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The Deficits of Scientific Scepticism: Revisiting the Higher Values of Contextualistic Pluralism in Justification of Truth and Knowledge Claims

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ABSTRACT

Scientific scepticism, fundamentally, questions the veracity and epistemic value of claims not supported by scientific evidence. Motivated by the assumption that only the empirical investigation of reality leads to the truth, the scientific sceptics often maintain that only scientific method is best suited for this purpose. Claims found to be wanting in scientific evidence are considered untrue, and of little or no epistemic consequence. Using the analytical and critical methods, this paper interrogates this epistemic criterion of justification of scientific scepticism. It shows the inherent epistemic deficits in this criterion of the scientific sceptics, and how absolutizing its demands in such a manner as to undermine the veracity and epistemic significance of claims outside the mainstream discipline of science is not only to entrap themselves in many epistemic burdens, but also to sink under the unsavoury weight of criteriological egocentrism, detrimental to cognitive progress. As a credible alternative, this paper explores the epistemic fecundity of contextualistic pluralism – the pluralism of contextually underwritten cognitive positions – in truth and knowledge justification. It concludes with the relevance of this approach in epistemic justification as evident in its inclusive nature as well as its shift of the focus of philosophical thinking from identity to diversity in an interculturality society.

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Introduction

Scepticism is an essential and meaningful component of the search for truth or firm epistemic warrant in epistemology. It is a critical feature of scientific repertoire. Paul Kurtz describes scientific scepticism in his book The *New Skepticism*, as "an essential part of scientific inquiry" (1992, 371). Indeed, many of the most prominent sceptics are and have been some of the world's prominent scientists. Some of these include Richard Darkins, Stephen Jay Gould, B. F. Skinner and Carl Sigan. A popular misconception, however, is that sceptics are people who generally disbelief things or deny the possibility of knowledge or truth in any given situation. This is not necessarily true about the sceptics; for scepticism, does not necessarily imply disbelief or negating the possibility of knowledge or truth – even extra-ordinary claims – out of hand.

Rather, it also implies examining the available evidence before reaching a decision or withholding judgment until sufficient evidence is had, so that such claim does not rest on faith or preconceptions. Such suspension of judgment can be embraced when evaluating explanations or claims, while the test of the validity of explanations or claims are determined based on objective and empirical evidence they yield. This is precisely what scientific scepticism represents and the idea behind it. Thus, in science, being sceptical does not mean doubting the validity of everything, nor does it mean being cynical.

Rather, it means to suspend judgment of any claim or theory, and to be ready to judge their validity and veracity based on objective empirical evidence (Normand, 2008, 42). The aim of this as Steven Novella states is, to "select beliefs and conclusions that are reliable and valid to ones that are comforting or convenient" (2006, 15). Such sceptical attitude helps scientists to remain objective while performing scientific inquiries and researches. It disposes them for the examination and justification of claims based on the sufficiency of empirical grounds or supports. All these flow from the fundamental assumption in science that empirical investigation of reality alone leads to the truth, and that scientific method is best suited for this purpose.

Doubtless, such a sceptical attitude by scientists is an essential to the growth of scientific knowledge. In order to remain objective, scientists must remain sceptical. In order for scientific knowledge to be advanced, that knowledge must be open to revision or have reproducibility. It is for this reason that they embrace the evaluation of knowledge or truth claims on the basis of verifiability or testability, while at the same time discourage the acceptance of claims based on faith or unreliable evidence. Notwithstanding the value of this criterion to cognitive progress in the discipline of mainstream science, a critical examination of its implications yields a variety of associated epistemic problems, which negate its rational adequacy as a criterion truth determination in science and for other domains of human inquiry, especially regarding its explanatory and predictive completeness.

This paper offers an overview of scientific scepticism and critically examines its epistemic criterion for knowledge and truth determination. It highlights the epistemic weaknesses of this criterion in view of the pursuit of truth and knowledge of reality. It rejects as counterproductive and absolutistic the hubristic attempt to predicate the veracity of claims from other domains of human inquiries or knowledge on it. The paper considers contextualistic pluralism as a more rationally satisfying methodological approach to knowledge of reality, more compatible with the quest for truth about reality than the formalist, exclusivist, and absolutistic route of scientific scepticism.

