

A Study of Rene Descartes' Pursuit of Certainty

Thet Thet Myint *

Abstract

This paper studies the pursuit of certainty in Rene Descartes' philosophy. This paper attempts to find out "Was Descartes' use of doubt as the starting point in his quest for certainty-justified? For the solution, Descartes introduced a method which starts from indubitable facts as premises to draw the conclusion by the chain of deductive reasoning for his pursuit of certainty. By the introduction of deductive reasoning he can refute skepticism. According to this, nothing else can be known for certainty. Descartes' method can prove that certainty is available in one's knowledge about the external world and that makes him famous and acceptable in the West of his time. In this paper, descriptive method and evaluative methods are used and the principle is deduction. This paper is expected to contribute proper understanding of Descartes' introduction and application of deductive method which is necessary for his pursuit of certainty and it can be regarded as a logic of scientific discovery.

Keywords: pursuit of certainty, deductive reasoning, scepticism, logic of scientific discovery.

INTRODUCTION

Reason has been used as a tool since the time of Socrates (469-399BC). Since that time people have been encouraged to think rationally. When Socrates says "The unexamined life is not worth living", his assertion is that a life which is not in accord with reason is worthless. Rational life is an ideal life. So reason is assumed as an essence of human nature. Most philosophers agree that philosophy is a rational activity. But among them those who are rationalists firmly acknowledge that reason is the key to discover ultimate truth and reality. Moreover, for the rationalists, the most reliable and certain knowledge can be discovered not merely by searching out facts in the world. Man cannot discover the most important truths only by looking within the world. One has to explore the mind and reason because what one perceives in the outer world is not reliable since direct observation sometimes leads to error. An example is given by Descartes' (1596-1650) that a branch which looks bent in the water, turns out to be straight when one lifts it out of the water. So man should not assume that the observed facts are indubitable truths. For the rationalists including Descartes, experience cannot always produce true knowledge. True knowledge depends mainly upon the structure of the mind. That is the reason why the rationalists hold that truth comes from within but not from without.

For the rationalists beginning from Descartes, there are certain fundamental principles or axioms which are to be known through reason. Through reason man can deduce other specific truths from these. Hence the rationalists are different from the empiricists who argue that one can find factual truths not by reasoning but by observation and experimental inquiry only.

Scientific knowledge is based on experiences. But scientists cannot get rid of reasoning. They have to apply reason after they have achieved the factual knowledge by using the senses. They have to use hypotheses as guidance. By the guidance of a certain hypothesis, the scientist has to collect the relevant facts. By the initiation of hypothesis the facts are so arranged to be consistent. After classifying the facts, the scientists have to draw conclusion. Hence, it can be said that those operations are made by the use of reason of the scientists. The scientist has to appeal to reason although he uses empirical facts directly as the basis. The scientist must use reason in order to collect and then arrange the scattered facts of experience.

* Professor(Head),Dr, Department of Philosophy, Hinthada University

That is why it is true that the scientists use both experience as direct knowledge and reason as indirect knowledge.

The way reason is used by philosophers and scientists are different. Reason is used by the scientist but unlike the philosopher, he can appeal to empirical facts. Although a scientific hypothesis is based on reason, the scientist can carry out the experiment in the laboratory and can observe the result which is an empirical and factual component. The way the philosopher's use reason is also related to the facts of experience. But, the difference lies in the fact that the philosophers use reason as rational reflection on the facts which are familiar with them or the facts given by the empirical sciences. For several times, they use reason when they want to realize the presuppositions of their views, how they are logically tied together, and what they logically lead to. So, it can be said that the philosopher is more concerned with finding a theory whether they fit with the facts and their interrelationship.

In fact, in human nature there are many elements such as feeling, desire, impulse, intention, and intuition, emotions of love, hatred and so forth. So in man's practical life when one is faced with life affairs, one may have personal feeling. One may respond to his immediate experience by means of his personal feeling, emotions and desires. But, one has to use reason in order to consider whether an action ought to be done or not. It is man's rationality which can control immediate responses which may lead to error. It is man's reason which can decide whether an action is ought to be done or not.

This paper attempts to prove Descartes as a rationalist who uses the deductive method to prove the certainty of his existence, the existence of God and the existence of the external world or the world of objects. Hence his method of doubt or deductive reasoning and its application will be discussed under the following headings.

DESCARTES' PURSUIT OF CERTAINTY

In the West, the seventeenth century was the time when new aspects of modern science were incorporated into philosophy and the problem of knowledge was made a central concern for philosophical discussion. It was also the time during which Descartes found out his method together with its application.

The Predecessors of Descartes

When philosophy began in Greece, the first thing that philosophers were interested in was the problem of substance. The question, they asked was concerned with the first principle and the ultimate reality of the universe. The problem of the source of knowledge and how to know the physical universe were not issues they were interested in.

