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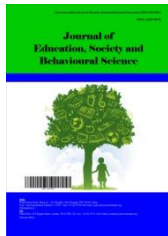
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Nature of Knowledge in Philosophy

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This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

This article is devoted to the philosophical study of the conditions under which knowledge can become a component or tool of education. The presentation of the contribution of epistemology to human development and education is based on addressing issues such as the nature of knowledge, sources of knowledge, theories, and criteria of truth. We proceed from the idea that knowledge is a condition of education. Particular attention is paid to the issue of distinguishing between such types of knowledge as 'knowing how' and 'knowing that'. Educational practices open a common foundation that unites the life world of people, types of sociality, and hermeneutical practices. The epistemological approach to the question of the essence of knowledge assumes that knowledge meets three requirements, namely, knowledge must be objective, subjective, and evidentiary. Epistemology includes subjectivity as the basis of human existence in the natural world and the world with others. Intersubjectivity is considered a criterion for the reliability of knowledge about the world, which allows asserting the relationship of the objective with the subjective.

Keywords: Belief; cognition; epistemology; knowledge; philosophy of education; truth.

1. INTRODUCTION

The word "epistemology" is a derivation of two Greek words episteme meaning knowledge, and

logos, meaning study. Thus, epistemology literally means the study of knowledge. This meaning is an investigation into the nature of knowledge itself. Moreover, epistemology also is

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an examination of the means of acquiring knowledge, the value of knowledge, and how we can differentiate between truth and falsehood. Hence, epistemology can be summarised as the study of the nature of human knowledge, its origin, sources, scope, limitations, and its justification; its reliability or otherwise, and its certainty or otherwise. It is a branch of philosophy that is highly significant as philosophy itself is broadly envisaged as a search for knowledge and wisdom [1]. Central to any philosophical inquiry is the concern about what we claim to know and how we came about knowledge [2]. Without a doubt, epistemology plays a crucial role in core philosophy and philosophy of education (and adult education, amongst other applied areas) [3].

The 5th century B.C. witnessed the emergence of the Greek Sophists who questioned the possibility of reliable and objective knowledge. The influence of Protagoras, Gorgias of Leontines, Pradik, Kratylus on the subsequent development of Greek philosophy was significant because Greek philosophy turned to the study of the spiritual life of man and the ways of its expression, especially to the art of speech. The sophists were interested in the questions of the cognizing subject, and not in cosmic existence. It is a person who becomes the criterion of truth for sophists. Protagoras formulated the famous proposition that the measure of all things is the person (Plato. Theaet; 152a). Thus, Protagoras asserts epistemological relativism. Epistemology is a branch of philosophy that emanated in response to total or universal skepticism, which is in total denial of the possibility of knowledge. The leading Sophist, Georgias, a paradigmatic universal skepticism argued that nothing really exists and if anything did exist, it could not be known and if knowledge were possible, it could not be communicated to others; therefore, nothing exists!

Sophistry actualized the notion that the observed is no longer identified with reality and is not interpreted as a real part of reality. According to modern scientific ideas, reality lies beyond the observable and, therefore; the scientist constitutes reality through a semantic act rather than perceives it [4-6]. However, it must be considered that the specificity of ontological assumptions largely depends on the position of a person and, as a rule, eludes sensory observation. The foundations of a new shift in the epistemological paradigm are being drawn. The universe is supposed to consist more of ways of

describing the world than of this world or worlds. Due to the multiplicity of projects of the world in various sign and symbolic systems, it is vain to search for a complete description of reality. This paradigm proclaims the essential incompleteness of reality itself, and therefore of knowledge.

The following questions arise are central to the subject of epistemology, likewise, these questions will guide the presentation of sub-themes in the course of presenting justification in this paper. Epistemological questions include but are not limited to the following: *What is knowledge? How is knowledge acquired? What does it mean to know something? What do we know? Is knowledge possible or is it just belief? How can we know anything? How can we know that we know? Can we know with certainty? How is belief different from knowledge? What can we know by reasoning alone? What are the necessary and sufficient conditions of knowledge? What makes justified beliefs justified? How are we to understand the concept of justification? Is justification internal or external to one's mind? How can we be certain [7]?*

