scientists as the ultimate standard of rationality and the most credible way of knowing and speaking about the world, granting all its claims and postulations objective status. One would not be far from the truth to claim that this image of science has come about as the result of the successes of the scientific enterprise. Indeed, we cannot deny the role of science in our understanding of the natural world and the laws governing it, however, can we state with certainty that science is sufficient for knowing the world and dealing with the challenges encountered within? Science is seen or considered as providing certain, objective, and universal knowledge; and has, in the conception of most people today, obtained a hegemonic status over all other means of knowing – context-based. Postmodernism can be considered a challenge to the established status of science as it aims and calls for the breakdown of boundaries, and the rejection of all grand narratives, objectivity, and universality. In this paper we adopt the critical analytic method to examine this image of science and the challenge postmodernism poses to it. We find that science is more progressive than objective, and conclude that both science and postmodernism be reconciled to address context-based problems.

Keywords: Science, postmodernism, progress, objectivity, contextualism

Introduction

Science has been presented in a number of ways that make it attractive in the world today. Most conveniences humans enjoy today are the results of scientific endeavours. In earliest times humans had crude knowledge of the environment and its potentials and as such every activity of man was carried out with a sort of uncertainty about the results such activities would yield. When the temperature of an individual or his environment is unfavourably high or low, there is a tendency of one exploring measures through which the temperature is stabilised or brought to a favourable point. In the past, that is, before the advancement of science the natural thing to do in such a situation would be to regulate the temperature of the environment to suit the person(s) affected by the use of light materials capable of producing breeze where the person feels hot, or setting a fire or encasing one's self in a thick layer of clothes where it is cold. However, with the advancement of science, the temperature of an environment or an individual can be regulated in more sophisticated and convenient ways. This is only one among a plethora of scientific successes which may not necessarily be discussed here.

Scientific successes and feats have been made possible by certain methods and procedures adopted by practitioners of science – scientists. These methods and procedures have contributed to the popular image of science as a means of inquiry and as a body of knowledge.

Despite the advancement in science and its instrumentality in our understanding of the world and broadening the range of our knowledge, it faces the challenge of postmodernism, given its objective character. Is the scientific method the only method through which we can acquire knowledge of the world? Postmodernism opposes objectivity, rationality, and universalism, whereas for science, theories about observable phenomena are objective, rationally coherent and universal. Science leaves no room for individualism or subjective interpretation as grounds of knowledge cannot be derived from a subjective point given that there will be a multiplicity of knowledge claims as are many subjects.

Conceptual Analysis of the Term "Science"

The question “What is science?” can be addressed from different perspectives two of which we shall consider here presently: science as knowledge gotten from facts experience, and science as a paradigm of rationality. In considering science as the knowledge gotten from facts of experience, what is meant is that whatever data or information gotten from the experience of the senses is scientific and void of personal or individual prejudices. A. F. Chalmers expresses it in this way:

Science is to be based on what we can see, hear and touch rather than on personal opinions or speculative imaginings. If observation of the world is carried out in a careful, unprejudiced way then the facts established in this way will constitute a secure, objective basis for science.¹

This goes to say that whatever is considered scientific must be experiential and void of the emotion and preferences of the scientist; hence the objective character of science given that facts can be confirmed by every epistemic agent. Imre Lakatos begins *The Methodology of Scientific Research Programmes* by stating that “Man's respect for knowledge is one of his most peculiar characteristics. Knowledge in Latin is *scientia*, and science came to be the name of the most respectable kind of knowledge.”²

Science is seen by its practitioners as the paradigm of rationality for the very fact that it puts forth a method through which theories derived from the experience of facts are objectively appraised. The scientific method necessarily gives credence to the various scientific theories due to the rational pattern through which these theories are arrived at. The scientist goes through the process in which s/he observes natural phenomena, formulates a hypothesis, subject the hypothesis to test, present consistent findings gotten from the tests conducted to the scientific community which vets it and makes it a theory. Science is thus a systematic and rational inquiry into the natural world with the intent of discovering ways through which it can be understood and explained. William H. Newton-Smith captures the image of science as a rational paradigm as well as an objective enterprise in the following way:

The image that the scientific community likes to project of itself, and indeed the image that most of us accept of that community,

¹ Alan. F. Chalmers, *What is this thing called science?*, 3rd ed. (Indianapolis / Cambridge: Hackett Publishing Company, Inc., 1999), 1.