1. Scientific Scepticism

In a way, scepticism may generally be considered to be part of the scientific procedure; for, "considering the rigour of the scientific method, science itself may simply be thought of as an organised form of scepticism" (Deben, 2013, 1). For instance, an experimental result would generally not be regarded as established until it can be shown to be repeatable independently. As part of the scientific culture:

> A theory is accepted not based on the prestige or convincing powers of the proponent, but on the results obtained through observations and/or experiments which anyone can reproduce: the results obtained using the scientific method are repeatable… If the original claims are not verified the origin of such discrepancies is hunted down and exhaustively studied (Studylib.net, 2013: n. p.).

However, scientific scepticism is a practical epistemological position (or paradigm) in which one specifically suspends judgment and questions the veracity of claims unless they can be empirically tested or verified on the basis of scientific understanding or evidence (Kendrick, 2019, 2). This combines elements of scientism and scepticism in the process. Scientism demands an unquestioned trust in science, while scepticism demands the withholding of judgment over certain claims.

Armed with these basic theoretical components, scientific scepticism, has the goal of investigating claims made on issues outside the mainstream discipline of science and determining whether they are supported by empirical research and are reproducible, as part of a methodological norm pursuing "the extension of certified knowledge" (Stemwedel, 2008, 23). It generally focuses on debunking theories or claims believed to be far beyond the mainstream of science, as opposed to a professional science, which focuses on extending scientific knowledge. Scientific scepticism is different from philosophical scepticism, as the latter basically doubts our ability to have or lay claims to any certain knowledge of reality in any situation (Burr and Milton, 1992, 443). It also differs from methodological scepticism, which is "a systematic process of being sceptical about the truth of one's beliefs" (Merton, 1942, 42). On the contrary, scientific scepticism, assumes the

trustworthiness of man's power to know as well as the knowability of the physical world. Rooted in the fundamental assumption that empirical investigation of reality leads to the most reliable knowledge of reality, scientific sceptics believe that the scientific method is best suited to verifying such knowledge claims. Science is, thus, perceived as the most reliable system of inquiry and understanding the natural world. It is equally argued that:

> The great advantage of the scientific method is that it is unprejudiced: one does not have to believe a given researcher, one can redo the experiment and determine whether his/her results are true or false. The conclusions will hold irrespective of the state of mind, or the religious persuasion, or the state of consciousness of the investigator and/or the subject of the investigation. Faith, defined as belief that does not rest on logical proof or material evidence, does not determine whether a scientific theory is adopted or discarded (Studylib.net, 2013, n.p.).

On the strength of such epistemic conviction scientific sceptics discourage the acceptance or justification of claims which rely on faith or unreliable evidence, insisting only on the acceptability of such claims as they are verifiable and falsifiable. Such claims found to be wanting or ignoring the fundamental aspects of the scientific methods are considered "pseudoscience" and lacking in truth and epistemic merit. Brian Dunning describes scientific scepticism as "the process of finding a supported conclusion, not the justification of a preconceived conclusion" (2004, 1). Whenever an empirical claim is made, whether it is religious, spiritual, medical, social, political, historical, etc., there is a role for scientific scepticism. Novella maintains that scientific sceptics endeavour to protect themselves and others from fraud and deception by exposing fraud and educating the public and policy-makers to recognize deceptive or misleading claims or practices (2006, 23).

The contemporary social movement, known as the sceptical movement is based on this idea of scientific skepticism. The goal of this movement is to investigate claims associated with fringe topics and to determine whether empirical research can support them or whether they are reproducible, as part of the process of pursuing "the extension of certified knowledge" (Stemwedel, 2008, 23).