The above questions stem from a place of 'doubt', a place of skepticism and this eventually leads to 'knowledge'. In this line of skepticism, Rene Descartes argues that the 'only thing we can be sure of is the knowledge of ourselves and therefore his statement 'cogito ergo sum' which translates to 'I think, and therefore I am' [8]. The Cartesian structure of the cognizing subject has the form of representation "cogito me cogitare", that is, the representation of one's representation, that is, the return of thought to itself, "re-flexio". For Rene Descartes, it is a representation that becomes the main one, that is, the ability to present, oppose, and place an existing entity in front of oneself, including it concerning oneself as an object. In the epistemological aspect, the comprehension of the world as a picture of existence is significant. The world turns into an object placed in front of a person, and a person becomes a subject, a representative. However, the subject may not be defined as an individuality since the structure of the subject is empty in content and can contain all the content diversity. For example, in the writings of Immanuel Kant, this aspect manifests itself as a problem of distinguishing between the noumenal and the phenomenal, where the presence of only the phenomenal, which is related to the subject, is inevitably recognized [9]. There is a need to consider the nature of knowledge; criteria of knowledge; sources of

knowledge, and justification of what constitutes knowledge or what other philosophers had posited to be knowledge. While this concise paper might not be sufficient to cover the broad scope of epistemology or theory of knowledge, justice will be done to interrogate the necessary elements as and when due.

2. THE NATURE OF KNOWLEDGE

The concept of knowledge has been used in various ways to mean a belief or an opinion, but it is imperative to note that knowledge is different from belief or opinion. Belief or opinion is characterized by uncertainty and instability [10]. A claim to knowledge, on the other hand, must be grounded in conclusive evidence which paves way for certainty.

There is a difference between 'knowing how' and 'knowing that'. The differentiation of these types of knowledge is of great theoretical and practical importance [11-15]. 'Knowing how' is the type of knowledge that consists of possessing certain skills and abilities, that is, it can be likened to practical knowledge [16]. For instance, knowing how to play football or knowing how to play the piano involves a practical experience that can be demonstrated with actions. 'Knowing that' on the other hand, is a statement with a profundity that the philosopher finds intriguing as it paves the way to understand how human beings can achieve the truth about the human world. It is also known as factual or propositional knowledge because it has to deal with propositions, which are meaningful statements that assert something about the universe – notably, the assertion could be either true or false. Together, 'knowing how' and 'knowing that' are the bases of wisdom as the ability to put into practice the information obtained because of the search for knowledge [17]. After Aristotle, wisdom is the creative embodiment of an idea in being, of truth in life [18]. Wisdom makes possible the ideal transformation of reality and the living embodiment of ideality. Wisdom in its holistic creative expression is also associated with intellectual humility or recognition of the limits of one's own knowledge, as well as an understanding of the studied object in the context of general relationships with objects and processes.

One of the first philosophers to attempt a definition of knowledge was the Ancient Greek philosopher, Plato, who argues that for a factual claim to be knowledge, it must be a belief. In

Plato's interpretation of cognition, the Ideas become a fact of being, and the reality of the object is recognized insofar as the object is attached to the idea (Republic, Book IV). The object cannot become what can be called Being, since the object is non-existence (meon), and its existence is only a moment between emergence and annihilation. If we proceed from the context of the interpretation of ideas set by Plato, then ideas do not appear as a spontaneous function of the brain, or the soul reproducing things, their essence. The consideration of ideas is realized based on the acceptance that the existence of ideas is realized in structures created by man. That is, ideas are one of the most important components of the cognizing person, they do not act as a precondition for human existence.

Beliefs alone do not establish something as the truth. For instance, I may believe Unidentified Flying Objects (UFOs) exist, but my belief doesn't make it true. Therefore, it has to be a belief that is true for instance 'the earth is spherical', and the test for the truth is the justification of the belief 'it is spherical because the scientist Galileo Galilee was able to prove beyond reasonable doubt that it is'. Plato's definition of knowledge thus is that it must be a Justified True Belief (JTB) [19], though this can still be questioned.

The concept of knowledge, over the years, has been a major concern to the philosophers as this has witnessed different attempts in analysing and justifying what knowledge entails. For Ayer, in his analysis of what constitutes knowledge, or simply, the conditions of knowledge, he gave three conditions:

- i. What one said to know be true (P is true).
- ii. That one be sure of it (S is sure that P is true).
- iii. That one should have the right to be sure (S has the right to be sure that P is true) [20].