² Imre Lakatos, *The Methodology of Scientific Research Programmes*, (Cambridge: Cambridge University Press, 1978), 1.

is that of rationality par excellence. The scientific community sees itself as the very paradigm of institutionalized rationality. It is taken to be in possession of something, the scientific method, which generates a ‘logic of justification’. That is, it provides a technique for the objective appraisal of the merits of scientific theories. In addition it has even been claimed by some that the scientific method includes a ‘logic of discovery’, which is to say that it provides devices to assist the scientist in the discovery of new theories. And in the noble (or perhaps it is Nobel) pursuit of some worthy aim (variously characterized as truth, knowledge, explanation, etc.) the members of the community dispassionately and disinterestedly apply their tools, the scientific method, each application of which takes us a further step on the royal road to the much esteemed goal.³

Can we expressly make the claim that science is the foundation or paradigm of all knowledge? Practitioners of science have over the years painted a picture of science which seems indelible from the minds and beliefs of the most of the world to the extent that in times of societal troubles and confusions the world looks up to science for solutions and clarification of natural phenomena. Indeed, one cannot deny the contributions of science to the world and our understanding of it today. Not only has science added in our understanding of the world, it has made living in the world easier than it was in antiquity and is still in the business of improving man’s living conditions with the advancement in technology, medicine, agriculture etc. This is not to say that science has impacted the world only in positive ways, it only seeks to present science as a progressive discipline or field of endeavour; progressive in the sense that it strives to best itself at successive times. At some point in the history of science, the Ptolemaic system was the standard system of science such that the earth was considered to be the center of the universe – geocentrism –, however it was discovered centuries later that the earth is not the center and that it moves alongside all planetary bodies around the sun’s orbit – this view is known as heliocentrism.⁴ To emphasise this point, Lukas Rathjen and Jonas Stähelin aver that, “The history of science is littered with past errors. As science evolves, sometimes through revolutionary means, what was once considered scientifically valid can turn out to be based on a cascade of errors; an observation that is equally true with respect to our current knowledge.”⁵ The negative impacts of science can be traced to its overreliance on a specialised form of knowledge in the sense that it neglects other aspects of reality. The world is composed of the physical and nonphysical, and science’s consideration of only the physical fails to capture other aspects of reality such as the ethical, and social. This is one of the reasons some scientists do not bother about the implications of their activities on the world and the human and nonhuman population, giving rise to environmental and social issues: climate change, nuclear wastes, and genetic engineering, to mention a few. It is crucial to state that science cannot give us a comprehensive account and understanding of the world.⁶

³ William H. Newton-Smith, *The Rationality of Science*, (London and New York: Routledge & Kegan Paul Ltd, 1981), 1.

⁴ William F. Lawhead, *The Voyage of Discovery: A Historical Introduction to Philosophy*, 2nd ed. (Stamford: Wadsworth, 2002), 206.

⁵ Lukas Rathjen and Jonas Stähelin, “Towards a Negative History of Science: The Unknown, Errors, Ignorance, and the “Pseudosciences”,” *Histories* 2 (2022): 148.

⁶ Elvis Imafidon, “The Popular/Rationalist Image of Science: An Overview of the Positivist View of Science,” *Ekpoma Review* 2, no. 1 (2014): 101-102.

Traditional Image of Science

Science is a concept that has been conceived in various ways. It is seen as an activity of knowledge; some conceive it as any body of knowledge. It implies that any discipline that has to do with knowledge is science, which will include English language, dancing etc. The concern here is not just any form of knowledge. Science has oftentimes been considered superior to other disciplines, particularly humanities-based disciplines. It is often conceived as the paradigm or yardstick for measurements of development in any community.

The impact of science and relevance to humanity is one of the reasons its claim to be objective seems uncontested. Science, over the years, in spite of the various debates, has a traditional image that gives it leverage over some other disciplines. According to E. Cassirer, “there is no power in our modern world which may be compared to that of scientific thought. It is held to be the summit and consummation of all our human activities, the last chapter in the history of mankind...”⁷ The implication of this statement is that human life begins and ends with science as such there cannot be such a thing as postmodernism given the presupposition that science is the last chapter in the history of humanity.