The overall process of scientific method involves observations of the natural world, making conjectures (hypotheses) about why things are the way they are, deriving predictions from them as logical consequences, and to subsequently undertake experiments based on those predictions. Under modern interpretation of scientific method, as suggested by Karl Popper, a theory or hypothesis must be falsified, that it, it must be possible to identify a possible outcome of an experiment that conflicts with predictions deduced from the hypothesis or theory; otherwise, the hypothesis or theory can neither be meaningfully tested or accorded any truth or epistemic value. In his *Conjectures and Refutations*, Popper contends that although we may not be able to prove a theory conclusively, it is however, always possible to falsify a theory. And indeed, one experiment

alone which does not produce the predicted results immediately casts doubt on a theory, provided of course, a careful check has been adequately undertaken. Popper thus points out that progress in science occurs when theories are disproved and replaced by better theories. He therefore advocated that theories must be capable of being falsified to determine their scientific and truth value. For him, theories for which no experiments can be devised that might falsify them are unscientific and untrue (1998, 49). Thus, a good and true theory for him is one which leads to the prediction of an unexpected results, which can be tested experimentally (qtd. in Ojong, 2008, 49). For Wudka the falsification criterion is a crucial aspect of the scientific theory or hypothesis, differentiating it from faith-based claims; for, "a theory must be 'falsifiable'" (1998, 11).

Another criterion is that of Ockham's Razor (also spelled "Occam's razor"), a problem-solving philosophical principle which gives precedence to simplicity by recommending "searching for explanations constructed with the smallest possible set of elements" (Barry, 2006, 1). Though traceable to Aristotle statements in his *Posterior Analytics*, "nature operates in the shortest way possible" (qtd. in Franklin, 2001, 241), this principle, also known as the principle of parsimony, and sometimes paraphrased as "the simplest explanation is usually the best one", is more commonly credited to the philosopher and theologian of the 14th century, William of Ockham. Ockham is credited with the principle that "Entities must not be multiplied beyond necessity" (Schaffer, 2015, 644). His constant employment of this principle to resolve otherwise complex philosophical problems such as the relations between objects and their universal qualities, substance and accidents, efficient causality, ideas in the Creator's mind, etc., is to being referred to as "Ockham's razor" (Duignan, 2004, 3).

In the context of science, this principle has been adapted as a scientific principle in deciding between competing theories. Nicole d'Oresme, a 14th-century French physicist, invoked it as the law of economy principle in deciding between competing scientific theories. Galilee Galileo later adopted it in defending the simplest hypothesis of the heavens. Isaac Newton as cited in Stephen Hawking referenced this principle when he says that, "We are to admit no more causes of natural things than such as are both true and sufficient to explain their appearances. Therefore, to the same natural effects we must, as far as possible, assign the same causes" (2002, 731). Other later scientists stated similar simplifying laws and principles, all of which express the basic idea behind this principle, that, where there are two competing theories over an issue, the simpler explanation of the matter is to be favoured or preferred. Ernst Mach formulated this principle this way in the spirit of scientific scepticism: "Scientists must use the simplest means of arriving at their results and exclude everything not perceived by the senses" (qtd. in Becher, 1905, 535).

A further criterion by scientific scepticism for the truth determination of a hypothesis or theories veracity is its explanatory power, which is the ability of a hypothesis or theory to explain the subject matter to which it pertains effectively. The efficacy of a theory or hypothesis is determined by its

Explanatory power is the utility in explaining the real world. A theory or hypothesis possesses great explanatory power where it makes few assumptions, has substantial predictive power and significantly reduces uncertainty in an accurate and precise way (John, 12). Explanatory impotence is the opposite of a hypothesis or a theory's explanatory power. A hypothesis or theory is said to have explanatory power if it has the following characteristics: If more facts and observations are accounted for; if more details of causal relations are provided, leading to a higher accuracy and precision; if it offers greater predictive power, that is, if it offers more details about what we should expect to see, and what we should not; if it depends less on authority and more on observations; if it makes fewer assumptions; if it is more falsifiable; and as David Deutsch recently added, if it is "hard to vary", that is, if it is impossible to change any one detail of it without affecting the whole hypothesis or theory (2011, 11). And, finally, scientific scepticism assumes that the truth of claims and theories are to be judged based on the degree to which they match experimental results.