The 'justified true belief (JTB)' of Plato alongside the conditions of Ayer will buttressed in the subsequent section under the traditional approach of knowledge. However, Bamisaiye accordingly reiterated the views of other philosophers by highlighting five criteria of knowledge. For her, if knowledge does not meet the conditions, namely, existence, certainty, validity, veracity, and utility, it is not knowledge [21].

Existence here means existential reference. In other words, what should constitute knowledge should be what exists [22]. For instance, a teacher engaged in the teaching of animals must refer to animals like elephants, tigers, bulls, snakes, and goats, with the understanding that these animals exist and are not used as an example like unicorns. Simply put, what does not exist should not constitute knowledge *ab initio*. Certainty, which happens to be the second condition, emphasizes validity. That is, whatever constitutes knowledge must be validly proved or validated. This is quite similar to the condition of validity which accentuates that knowledge itself cannot be self-contradictory because what is A cannot be B and what is P cannot be S. Veracity as the fourth condition emphasizes that knowledge is for truth, hence whatever is false does not constitute knowledge because it is the truth inherent in the knowledge that makes it reliable and certain. Lastly, Bamisaiye opines that knowledge must possess the attribute of being useful (condition of utility) in its direct benefit to the knower or in its potential for creating further knowledge [21].

The traditional approach to epistemology agrees that for a case to be considered to be knowledge, there are three requirements supposedly and necessary to be satisfied. These requirements include objectivity, subjectivity, and evidence. The objective requirement is the 'truth condition' which implies that for anyone to claim knowledge of any proposition, such a proposition must be initially true [23,24]. It is epistemically inappropriate to claim knowledge of something which is false. For instance, I cannot claim to know that aliens exist if it's not true. The subjective requirement is the 'belief condition' which stresses that before anyone can claim knowledge of something, such a human subject must believe it [25,26]. In other words, one cannot know something that one doesn't believe. For instance, saying 'I know *p*, but I don't believe that *p* is true' is contradictory. The third requirement, evidence, is the 'justification' that justifies the belief in the proposition one claims to be true. In this case, we are asking not just some state of certain certainty of a fact or its empirical confirmation. We question that which bears persuasiveness, which is not exhausted by proof but lies in the content of the proof itself. That is, we turn to the active force of being, which Rene Descartes called evidence, which appears as an intellectual intuition, a special type of contemplation, carried out exclusively by the power of the mind and not connected with

sensory experience, with something that can give reason to doubt what is contemplated [27]. The most controversial part of all the requirements is the justification requirement that invites the views of savants and several schools of thought; though while some addressed the justification required to be adequate, others strongly uphold the view that it could be conditional. The arguments of these would be equally considered, however, the paper might not be sufficient to capture the whole arguments owing to the numerous views.

In attempting the contributions of other views in support of the traditional justification requirement, the evidentialist upholds that a belief can only be justified if it has available evidence. They argue that if a person's attitude towards a proposition fits their evidence, then their set of beliefs for that proposition is justified epistemically. If, for instance, Mr. A believes in the proposition 'love your neighbour as yourself' and Mr. A has shown evidence through his attitude (showing genuine love to others), then his belief in the proposition is justified. On the contrary, different views of reliabilism suggest that justification is not necessary for the knowledge provided it is a reliably produced true belief e.g., 'the sun will rise tomorrow'. They also assert that justification is required, but any reliable cognitive process (e.g., vision) is sufficient justification. Similarly, another school, infallibilism, holds that it is not enough for a belief to be true and justified, but that the justification of the belief must necessitate its truth so that the justification for the belief must be infallible.

Externalism, with an extensive perspective, opines that external factors (that is, factors outside of the mind of those who are gaining the knowledge) can be conditions of knowledge and if the relevant facts that justify a proposition are external, then they are acceptable. Internalism, on the other hand, claims that all conditions that produce knowledge are within the mind of those who gain knowledge. For example, transcendentalism seeks to substantiate the fundamental importance of subjectivity for understanding and awareness of the world. If positivism seeks objective truth in a world independent of the subject [28], then transcendental phenomenology asserts that the sense of being is a subjective formation. Reflexivity is a functional property of the sphere of the subject since reflection itself is not capable of generating any kind of being. In reflection, the world appears as phenomenal, manifesting itself

not as a stringing of objects and subject areas, but as a universal horizon [29,30].