One of the traditional images of science is objectivity. Objectivity literally means the ability to see and accept facts as they are and not the way they seem or appear to one. Before one can be said to be objective, one must be able to put away all of one’s presuppositions, biases, beliefs, thoughts, wishes, etc. Objectivity therefore stipulates that one forgo all one knows about a phenomenon under study, it entails not being subjective.⁸ It is believed in science that when an experiment is carried out in a part of the world, under the same conditions, that experiment would produce the same result anywhere else in the world. Hence, science is regarded as an objective means of acquiring factual knowledge that is not based or dependent on personal biases and sentiments. Elvis Imafidon opines that “the scientific enterprise is believed to be ultimately based on evidence and facts and all these distinguish it from all other forms of life and disciplines as an objective enterprise and the apex of rationality.”⁹ Science is based on empirical facts and evidence, hence its objective nature. In the same vein Bertrand Russell holds that science is not based on the belief of man which are largely intuitive and dogmatic, but on evidence that are tentative.¹⁰ Philosophers of science and scientists largely believe that the basis and principles of science make scientific findings and results objective.¹¹ Hence the proposition that science is an objective inquiry into reality, as well as the model of inquiry.¹²

⁷ Ernst Cassirer, *The Problem of Knowledge: Philosophy, Science, and History Since Hegel*, (New Haven: Yale University Press, 1969), quoted in Jack A. Aigbodioh, *Philosophy of Science: Issues and Problems*, (Ibadan: Hope Publications, 1997), 168.

⁸ Isaac Ukpokolo, “Philosophy of Science: Nature and Programme.” *Issues and Problems in Philosophy*. Ed. K. A. Owolabi. (Ibadan: Grovacs, 2000), 208.

⁹ Elvis Imafidon, “The Popular/Rationalist Image of Science: An Overview of the Positivist View of Science,” 102.

¹⁰ Bertrand Russell, quoted by Harvey Siegel, 1985. “What is the Question Concerning the Rationality of Science?” *Philosophy of Science* 52, no. 4 (1985): 517.

¹¹ Anita Pipere and Kristine Martinsone, “Shaping an Image of Science in the 21st Century: The Perspective of Metamodernism,” *Societies* 13, no. 254 (2023): 6.

¹² Elvis Imafidon, “The Popular/Rationalist Image of Science: An Overview of the Positivist View of Science,” 101.

J. A. Aigbodioh in like manner holds that, "the sciences are said to be objective insofar as their conclusions... are drawn directly from the hard and naked facts about the world of everyday perceptual experience. The facts that are involved are such that no one can make mistakes about them."¹³ It is hinged on the assumption that science studies natural or physical phenomenon, as such what a scientist is studying is open to him and not obscure. It is as though he is beholding himself in a mirror, this is to show that the facts that scientists study is clear to them so also are their discoveries. The facts studied are void of human inputs, this makes science objective. Paul Feyerabend holds that an assertion is "valid irrespective of human expectations, ideas, attitudes, wishes."¹⁴ Scientists believe that their assertions are void of any expectations, thus given Feyerabend's position, their assertions are valid. It is a basic task for science to formulate laws and theories from what they have observed, thus they show the objective reality of natural phenomenon.

The question however is, what makes science objective? Or how is science objective? For Imafidon, "The sciences are said to be objective insofar as their conclusions are drawn directly from the hard and naked facts about the world of everyday perceptual experience."¹⁵ Science is said to be objective based on the fact that it can be verified empirically. It implies that scientific facts are not personal or obscure; they are clear and open such that they form the bedrock of scientific theories and findings. Therefore, it is safe to say that science is believed to be objective because it corresponds to naked facts in the world.¹⁶

Science is also attributed to be universal. It is the same everywhere, that is, the findings of science is not limited to a particular place, if same research is done in different places under same condition the results will always be same and applicable everywhere. P. C. Hohenberg holds that, "Scientific truths are intended to apply everywhere and are not tied to individuals or groups of individuals. There is no "German Science", "Jewish Science", "African Science."¹⁷ It follows that a new result will frequently supersede and invalidate an existing result, but this can only happen if it is consistent with previously established elements of science.¹⁸ Hence any inconsistencies in a scientific result must be considered the unfinished business of science because consistency is an important criterion in science.