2. Extra-Ordinary and Paranormal Claims

Scientific scepticism maintains a sceptical attitude towards extra-ordinary claims or paranormal claimed phenomena, which includes issues related to Unidentifiable Flying Objects (UFOs), cryptids, religion or fringe areas of scientific or pseudoscientific research. Other such extraordinary or paranormal claims that scientific sceptics consider as unlikely to be true on scientific grounds include health claims surrounding certain food, and alternative medicine, the plausibility and existence of supernatural abilities (e.g. Tarot Reading, Clairvoyance) or entities (gods, angels, poltergeists, etc.); Creationism/Intelligent design, etc. In his *Fads and Fallacies in the Name of Science*, which became a founding document in the nascent scientific scepticism movement, Martin Gardner undertook a survey and debunks what he describes as pseudosciences and the pseudo-scientists who propagate it. He even attacked the credulity of the popular press and the irresponsibility of publishing houses in helping to propagate these ideas. According to him, "If anything, scientific journals err on the side of permitting *questionable* theses to be published" (1957, 8).

Since the scientific method generally requires empirical evidence, scientific sceptics do not trust or accept such extra-ordinary or paranormal claims that cannot be subjected to the scientific method of verification. For this reason, their truth or epistemic value is doubted or questioned. According to Olav Hammer, "the bulk of the scientific sceptical movement's literature works on an implicit model, that belief in the irrational is being based on scientific illiteracy or cognitive" (2007, 395). Some scientific sceptics sound out some dangers associated with such pseudoscience. Bertrand Russell, for instance, in his "On the Value of Scepticism" argues that, "it is undesirable to believe a proposition when there is no ground whatever for supposing it true" (1928, 1). He also maintains that "some individual actions based on beliefs for which there is no evidence of efficacy, can result in destructive actions" (1928, 1). Richard Dawkins in *The God Delusion* points to religion as a

source of violence, and considers creationism a threat to biology (2007, 22). Paul Kurtz suggests that the "critical examination of religious claims should be part of the sceptical agenda" (qtd. in Hammer, 390).

However, it must be noted here as well that "scientific sceptics do not assert that unusual claims should be automatically rejected out of hand on *a priori* grounds. Rather they argue that one should critically examine claims of paranormal or anomalous phenomena and that extraordinary claims would require extraordinary evidence in their favour before they could be accepted as having validity" (Deben, 2013, 1). Nevertheless, extra-ordinary or paranormal claims may be true only if almost every scientist in the world is wrong. Such extra-ordinary evidence is required for the validity of an extra-ordinary or paranormal claim; for the more extra-ordinary the claim, the more extra-ordinary the evidence required. But until such evidence is provided, scientific sceptics insist that we should hold onto the tried-and-true way of science; for, "the scientific method is the best way yet discovered for winnowing the truth from lies and delusion" (Studylib.net., 2013, n.p.).

3. Epistemic Deficits of Experiential Proof

Apparently, scientific scepticism seems to offers what might otherwise be considered an important yardstick for truth or knowledge determination. It appears that the criteria can promote the objectivity and reproducibility of our knowledge and truth claims. Yet, the relevance and justification of the criteria relates only to its functionality only within the context of scientific knowledge. It cannot be imputed with such relevance outside the domain of mainstream science. In view of this fact, it can be argued that, scientific scepticism's experiential category constitutes a rather limited approach to human inquiry about truth of reality, because it limits knowledge or truth about reality to experience. It is for this reason too that it makes sense to hold that it would therefore be a serious epistemological error of category for the scientific sceptics to dismiss as untrue or epistemically valueless, claims that fall outside the domain of mainstream science, simply because they cannot be verified by scientific evidence. There is therefore, an incommensurable contextual difference between science and those that throw up what is considered as extra-ordinary or paranormal claims such as religion, magic, tradition, alternative medicine, astrology, supernatural abilities and entities, etc., differ essentially.