For epistemology, truth is both the goal of cognition and the subject of research. In essence, a corkscrew about truth is a corkscrew about the relation of knowledge to the external outdoor pool, as well as about the establishment and verifiability of the correspondence of knowledge to objective reality. The criteria of truth in the history of philosophy are present in the form of various solutions to the problem of conformity of knowledge to reality. For example, the criteria of truth were the correspondence of the statement to reality, the consistency and evidence of the statement and the verifiability of statements in practice. The result of the process of cognition is knowledge. If knowledge corresponds to reality, then such knowledge is the truth. The problem of truth is one of the most important in epistemology since truth is the regulating principle of any kind of knowledge. In its content, the truth does not depend on the subject who knows it, i.e., the truth is objective. At the same time, the truth itself is subjective, because it is a form of activity of the subject. In form, truth is always subjective, since it does not exist outside of the consciousness that knows it.

From the foregoing, it is clear that belief is not the same as knowledge because knowledge must be based on conclusive evidence, and it must be certain. Belief, in contrast, is not based on conclusive evidence. It makes sense, however, to be cautious and say, 'I do not know it but I believe it'. Since a belief is not knowledge, could it be said that the 'Justified True Belief' proposed by Plato is sufficient to constitute knowledge? In other words, can a belief that is true and justified not be false?

The traditional account of knowledge as justified true belief (JTB) has been challenged by the American philosopher Edmund Gettier in his 1963 three-page paper. He gave two counterexamples to illustrate that there are instances where a person may have a justified true belief about a knowledge claim and still fail to 'know it' because although justified, the reason(s) for the belief turned out to be false [31].

3. GETTIER'S ORIGINAL COUNTER-EXAMPLES

Case I: Suppose that Smith and Jones have applied for a certain job. And suppose that Smith

has strong evidence for the following conjunctive proposition: (d) Jones is the man who will get the job, and Jones has ten coins in his pocket. Smith's evidence for (d) might be that the president of the company assured him that Jones would in the end be selected, and that he, Smith, had counted the coins in Jones's pocket ten minutes ago. Proposition (d) entails: (e) The man who will get the job has ten coins in his pocket. Let us suppose that Smith sees the entailment from (d) to (e), and accepts (e) on the grounds of (d), for which he has strong evidence. In this case, Smith is clearly justified in believing that (e) is true. But imagine, further, that unknown to Smith, he himself, not Jones, will get the job. And, also, unknown to Smith, he himself has ten coins in his pocket. Proposition (e) is then true, though proposition (d), from which Smith inferred (e), is false. In our example, then, all of the following are true: (i) (e) is true, (ii) Smith believes that (e) is true, and (iii) Smith is justified in believing that (e) is true. But it is equally clear that Smith does not know that (e) is true; for (e) is true in virtue of the number of coins in Smith's pocket, while Smith does not know how many coins are in Smith's pocket, and bases his belief in (e) on a count of the coins in Jones's pocket, whom he falsely believes to be the man who will get the job [32].

Case II: Let us suppose that Smith has strong evidence for the following proposition: (f) Jones owns a Ford. Smith's evidence might be that Jones has at all times in the past within Smith's memory owned a car, and always a Ford, and that Jones has just offered Smith a ride while driving a Ford. Let us imagine, now, that Smith has another friend, Brown, of whose whereabouts he is totally ignorant. Smith selects three place-names quite at random, and constructs the following three propositions: (g) Either Jones owns a Ford, or Brown is in Boston; (h) Either Jones owns a Ford, or Brown is in Barcelona; (i) Either Jones owns a Ford, or Brown is in Brest-Litovsk. Each of these propositions is entailed by (f). Imagine that Smith realizes the entailment of each of these propositions he has constructed by (f), and proceeds to accept (g), (h), and (i) on the basis of (f). Smith has correctly inferred (g), (h), and (i) from a proposition for which he has strong evidence. Smith is therefore completely justified in believing each of these three propositions. Smith, of course, has no idea where Brown is. But imagine now that two further conditions hold. First, Jones does not own a Ford, but is at present driving a rented car. And secondly, by

the sheerest coincidence, and entirely unknown to Smith, the place mentioned in proposition (h) happens really to be the place where Brown is. If these two conditions hold then Smith does not know that (h) is true, even though (i) (h) is true, (ii) Smith does believe that (h) is true, and (iii) Smith is justified in believing that (h) is true [32].