Science is one everywhere unlike history, philosophy, religion etc., which have strands. This is the very reason for which old results are invalidated by new ones, because science is one. Hence Bertrand Russell opines that "whatever knowledge is attainable, must be attained by scientific methods; and what science cannot discover, mankind cannot know."¹⁹

¹³ Jack A. Aigbodioh, *Philosophy of Science: Issues and Problems*, (Ibadan: Hope Publication, 1997), 119.

¹⁴ Paul Feyerabend, *Against method*, 3rd ed. (London: Verso, 1993), 15.

¹⁵ Elvis Imafidon, "The Popular/Rationalist Image of Science: An Overview of the Positivist View of Science," 104.

¹⁶ John Hospers, *An Introduction to Philosophical Analysis*. (London: Routledge and Kegan Paul, 1973), 494.

¹⁷ Pierre C. Hohenberg, "What is Science?" Retrieved November 29, 2024, from: <https://www.studocu.com/row/document/danshgah-shhid-bhshti/physics2/whats-science/39512041>, (2010): npag.

¹⁸ Emery N. Castle "On Scientific Objectivity." *American Journal of Agricultural Economics* Vol. 50. No. 4 (1968): 809.

¹⁹ Bertrand Russell, quoted by Harvey Siegel, 1985. "What is the Question Concerning the Rationality of Science?" *Philosophy of Science*. Vol. 52. No. 4 (1985): 517.

Impartiality is another traditional image of science that makes it distinct from other disciplines. Science is ethically neutral, impartial and impersonal in the sense that scientists do not allow their personal biases and idiosyncrasies interfere with their researches and experiments. Hence scientists claim that they are detached from their objects of study in order to achieve an objective result and finding.²⁰ Hence there is a subject object dichotomy whereby the researcher is distinct from the object under observation. The result of this is a dispassionate and unprejudiced research, unlike in the humanities, where it is difficult if not impossible for the researcher to be neutral, putting aside his or her presuppositions and biases when carrying out a research. Given the fact that science is neutral, it presupposes its impartiality. Samir Okasha holds that, "science is concerned with facts, and facts in themselves have no ethical significance. It is what we do with those facts that is right or wrong, moral or immoral. On this view, science is essentially a value-free activity—its job is just to provide information about the world"²¹

Precision and reliability are also characteristics that science prides in. It is said to be reliable and precise, it does not base its result on hearsay or guesses. Scientific knowledge must have gone through series of experimentation before it can be termed scientific.²² So, based on the fact that it is based on reliable methods, the results are reliable and precise. For instance, science will not present results such as, people die every second. It will give more precise results, such as, on the average, 300 people die every 2 seconds of the day. It gives the exact or approximate number, measurements of the object under study. It will not just give random speculations, but results that have been tested and precise, thus it becomes reliable.

Scientific researches, given the fact that they occur under prescribed circumstances and have been tested repeatedly, can be reproduced under the circumstances stated anywhere and anytime. Hence, scientific conclusions are more reliable than causal conclusions.

Other characteristics of science include predictability, observability, impartiality etc..²³ It is believed that science is predictable because it studies natural phenomenon. Thus science makes use of natural causes, to explain natural phenomenon. For instance if water is placed on a certain degree of heat, it can be explained naturally why the water became hot. Such natural phenomenon need not be explained supernaturally. Predictions are made concerning a particular phenomenon and such predictions can be tested.

Science is often said to be the ultimate reality of the universal, based on the fact that it is infallible. But then, is the popular image of science true or false? Is science infallible and indubitable? Is it really universal? Is science objective? Are scientists capable of dissociating themselves from their research? Is science neutral? Is it impartial? Is science void of social influence? Is it really verifiable? Is it accurate? Do scientists have a uniform method? Are scientific methods reliable? How tenable or justifiable are the claims of scientists?

Postmodernism and Truth

A wide range of literature acknowledges the difficulty in defining or categorically stating what the postmodern movement is about. It has however been broadly described as “ a set of critical, strategic and rhetorical practices employing concepts such as difference,

²⁰ Elvis Imafidon, “The Popular/Rationalist Image of Science: An Overview of the Positivist View of Science,” 106.

²¹ Samir Okasha, *Philosophy of Science: A Very Short Introduction*, 2nd Ed. (New York: Oxford University Press, 2016)

²² Elvis Imafidon, “The Popular/Rationalist Image of Science: An Overview of the Positivist View of Science,” 106.