The mathematician, Pythagoras (569- 475 BC) had used reason. However, his reasoning was not concerned with the source or nature of knowledge, but about substance of the universe. He argued that numbers, which could be known by reason, were the realities of the universe as a whole. But Pythagoras had not used the mathematical method for the pursuit of truth and reality. The problem that the Pythagoreans tried to solve was also the problem of substance as their predecessors so that it was not the pursuit of truth and knowledge.

The doubt of Descartes is different from the scepticism of Pre- Socratic tradition. In Greece, skeptical thinking started when ontological thinking in nature temporally ceased and some thinkers like the Sophists turned their attention to the study of moral, law and politics. The Sophists were the representatives who were prominent for their sceptical thinking. Their chief aim was to provide training in rhetoric in order to win in law courts and public assemblies. According to them there is no certain knowledge. The individual is a law unto

himself in matters of knowledge. Hence knowledge of right or wrong is impossible for them. For Protagoras (481- 411 BC) one of the Sophists, there are always two answers in answering every question. If an opinion is practically successful at a certain moment it is acceptable at this moment. The other that does not work is not acceptable. Hence there is no universal standard of truth. Protagoras has no confidence in human ability to attain absolute truth. Another Sophist Gorgias (483- 375 BCE) agreed with Protagoras that man has no absolute knowledge. The aim of the Sophists is not to establish true and objective knowledge but to persuade people to accept the statement which they think individually to be a true statement. Hence the theory of knowledge of the Sophists is subjective and sceptical.

On the contrary, the aim of Descartes is to find a body of certain and self-evident truths. In order to fulfill his aim, Descartes used the rational method. Descartes is only Sceptical about knowledge by experience which turns out to be false at sometimes. But he takes mathematics as the model since he conceives that mathematical thinking is a universally applicable method. By using deductive reasoning Descartes can prove his existence, the existence of God and the existence of the external world. In this way, Descartes can refute the sceptical thinking of the Sophists who held that nothing else could be known for certainty.

Socrates (469- 399 BC) had applied reason for the search of general truths, which were denied by the sophists. According to the Sophists, there are no general truths. They deny objective knowledge because knowledge is based on general truths. The Sophists hold that there are only opinions which are subjective truths. Truths are determined by the subjective feeling of the individuals. A thing which is true for a person is true and if it is not, it is false. So for them truth and falsity are determined by an individual's likes and dislikes.

In order to oppose the subjective thinking of the Sophists, Socrates was the first philosopher who used the dialectic method for the pursuit of objective truth. Socrates' method of dialectics was the conversational method with questioners. What Socrates means was not to accept the opinions, here-says, and suggestions which might be true in a certain condition but they should not be regarded as complete truths. So he tried to overcome them by continuing his reason till he arrived at a general truth. The aim of the Socratic method was not to believe the things which appeared in the mind suddenly as truth because it must be examined repeatedly. When the conclusion is conceptualized, it must be examined again by observation in experience and then applied in practical life. Hence it was Socrates who used the Socratic method in search of objective knowledge. For Socrates, doubt must come first for one should not believe everything immediately. But, that doubt must be tentative before the search carried on.

Plato accepts the objective truths which are based on reason. Plato rejects the truths of the senses, believing that they may be false. According to Plato, perception is not sound because perceptual knowledge can contain errors. Perceptual knowledge is concerned with the physical world which is always changing. The world of ideas, which is unchangeable, can be known by reason. Thus, for Plato, it can be said that only by reasoning one can know the ideas or universals which are real. That is why reason is placed in the second division of knowledge but perception is in the first segment of opinion level.

In his four segments for truth and reality, senses are set at the level of opinion which is lower than the level of knowledge. In knowledge, Plato set mathematical truth at the third segment because mathematical truths are also based on axioms and postulates which are regarded as self-evident truths. Concerning the method for the pursuit of truth, Socrates absolutely relies on conversational or dialectical method and Plato accepts reason as the mean by which one can understand the universals which are real.

Saint Augustine (354- 430 AD) was one of the outstanding philosophers who were sceptics. He was sceptical of what seemed to him the unsound intellectual arguments. Those arguments in his time were such as “matter is evil but spirit is good, and the universe is a battle ground between forces of good and evil”. He became philosophical sceptic of that kind Bryan Magee comments in his “The story of Philosophy” that Augustine’s conviction that the flow of time existed for human beings but was not a reality for God was the anticipation for Descartes when the latter tried to prove the fact that it was impossible to doubt his existence and it was untrue to say that one could not know anything although it was possible to doubt.

For the pursuit of truth, Descartes differs from Socrates because the former believes in mathematical method which gives certainty. Descartes’ aim is to find a method which guarantees certainty which is true and self-evident. In this way, Descartes is also different from Plato because the latter regards reason only as the mean by which one can know the universals. For Descartes, scholastic philosophy is also unable to give certain knowledge because there are many different opinions on one and the same subject. So it cannot give a clear and certain knowledge.