Thus, Gettier claims the JTB account is inadequate; that it does not account for all of the necessary and sufficient conditions for knowledge [33]. In the same vein, the American philosopher, Roderich Chisholm also proposes this case:

Looking across the field, you see an object that looks like a sheep and you form the belief that there is a sheep in the field. It however turns out that the object seen in the field is actually a dog and not a sheep. Yet, in the same field, there is a sheep obscured from your vision by a small hill. Therefore, you have a justified true belief but the justification for your belief which is the object you saw is not a sheep. You merely stumbled into being right (there is indeed a sheep in the field) but that is not knowledge [34].

What was initially an object of belief can become an object of knowledge. This happens when what it has formerly believed becomes justified. Also, there were many beliefs, which became either justified true knowledge or refuted as false through ample evidence. Experiential cognition can be based on deception of the senses and turn out to be an appearance, defined as proof of the conceivability of the non-existence of the world despite its duration in experience. If the experience of the world is based on the evidence of natural experience, then it cannot be an irrefutable fact, but it may have some degree of significance. For instance, before Copernicus' discovery, the earth was believed to be the center of the solar system, and all other heavenly bodies revolved around it. However, Copernicus' work refuted the belief when he discovered the sun as the center of the solar system and which all other planets revolved around. Bringing to the fore, while the assertion of knowledge is understood to be a justified true belief, caution should be equally taken as the means of acquiring this knowledge could be from various sources, hence the need for constant and consistent validation of our preconditioning. The following are major views about the truth:

- **Instrumental Truth:** This emphasises certain opinions or beliefs an individual

holds or set of individuals that inform and govern their actions

- **Existential Truth:** It refers to the truth a person lives on based on his personal encounter. In other words, it is not a mere say of what one knows or hears but a certain truth or truths that can be found in the life of such individual such as humility, honesty, patriotism, amongst others
- **Descriptive Truth:** This refers to the kind of truth that is applied to statements, propositions, beliefs and thoughts. This truth could be analytical or empirical or even both
- **Ontological or Substantive Truth:** This is simply the type of truth that makes reference to what is generally known to be real. For instance, peace is essential, education is power, there is dignity in labour and many more [35].

There are also some theories of thought that this paper shall outline for the purpose of the topic at hand:

- **Correspondence Theory:** This stresses the agreement between our thoughts or actions and that of reality. In sum, what one says or perceives must agree or correspond with the existing truth or facts.
- **Consistency/Coherence Theory:** This theory argues that what is true must be consistent and coherent at all times. In other words, what is true with A now cannot be false with A later.
- **Pragmatic Theory:** It prioritises practical and verification of truth. This theory emphasises that for anything to constitute truth, it must be 'what works' and knowledge must be such that is dynamic, not static.
- **Skeptical Theory:** This theory ultimately denies the possibility of knowing the truth. It is of the opinion that nobody knows anything, therefore there must be a reason to debunk everything that constitutes truth [36].

To begin with, it is not possible for what constitutes truth to be always consistent in an uncertain and dynamic range. Cognition of the world involves the study of not only the object. Cognition must consider the experience of the subject and what this experience may contain. The remoteness of subject and object, characteristic of classical epistemology, is thus called into question. The rupture and opposition

of ideal and material objects to each other will not lead to constructive results in modern epistemology. The reason is that natural objects and the reality of human consciousness are considered not as separate spheres, but as interrelated. Materiality and ideality appear as categories testifying to different modes of existence of an object, which require the involvement of at least binary, dualistic schemes for their description. The existing epistemological situation is connected with the fact that the object of research is not natural phenomena in their comparison with human technology and culture, but secondary processes of naturalization and art within the framework of the activity itself.

The object is constructed by consciousness, which removes the opposition of the object into natural and artificial: natural objects are viewed through the prism of human dimension. Thus, nature, which at first glance appears to be material, turns out to be ideally nomologically (from the Greek "nomos" – law) structured and permeated with ideal informational connections. Without an ideal nomological informative structure, epistemology itself as the basis of education is impossible. Nevertheless, it should be recognized that human consciousness needs the interconnection of ideal and material-forming bases of being, thanks to which physical structures are able to act as mediated bodily actions or tools of labor, and be included in the spheres of human existence.