²³ Elvis Imafidon, “The Popular/Rationalist Image of Science: An Overview of the Positivist View of Science,” 106.

repetition, the trace, the simulacrum, and hyperreality to destabilise other concepts such as presence, identity, historical progress, epistemic certainty, and the univocity of meaning.”²⁴

The idea of postmodernism suggests an idea of modernism as the prefix ‘post’ shows a time after an earlier time – modernism. Postmodernism is thus a period or philosophy after modernism.²⁵ Gary Aylesworth notes that the term postmodernism was introduced to philosophy by Jean-Francois Lyotard with his *Postmodern condition: a report on knowledge*.²⁶ Modernism may be considered a collection of cultural movements of the 19th and 20th Century geared towards a replacement of traditional values and institutions considered oppressive, divisive and inefficient by rational values and institutions. Modernism, with the aid of science and technology was experimental to the progress recorded by the various spheres of life by changing the attitude of man towards culture.²⁷ Postmodernism sought to break or pull down boundaries, scientific hegemony and allow for indigenous knowledge, art, history, architecture, technology, and expressions. Approach to art, science, and literature went contrary to pre-established rules and grand totalism as was the norm of modernism. Postmodernism has an anti-authoritarian and anti-universalising outlook,²⁸ thus, the agenda of postmodernism is aptly captured in the following words of Lyotard: “Let us wage a war on totality; let us be witnesses to the unrepresentable; let us activate the differences and save the honor of the name.”²⁹

It is thus clear that postmodernism is a period or philosophy characterised with an aversion of the modern norm. Stuart Sim notes that Lyotard’s appeal to reject what he calls the grand narratives of Western culture for their failure to maintain trust seemingly states the postmodern agenda. Sim expresses this in this way:

Lyotard's plea that we should reject the 'grand narratives' (that is, universal theories) of Western culture because they have now lost all their credibility seems to sum up the ethos of postmodernism, with its disdain for authority in all its many guises. There is no longer any point engaging in debate with, for example, Marxism, the argument goes; rather we should ignore it as an irrelevance to our lives. Postmodern philosophy provides us with the arguments and techniques to make that gesture of dissent, as well as how to make value judgements in the absence of such overall authorities.³⁰

²⁴ Gary Aylesworth, 2015. “Postmodernism.” *Stanford Encyclopedia of Philosophy*. Retrieved, November 2, 2021, from: <https://plato.stanford.edu/entries/postmodernism/>.

²⁵ Rimantas Viedrynaitis, *Postmodern Philosophy: Didactical Guidelines*. (Kaunas: Vytautas Magnus University, 2013), 6.

²⁶ Gary Aylesworth, 2015.

²⁷ University Quick Course. “Modernism vs. postmodernism.” Retrieved, September 3, 2021, from: YouTube.

²⁸ A. Hariharasudan, D. Pandeewari, and Ahdi Hassan, “Research Trends in Postmodernism: A Bibliometric Analysis,” *World Journal of English Language* 12, no. 2 (2022): 151

²⁹ Jean-Francois Lyotard, 1979. *The Postmodern Condition: A Report on Knowledge*. Translated by Geoff Bennington & Brian Massumi. (Minneapolis: University of Minnesota Press, 1979), 82.

³⁰ Stuart Sim. Ed. 2001. “Postmodernism and Philosophy.” *The Routledge Companion to Postmodernism*. (London & New York: Routledge, 2001), 3.

The foregoing emphasises the postmodern character as fundamentally of dissent from established social and cultural hegemonies of truth – an example of which is science. We shall consider one more description of postmodernism as given by William Lawhead and then move on to the challenge of postmodernism to science. Lawhead notes that in postmodernism there are no foundational, certain ideas on which man can depend. Thus:

We must now face our stark, uncharted waking experience for the first time. We are the products of history, and history is nothing but an aimless play of shifting social forces. What is left for us to do is to analyze or “deconstruct” the dream of reason, to see how it arose and why it seemed so real, or else to revel in the endless play of interpretations and perspectives, realizing that it is a game without a final goal.³¹