Even within the context of scientific knowledge, the basis of epistemic justification of knowledge or truth claim may vary with time and circumstance. For instance, given the theoretical prospect of unending scientific revolution that lies before us in the scientific world itself, the scientific theories and methods of verification of knowledge of one generation cannot be used as the criteria for judging those of another. We can be sure that the scientists of the future will have a better science, and an ampler and more understanding of the universe, and thus, a better conceptual scheme. This further shows the epistemic burden or limitation of the scientific sceptic's criteria of scientific, and why it cannot be regarded an *a priori* universal principle for determining the veracity

and epistemic value of claims from other contexts of human inquiries or knowledge production. To insist otherwise as the scientific sceptics, tend to do, is to be uncritically formalistic, exclusivist and absolutistic with their epistemic criteria. Such criteriological egocentrism should be tempered by a posture of criteriological humility: "The rules are different and so must their application be" (Etuk, 2016, 18).

Another identifiable epistemic burden of scientific scepticism is that, it tends to place too much confidence in the scientific method of verification to faithfully disclose to us the true nature of reality. However, such triumphalist confidence appears to be misplaced optimism, given the fact of human science as characteristically human as well as the corrigibility of our scientific experimentations and conceptions. The fact is that, we have no knowledge of reality as an unmediated "given" or complete fact of the matter (Quine, 1953, 60). We can only learn about reality by interacting with it, and regarding scientific knowledge of reality everything depends on how hard we can push in our inquiry in situations of observational and experimental interactions. It would certainly be difficult to secure explanatory and predictive completeness of reality even with the most sophisticated scientific theory or method. As Francis Bacon avers, nature will never tell us more than we can forcefully extract from her with the means of interaction at our disposal (qtd. in Rescher, 2003, 214).

Hence, the utmost successes which our scientific method can accomplish "will not enable us to comprehend more than an infinitesimal fraction of what doubtless is to comprehend" (Jevons, 1977, 752). "An what we manage to extract by successively deeper probe is bound to wear a steadily changing aspect, because we operate in new circumstances where old conditions cannot be expected to prevail and the old rules can no longer apply" (Rescher, 2003, 214). Thus, contrary to the misplaced optimism of the scientific sceptics, we cannot realistically that our science and its method of inquiry, at any given stage of its actual development will ever be in a position to afford us more than a very partial an incomplete access to the phenomena of nature or reality. And given the fact that, "we have no direct access to truth or knowledge of reality unmediated by the epistemological resources of rational inquiry" (Rescher, 2003, 169), man's imperfect *physical* control is bound to mean his imperfect *cognitive* control.

Additionally, the scientific sceptics' epistemic criterion for knowledge and truth verification is self-contradictory; for, the criteria cannot itself be empirically or scientifically verified. If the scientific sceptics maintain as their central position that "only scientifically verifiable claims are true", how can this claim itself be verified? Certainly, this claim itself is not scientifically verifiable with any scientific method. Thus, the central claim or principle of scientific scepticism seems to undermine its own status. This is simply because, if the scientific scepticism's central principle itself is not verifiable, the only possibility left for it is that it is merely an emotive statement

expressing the feelings or biases of the scientific sceptics. In this regard, it stands as a principle that contradicts itself.

4. Contextualistic Pluralism

Against the backdrop of these identified weaknesses in scientific scepticism it becomes imperative to adopt a different approach to truth or knowledge determination that not only addresses these weaknesses, but also shows greater compatibility with the rational demand for an inclusive methodological approach and functionalism. The understanding that one's view of truth or knowledge is bound to be linked to one's cognitive situation, makes contextualistic pluralism, which emphasizes "plurality of contexts" of experience, a more relevant alternative to scientific scepticism in case of truth or knowledge determination. Different individuals, different eras, different societies, all have different bodies of experience. Therefore, "in matters of cognition as elsewhere, our normative orientations do not come to us *ex nihilo* but emerge from experience" (Rescher, 2003, 162).