No matter how much consciousness strives to rely on the evidence of the world, it is only certain that the world is something that we know, but, at the same time, that we still need to learn to know. Further, doubting everything around us could take us to a world of nihilism where nothing even exists. For the correspondence theory, this position might not be true in all cases, especially in circumstances where the object of truth is not the truth in itself and an individual is relying on such in tandem with their belief. Lastly, there could be a limitation or several limitations in some cases considering the position of 'what works' as presented by the pragmatists. Without any doubt, all these theories are only representations in the world of reality owing to their propositions and shortcomings.

4. SOURCES OF KNOWLEDGE

Knowledge can be acquired through various sources which vary in their methods and validation. These sources include knowledge by

the senses, reasoning, revelation, authority, acquaintance, description, and intuition, among many others.

Knowledge by the senses is the type of knowledge that positivism or the positivists hold to be best obtained through observation of the things around us, through our senses, and through personal experiences from actions in which we are involved. Knowledge acquired through our senses of seeing, hearing, smelling, tasting, and feeling is a very important type and much valued in today's world of science and technology [37]. This type of knowledge is similar to that of 'knowing how' that was established earlier in the paper. However, one might want to know if the knowledge through the senses as scientists would claim is sufficient on its whole. It is important that a person relies on the senses and does not "create" new objectivity for himself. The cognizing subject only thematizes own constitutive activity. Apparently, this source of knowledge cannot be self-sufficient to humanity likewise other sources of knowledge with their limitations. Considerably, a person who is color-blind would have a bad judgment of color variations; also, someone with jaundice will likely see everything in yellow and a traveller seeing a mirage would equally misjudge if care were not taken. All these imply that the senses alone cannot provide us with knowledge. The coordination of understanding and explanation schemes can already be presented as a kind of scheme demonstrating the process of unfolding understanding as an ontological definition of human existence. The explanation as a value-free reflexive analysis is reduced to understanding as a value-loaded emotional involvement. However, we cannot give up the sensory and emotional burden of the cognitive act. The reason is that it is thanks to understanding that not only what is understood acquires a certain meaning, but in general, meaning itself arises in the world. Moreover, the meaning is revealed not as some ideal property (dispositive) but as an existential property.

The second, to that, is knowledge by reasoning which stresses the act of inferring new knowledge from what has already been known. This type of knowledge cannot be established using physical evidence but by reasoning or logic [23,38]. For example, given the fact that there is a teacher implies that there must be a learner. From the presence of the teacher, we logically infer or deduce that there must be a learner or some learners whom such a teacher teaches.

This is also the practice in philosophy where it is not the conclusion that matters but the reasoning process in concluding. This source of knowledge also has its limitations because someone who cannot reason but thinks it possesses one might be rendering mere verbal ejaculations. Also, this type of knowledge has its limitations as one's reasoning may be prejudiced when feelings, emotions, or interests overrule the reasoning process [39,40]. To guard against this, the one engaged in the act of reasoning must ensure that it is being done correctly.

Knowledge by revelation is the type of knowledge an individual receives from a spiritual source. That is, the knowledge revealed to and by prophets in Christianity and Islam through the Bible and Quran by vision or trance. This type of knowledge is knowledge about mystical experience. Mystical experience is not open to observation, or empirical tests, nor can it be proven by logic and human reasoning [41]. It just has to be accepted by faith and therefore, also has to be held with caution.

The fourth source of knowledge is authority, confers the correctness of a knowledge claim on a person of authority. Authorities here might be parents, professionals, or specialists. For instance, when we make citations such as 'According to Plato'. This source of knowledge has its limitations because professionals in a field often tend to disagree on issues and they might also be wrong in some cases [42,43].

Another source is the knowledge from an acquaintance that is obtained through partial contact with the object of knowledge. Knowledge here is limited because the subject of knowledge cannot make sufficient claims about the object of knowledge as only a partial contact has been made. Knowledge by description, which could be described as a higher stage of acquaintance, emerges out of closer contact with the object of knowledge. This allows the subject of knowledge to give specific characteristics about the object of knowledge. For instance, a description of the nature of Mr. A by his wife, Mrs. A will be more specific than that given by just a stranger. The issue is how consciousness can certify the reality of an object in the process of reflecting on its properties and its relations with the environment [44,45]. Within the framework of the tradition of scientific observation, consciousness carries out a systematic, purposeful perception and fixation of results in the iconic forms of the scientific language. It is necessary to address an object

that exists in terms corresponding to the type of observation equipment used in the human mind. So, we can assert the relativity of the completeness of the scientific picture of the world at each of the historical stages of development. That is, natural-scientific ontology is relative. For example, the successive physical pictures of the world are as follows:

- Natural philosophical physics, in which the ideas of Democritus atomism, anthropomorphic determinism, and invariance of static forms are combined;
- Classical physics, which combines the ideas of Newtonian atomism, absolute determinism, and invariance of dynamic forms;
- Modern physics, which combines the ideas of Bohr atomism, statistical determinism, and invariance of quantum forms.