The Postmodern Challenge to Science

Postmodern scholars deviated from the modernist approach on the basis that cultural differences necessarily fault the ideals of modernism such as objectivity, and universalism – the one way approach to life. The postmodern culture permeates all area of life^{32,33} – architecture, music, cinema, art, social science, philosophy etc. – in the same way modernism did. In the postmodern culture, a thing is what it is based on the context within which it is situated. Everything, art, music, knowledge, language, etc., are determined or defined by context. Emphasising this context-based outlook Amaechi Udefi considers the ideas of David Annis and Richard Rorty in his essay “An analysis of some contemporary alternatives to traditional epistemology.” According to Udefi, contextualism sprouts from the need to oppose systems that tend to advance a position of universality and objectivity in accounting for beliefs and knowledge. These systems do not recognise the role of culture or the community in shaping the realities, beliefs, and what counts as knowledge for a particular people. They instead lump up all cultures and civilisations together as one as though they live in one environment and share exact realities or experiences.³⁴ Postmodernism opposes foundationalism which seeks to ground all beliefs and claims to knowledge on uncontestable, self-justificatory beliefs due to the fact that the beliefs of individuals of different cultures vary. Science is also of the same foundationalist disposition; hence necessarily faces the challenge of postmodern relativism. Anselm Jimoh notes this challenge of postmodernism in the ideas of Thomas Kuhn.

Kuhn, for instance, rejects science as a paradigm for knowledge denying that there is such a thing as Scientific method. He argues that neither logic nor observation, or any rational consideration plays a role in the account of theory formation. The Scientific enterprise is not guided by any definable method but a system of

³¹ William F. Lawhead, *The Voyage of Discovery: A Historical Introduction to Philosophy*, 2nd ed. (Stamford: Wadsworth, 2002), 559.

³² Christopher Butler, *Postmodernism: A Very Short Introduction*. New York: Oxford University Press Inc., 2002), 2.

³³ Rimantas Viedrynaitis, 6.

³⁴ Amaechi Udefi, “An Analysis of Some Contemporary Alternatives to Traditional Epistemology.” *Kaygi Uludag Faculty of Arts and Social Sciences Journal of Philosophy* (2009): 21.

arbitrary activities. Within his deconstruction of Scientific method, Kuhn evolves the notion of incommensurability.³⁵

This idea that science is a method of arbitrary activities spurs from the fact there are differences in the account of scholars on the scientific method; some scholars list a number of activities that make up the scientific method ranging from three to six. Jimoh thus questions the rationality of the claim that a system that has no specified method of procedures has paradigmatic status.³⁶ Kuhn opines that even though scientific theories prove useful in solving problems over a period of time, they will not always hold their value as they will fail to fulfil the purpose they are to serve.³⁷ The failure of existing theories to meet societal needs necessitate formulation of new theories which cannot be compared to the older theories they intend to replace given that they were not formulated in the same context and time. This contextual difference suggests that science itself is not as objective as its proponents claim.

Paul Feyerabend is one amongst postmodern scholars who accentuates the postmodern idea with his methodological anarchism which means that every system contributes to the acquisition of knowledge, hence no one system has a monopoly of knowledge, credibility, certainty, and all else scientists attribute to the scientific enterprise. This position simply enjoins the acceptance of all systems as viable sources of progress. Feyerabend thinks anarchism is “excellent medicine for epistemology, and for the philosophy of science.”³⁸ For Feyerabend, adhering to one particular system would be a restriction in the endeavour of uncovering the secrets of nature, and we cannot be certain that the system – where we adhere to one – is the best system for what we intend to achieve. Opposed to this restriction, Feyerabend states the following:

The attempt to increase liberty, to lead a full and rewarding life, and the corresponding attempt to discover the secrets of nature and of man, entails, therefore, the rejection of all universal standards and of all rigid traditions. (Naturally, it also entails the rejection of a large part of contemporary science.)³⁹

Feyerabend is of the opinion that the methodologies of science have not been successful in solving all human problems because they are not compatible with the history of science. Thus, they cannot sufficiently formulate laws that will guide the activities of scientists. He contends that:

History is full of accidents and conjectures and curious juxtapositions of events, and it demonstrates to us the complexity of human change, and the unpredictable character of the ultimate consequences of any given act or decision of man. Are we to believe that the naive and simple minded rules which

³⁵ Anselm K. Jimoh, *Certitude and Doubt: A Study Guide in Epistemology*, (Ibadan: Ebony Books, 2013), 178.