With contextualistic pluralism, therefore, our concern is with truth or knowledge justification within the context of discourse. Claims to knowledge is to be judged or understood not from an a-situational or a thorough-going relativistic position, but only in respect of the relative context in which the justification is sought, which Quine calls "background theory or frame of reference" (1953, 60) and which Donald Davidson calls "conceptual scheme" (qtd. in Ozumba, 2015, 177). A notable contextualist, Gail Stint, captures this idea succinctly as he declares: "It is an essential characteristic of our concept of knowledge that tighter criteria are appropriate in different contexts (2012, 254.3); for, "it is one thing in a street encounter, another in a classroom, another in a law court – and who is to say it cannot be another in a philosophical discussion?" (2012, 254.4). With contextualistic pluralism, all truths, including scientific or even the so-called absolute truths are so within their frame of reference. The mere existence of different views and opinions in contextual pluralism is no impediment to, rather, it is compatible with commitment on pursuing the truth about reality. Recognising that others see matters differently in other settings and contexts of inquiry does not and need not discourage our attachment to our own views of the matter where we stand. This is why contextualistic pluralism is not an indifferentistic relativism that looks with neutrality and uncommitted indifference to all points of view as standing on the same footing – where there is nothing to choose. Rather, contextualistic pluralism guarantees such multiplicity of frame of reference, whereby every claim is weighed against its context, which makes it either true or false.

It creates value for the cognitive imperative that we must stay open and recognize that others see matters differently in other settings and contexts of inquiry besides the scientific context, even though this need not daunt us in attachment to our own views of the matter where we stand here and now. And at the same time, we are disposed to adopts as truth or knowledge claims that we deem to qualify for acceptance as universally cogent and rational on the standards that we ourselves

endorse, namely: that they serve the purpose of our context better than others. Human endeavours, is essentially teleological-goal oriented. In the context of rational inquiry for truth, some claims or beliefs are bound to serve the purpose of their domains better than others, proving themselves more relevant in this regard than others. This way, they establish themselves as more rationally appropriate with respect to the issues, and deserving our presence in terms of truth or knowledge qualification. Such a functionalistic perspective of contextualistic pluralism is decisive in its impetus against the weaknesses of scientific scepticism, and more rationally inclusive and compatible with our commitment to the pursuit of truth or knowledge about reality.

Conclusion

As part of a methodological process of pursuing the extension of certified and objective knowledge, scientific sceptics focus on debunking theories which they believe to be far beyond the mainstream of science. In view of this, they question the veracity or epistemic value of claims lacking scientific evidence, under the assumption that, empirical investigation of reality alone leads to the truth, and scientific method is best suited for this purpose. Within the docket of the scientific observation and experimentation are the operational and principles of verifiability, falsifiability or testability, Ockham's Razor of simplicity, explanatory power of theories as well as the degree to which their predictions match experimental results. Any claim lacking in such scientific evidential criteria and orientation are considered as "pseudoscience", untrue and epistemically deficient.

Whereas such epistemic criteria may be relevant within the scientific context of knowledge production, absolutizing its demands in such a manner as to undermine the veracity and epistemic significance of claims outside the mainstream discipline of science, is not only to entrap oneself in many epistemic burdens, but to sink under the unsavoury weight of criteriological egocentrism. It has also become clear that what was universalised by global imperial designs as a universal science is in fact a Western particularism, which assumed power to define all rival forms of knowledge as particular, local, contextual and situational, while claiming universality (Santos 2007, xviii). Such erroneous disposition is arising from a formalist approach to knowledge, and a clear failure to recognise that others see matters differently in other settings and contexts of inquiry, and that such contexts of discourse must be the basis for which the justification of claims are to be sought. This is the basis of contextual pluralism adopted in this paper as a relevant alternative to scientific scepticism. Here, every claim is weighed against its context, which makes it either true or false; and there is clearly no conflict between our commitment to the truth as we see it in our context and a recognition that the adoption of a variant probative perspective leads others to see the truth differently in other context.

A pluralism of contextually underwritten cognitive position as evident here, does not lend itself to relativistic indifferentism, which holds that all the alternatives ultimately lie on par while committing to none. Rather, it pivots on the idea of contextual appropriateness defined by the

experiential circumstance of the subject's situation. Thus, recognising that other standards are used by others in a different context, we nevertheless, do and can deem our own standard of rational cognition as appropriate for ourselves. Since the scientific sceptic's criterion of scientific evidence can therefore not apply across board, such insistence becomes necessary and counter-production in knowledge and truth inquiry.

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