In addition to the identified sources of knowledge, intuition also plays a chief role in the acquisition of knowledge as it is attributed to be a form of sudden insight. Knowledge by intuition comes as a flash into the mind [46]. Archimedes was reported to have had a vision of the law of floatation in a flash while taking his bath when he exclaimed 'eureka!' He was so overwhelmed by the vision that he rushed out naked to record very important insightful knowledge before it escaped his memory. We all possess this type of knowledge but at different levels or degrees. Musicians and artists do enjoy such intuition occasionally which usually results in a beautiful piece of art or music. For example, the celebrated Hausa instrumentalist and musician, Alhaji Muhammadu Shata, of blessed memory, was reported not to have written his beautiful songs but produced them right there on the stage. Intuitive knowledge can be considered knowledge once the insight or intuition is proved empirically or substantiated with adequate reasons. If these cannot be done, then such insight may simply be a feeling or opinion but cannot be considered knowledge.

Since these sources of knowledge have their strengths and limitations, it must be noted that they are not mutually exclusive but rather mutually complementary.

5. EPISTEMOLOGY AND HUMAN ADVANCEMENT

It is important to note that every area of study or discipline is an inquiry into a kind of knowledge.

Epistemology has contributed greatly to the acquisition of knowledge in all disciplines through the process of education. Conceptually, it is adequately essential to signal at this juncture that knowledge is not the same as education. In other words, knowledge is a condition for education, but it is not a sufficient one owing to the premise that knowledge is neutral, therefore it can be utilized positively or negatively, by those committed to it.

Education implies a positive state of the mind that is worthwhile; and if otherwise, it is not an education but 'miseducation'. Education can be described to mean that special quality of agreeableness, or something worthwhile, that exerts positive influences on the later experiences of human beings – if it is not worthwhile, then it is not an education. For emphasis, education implies improvement, betterment, advancement, development, and refinement. For instance, a burglar may know how to break into houses and steal, but no school or society teaches such because it is not a positive element or virtue that should be instilled in the learners. Therefore, when knowledge is intentionally used for negative vices, it is not qualified to be called education. Although just as there are many negative uses to which knowledge can be applied, there are also many positive ways of using knowledge. Knowledge becomes an ingredient or tool of education where it is used positively for the benefit of self and that of society [47].

Having done a relatively concise contrast and comparison between knowledge and education, it would be crucial that this paper outlines the contributions of epistemology to the advancement of human beings:

- Epistemology has led to numerous key advancements in human knowledge. The first contribution that readily comes to mind is the inculcation of a strong knowledge base, which can be proven, justified and which is true, and acceptable. It has also helped in building a strong knowledge base through the inculcation of free inquiry, observation, and critical thinking.
- Epistemology has provided us with clarification on the concepts of knowledge, belief, and opinion and helps us effectively differentiate them [48-55].
- Epistemology essentially birthed science and established the scientific method. It is probably the most important branch of

philosophy for questioning the legitimacy of all things we hold to be true. The first people to use the scientific method were natural philosophers, who were largely made up of epistemologists, who assumed that observing the world could yield true results about existence.

- Since epistemology involves subjecting any truth we know or hold to validation, it helps us overcome problems through creative skepticism. It helps us not to accept knowledge claims hook, line, and sinker but to ask questions and probe further. Such questions, especially hypothetical ones, could trigger some thought processes in us which could lead to a reversal of putative opinions or beliefs.
- The school stands out as the most formidable agency in transmitting specialized knowledge to the learners which require the rigor of evidence, certainty, justification, and truth of what is claimed to have been known. Therefore, the study of epistemology helps teachers in schools and colleges ensure that the conditions of knowledge highlighted are fulfilled and justified for reasonable acceptance by the learners in the process of transmitting specialized knowledge. This may not only foster strong knowledge in learners, but the knowledge so acquired will have more lasting memories in the minds of the learners.
- Intuitive knowledge has been of great value to mankind. Most scientific discoveries have been the products of insight or intuition, including that of Archimedes. Beautiful art, portraits, and life-changing songs have been produced. The educational value of this, to teachers, is to encourage their students to always listen to their inner voice or flash of ideas.
- Epistemology is also tied heavily to psychology, sociology, and neuroscience. One cannot ask questions about knowledge and the human senses without including epistemology, which was the first branch of philosophy to ask huge questions about how our senses could be trusted to make discoveries about the world around us.
- Since the central task of education is imparting knowledge, the understanding of the different sources of knowledge in epistemology will help teachers greatly improve their methods of teaching. It will help them understand the strengths and