³⁶ Anselm K. Jimoh, *Certitude and Doubt: A Study Guide in Epistemology*, 177.

³⁷ Thomas Kuhn, *The Structure of Scientific Revolutions*. (Chicago: University of Chicago Press, 1970), 10.

³⁸ Paul Feyerabend, *Against method*, 9.

³⁹ Paul Feyerabend, *Against method*, 12.

methodologists take as their guide are capable of accounting for such a maze of interactions?⁴⁰

Feyerabend is pointing to the fact here, that there are so many conjectures in the world, how then is it possible that there is just one way to grasp the world. And so he proceeded to argue against all forms of methods and advocated that everyone choose what they think is best. He is well known for the phrase “anything goes.”⁴¹ It shows that science is not sufficient to provide answers to the whole of reality, since it studies only an aspect of reality and not the whole of reality. How then can it give an objective result of reality when it only studies an aspect of reality? Can science unravel all truths or there are truths which cannot be known through science? Is science the only means to objective knowledge? Del Ratzsche in disputing the claim that science is objective holds that, “science has progressed historically by virtue of employing values, and that success can be explained in part because such values nudge science towards the truth, and that the closer a theory is to the truth, the more successful and powerful it will be.”⁴² Science is based on certain theories or principles that are believed to be human values, “those hypotheses and theories, although sometimes suggested by empirical data, are at least in part the results of subjective, inventive human processes and if they in turn direct data collection and organization, then is not the objectivity in science compromised? On the prior suppositions, we say the complete objectivity and empiricity of science is confuted as they are products of human value which cannot be proved by science itself. It shows further that science involves the subjective input of a scientist, how then can it be termed objective?⁴³

Richard Rorty is a prominent postmodern scholar who attacked the character of science as being objective. For him, knowledge is the result of social agreement and not about facts independent of human experience. Knowledge claims are justified insofar as they are the product of social consensus; an epistemic agent cannot be separated from his social context. Rorty expressed his position in the following:

Explaining rationality and epistemic authority by reference to what society lets us say, rather than the latter by the former, is the essence of what I shall call "epistemological behaviorism," an attitude common to Dewey and Wittgenstein. This sort of behaviorism can best be seen as a species of holism – but one which requires no idealist metaphysical underpinnings. It claims that if we understand the rules of a language-game, we understand all that there is to understand about why moves in that language game are made...⁴⁴

⁴⁰ Paul Feyerabend, *Against method*, 17-18.

⁴¹ Paul Feyerabend, *Against method*, 18.

⁴² Del Ratzsch, *Philosophy of Science: The Natural Sciences in Christian Perspective*. (Illinois: Intersarsity Press, 1986), 95.

⁴³ Grace Umoren, “Overview of Science, Technology, Society Interactions.” *Technology, Science and Environment: A Current Overview*. A. Princewill. Ed. Aba: A.A.U Industries. (1996): 4.

⁴⁴ Richard Rorty, 1979. *Philosophy and the Mirror of Nature*. (New Jersey: Princeton University Press, 1979), 174.

As many social contexts as there are, so are the claims to, and justification of, knowledge. The postmodern character is strongly opposed to the scientific enterprise such that it leaves room for relativism and negates the very idea of objectivity. Within the postmodern ideology, the subaltern or all hitherto rejected or unappreciated cultures and systems are given a platform upon which they can thrive or flourish. No one system can claim superiority over competing systems as these systems are viable and valuable within the contexts they operate. The idea we are expressing here is that postmodernism privileges heterogeneity and difference.

The Implication of Postmodernism on the Image of Science

Postmodernism, given its tenets, rejects the possibility of an objective stance. This singular position has resulted in some educators treating scientific knowledge as merely a matter of elite consensus.⁴⁵ Objectivity, which is arguably one of the popular image of science is questioned by some postmodernists on the basis that it does not represent scientific endeavours correctly. Carl Bereiter argues that objectivity

[I]s not an essential claim of science, but progress is. Whether theory B is an improvement over theory A is a question that can be discussed profitably without appeal to objective truth. Such discussion constitutes what I call progressive discourse, which depends on a set of quasi-moral commitments that amount to a devotion to progress in knowledge. Among other things, this view of science as progressive discourse provides more sensible and humane ways of dealing with misconceptions, scientific methodology, and authoritative texts than does the elite consensus view.⁴⁶