weaknesses of these sources of knowledge. Furthermore, since no type or source of knowledge is perfect, a combination of several types or sources of knowledge improves our grasp of what knowledge is. Teachers may apply this in their teaching by always employing more than one method where possible.

- It also helps in creating a sense of epistemic humility in us especially when it is realized that there are many things to be learned in a world of the knowledge economy.
- The criteria of knowledge have several important implications for the content, process, and evaluation in education. In terms of content, it suggests that no item in the curriculum must be included with no existential purposes. Similarly, when curriculum experts talk about relevance, they are suggesting that knowledge is of no worth if it cannot be effectively used.
- Epistemological questions raise awareness of our own biases and ideals which can sometimes disrupt our learning. Teaching students epistemology allows them to become aware of themselves; what they think, how they think, and why they think that way. This also makes them more aware of the world around them and makes them accept or understand the differences in backgrounds and cultures of others [56-61].
- The limitations and criticisms in the discourse of epistemology provide us with rationality, especially in our engagement with the prevalence of the Internet, especially social media. It emboldens a person to be cautious of the complexities that are inherent in the knowledge claims on the Internet.
- The understanding of epistemology as a subject with a broad scope provides one with a picture of a society that is peopled by various intellects with different capacities. Hence the need for unity of knowledge among disciplines and methodologies, not separation of knowledge as it seems to be in the contemporary age.

6. CONCLUSION

The concept of epistemology is crucial to our thinking and reasoning competencies as it facilitates our understanding in the acquisition of knowledge. It critically engages the mind and

thereby subjects the objectified elements that have been popularly or uncritically accepted to be true to the level of questioning and subjectivism, all in the interest of validating the belief for truth.

The nature and domain of knowledge have been central to philosophy considering the shift from 'object' to 'subject'. This invariably has led to the arguments of beliefs and knowledge as considered in this paper. Something tenable is that both belief and knowledge do not occupy the same stance as knowledge can be seen to be a leap beyond a belief. In other words, a wrong belief or belief based on conjecture, even if it seems to be truthful, can still not be equated as knowledge.

Epistemological reflection is a type of rational thinking aimed at understanding and substantiating one's own premises. Reflection leads to the fact that a person is freed from direct attachment to existence and becomes an autonomous subject of thinking, around which the surrounding world is constituted. Reflexive consciousness forces us to look for a hidden plan of actions and things, their inner meaning. Thus, the world is divided into two components: external (physical) and internal (phenomenological). Reflection has a double polarity: on the one hand, it is a return to oneself, on the other, a withdrawal from oneself; it appears as a destructive and productive activity, as a radical negation and essential innovation.

The criterion of the reliability of the world is not the complete exclusion of a person from the system of explanation and description, but intersubjectivity. The true foundation of the method of epistemology is revealed only with the support of subjectivity. The objective is interconnected with the subjective. Educational practices influence the life world of people, types of sociality, and hermeneutical practices, and open a common foundation that unites these disparate spheres. On this foundation, we see the possibility of building a holistic epistemological picture, where subjectivity presupposes the identification of the foundations of human existence. Subjectivity contrasts with the classical interpretation of epistemological assessments where the known person is separated from the object. Subjectivity is a special attitude of an individual to himself, which is the unity of the individual and the individual, as well as the result of the integration of the value-semantic sphere of a person.

Education allows the retention of the past present, it is itself included in a unique and universal form of the living present. The epistemologically understood world is not only a representation but a semantic horizon. Knowledge has also been subjected to further criticisms; however, epistemology or theory of knowledge provides the basis for conceptual analysis; a coherent path for our thinking that opens us to a whole new world of 'knowing', unraveling what knowledge is and what it is not [31].

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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