By implication science is only objective till another theory is invented. It means that science is after all not overly objective as it claims. The effect of postmodernism on science in this instance is that it diminishes the elevated status of science as an objective endeavour. If it is the case that science is truly objective there wouldn't be the possibility of another theory or finding overriding it. Postmodernists believe strongly that the image of science is hinged on claims of objectivity and as such when these claims are rejected, science is equally reduced to mere beliefs of a clique.⁴⁷ Imafidion opines that:

Science has been and is still an effective means of understanding and explaining events, predicting occurrences, controlling nature, and solving some of man's problems. However, the highly esteemed position given it in today's world ... as the best tool or only tool for cognizing the world, and the only subject with meaningful statements, is overrated and overemphasized.⁴⁸

⁴⁵ Carl Bereiter, "Implications of Postmodernism for Science, or, Science as Progressive Discourse," *Educational Psychologist* 29, no. 1 (1994): 3.

⁴⁶ Carl Bereiter, "Implications of Postmodernism for Science, or, Science as Progressive Discourse," 3.

⁴⁷ Carl Bereiter, "Implications of Postmodernism for Science, or, Science as Progressive Discourse," 4.

⁴⁸ Elvis Imafidion, "The Popular/Rationalist Image of Science: An Overview of the Positivist View of Science," 117.

The point is that science cannot provide explanation for everything in the world as such it is wrong to present it as the best or only tool for knowledge. Vilavinal J. Moncy on the other hand believes that the postmodernists' critique of science is an attempt to deconstruct science which is in fact a formidable task. He believes that the principles of science are sufficient to defend the integrity of science. He however noted that there is a possibility of postmodernism (given the challenges of scientific knowledge) contributing to the marginalisation and subversion of science in the future.⁴⁹ It is important to note that the possible marginalisation of science is largely influenced by the negative image presented of it by postmodernists. This is believed to be responsible for the lack and decline of interest of fundamental science among students.

Postmodernism also unravels the true image of science which is more of progressive than objective. The science of today is better than that of yesterday and that of the future given the patterns of yesterday will be better than today's. This is an indication that science is progressive. Wittgenstein in his opinion holds that scientific progress is just a scaffolding of humans' thoughts.⁵⁰ "Everything scientists do takes place within a framework that presupposes the advancement of knowledge as a historical fact and an attainable goal."⁵¹

Thus, the implication of postmodernism on science among others will be the denial of science as an objective endeavour. It is safe to refer to science as a progressive endeavour rather than call it objective. It is however important to note that, postmodernism is not an attempt to demote science to mere beliefs that are held by a group of people. It instead involves recognising science as an unusually progressive kind of discourse or endeavour and finding ways to ensure that it does not lose its relevance in the world.⁵²

Conclusion

Science has been considered as the paradigm of rationality for the very fact that it puts forth a method through which theories derived from the experience of facts are objectively appraised. The scientific method necessarily gives credence to the various scientific theories due to the rational pattern through which these theories are arrived at. However, the postmodern movement poses a challenge to the very character of science as have been discussed in this paper. By way of conclusion, we submit that while science deals with natural phenomena and claims objectivity, we cannot rule out the fact that the claims of postmodern scholars are valid; it is then important that a reconciliation be made between the two, that is, that science should accommodate contextualism while pursuing research in a progressive manner within the context the research or any activity towards the acquisition of knowledge and the addressing of social problems is being made.

⁴⁹ Vilavinal J. Moncy, "Postmodernism and Science," Retrieved November 30, 2024, from: https://www.academia.edu/9183078/POSTMODERNISM_AND_SCIENCE, (2011): 3.

⁵⁰ Ludwig Wittgenstein, 1958. *Philosophical Investigations*. Translated by G. Anscombe. (Oxford: Blackwell, 1958), 56.

⁵¹ Vilavinal J. Moncy, "Postmodernism and Science," Retrieved November 30, 2024, from: https://www.academia.edu/9183078/POSTMODERNISM_AND_SCIENCE, (2011): 5.

⁵² Carl Bereiter, "Implications of Postmodernism for Science, or, Science as Progressive Discourse," 11.

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