The Method of Descartes

The problem for Descartes is to set forth a philosophy which took mathematics as the model for his philosophic inquiry, because his aim was to find certain and self-evident truth. In order to explain that kind of truth, Descartes uses the terms clear and distinct. By clear, Descartes means present and apparent to an attentive mind. It is the same as asserting that one sees a certain object clearly if it is present to one’s eyes. By distinct, he means a thing is so precise and different from others that it contains within itself nothing else but what is clear. He also wants to find certainty in philosophy as it is found in mathematics, for mathematical truths are self-evident truths so that no one can doubt its certainty.

For Descartes the Mathematical method teaches one to follow the correct order and to enumerate all the factors of the object under examination, so that it contains everything that gives certainty. Descartes makes this idea clear in his “*A Discourse on the Method*” as follows:

But what pleased me most about this method was that, through it, I was certain in all cases to employ my reason, if not perfectly, then at least to the best of my ability; moreover, I believe that, in practicing it, my mind was gradually getting used to conceiving of its objects more clearly and distinctly, and that not having set it to work on my particular matter, I was able to set myself the task of applying it just as usefully to the problems of other branches of knowledge.¹

As a mathematician, Descartes wants the certainty of mathematics in other areas of knowledge including philosophical knowledge. So, he searches for a method for acquiring certain knowledge about the world, a method on the basis of which science in the modern sense could be constructed. That is why he believes that, by using the mathematical method as a model, countless disputes and controversies of previous philosophies will be ended.

Descartes believes that only mathematics can give certain and self-evident knowledge. For example, mathematical knowledge such as “ $3+5=8$ ”; the sum of the angles of a triangle is equal to two right angles are true, certain and self-evident. In mathematics one begins with

¹ Rene’ Descartes. (2006). *A Discourse On The Method*- A new translation by Ian Maclean. New York: Oxford University Press. p.19.

axioms or principles which are self-evident. An axiom is the first principle which is certain. From this principle complex propositions can be deduced.

Descartes conceives that mathematics owed its certainty to a following set of reasons. That is mathematical demonstrations begin from simple premises which are so basic and so obvious that it is impossible to doubt them. The mathematical truth proceeds deductively and each step of demonstration is irrefutable, simple and indubitable.

He accepts the process of reasoning in which the truths of theorems are deduced from the basis of the axioms. Descartes also believes that mathematics is a universally applicable method, and it is valid for all area of human understanding. It is made clear by **Thomas Ellis Katen** who clarifies it in his '*Doing Philosophy*' as follows:

It was Descartes himself who founded analytical geometry by showing how lines and figures could be replaced by algebraic symbols. He was firmly convinced that the philosopher could approach all problems, as the mathematician approached problems of his area of study. This very rational approach to the study of the universe led Descartes to break with the classical view of matter and to interpret it in rational terms.

Descartes, like other rationalists, is suspicious about perceptual knowledge. In experience, one can find that material objects are always changing with the changes of space and time. But the relations of ideas in mind are static so that they are reliable for Descartes. For example, a geometrical statement like the sum of 3 angles of a triangle is 180 degrees is always true because no one can deny the truth of the statement. But, different persons with different points of view may disagree about the statement, 'this mountain is high'. That is why Descartes wants to find a method which can give certainty.

Descartes tries to show a new method for acquisition of knowledge. Descartes suggests to pay attention to the advice he provides in the *Discourse on The Method*. In the *Discourse on Method*, Descartes provides four important guidelines for his method. It is made clear in *A Discourse On The Method* as follows:

The first was never to accept anything as true that I did not incontrovertibly know to be so; that is to say, carefully to avoid both prejudice and premature conclusions; and to include nothing in my judgments other than that which presented itself to my mind so clearly and distinctly, that I would have no occasion to doubt it. The second was to divide all the difficulties under examination into as many parts as possible, and as many as were required to solve them in the best way. The third was to conduct my thoughts in a given order, beginning with the simplest and most easily understood objects, and gradually ascending, as it were step by step, to the knowledge of the most complex; and positing an order even on those which do not have a natural order of precedence. The last was to undertake such complete enumerations and such general surveys that I would be sure to have left nothing out.

The first one is never to accept anything as true which one does not know clearly, avoid hasty judgment and prejudice and never to include anything which is not clear and distinct which can be doubted in one's judgments. The second guideline is when one has to examine something it is necessary to provide as many parts as possible in order to resolve it better. The third is to commence from simplest until it reaches the most composite things when one has to conduct one's thought. The last is when one has to enumerate, the enumerations must be complete and to review it till one is assured that nothing is omitted.

In this way, Descartes suggests the elements of his philosophical method. Descartes asserts his method as having four characteristics. (1) There is certainty in the distinction between truth and error. (2) The method is easy to apply. (3) The method is fruitful. (4) The method can give wisdom or true knowledge. Hence, it can be said that Descartes uses a method

of acquiring knowledge in order to access truth and reality. Pythagoras, Socrates, Plato and Descartes have used different methods for their search for reality. Among them, only Socrates and Descartes pay attention to the method of doubt in their philosophy.

Descartes also discusses the difference between his method and the method used by other sciences. This is stated clearly in *The Philosophical Works of Descartes*, Physics, Astronomy, Medicine, and all the other sciences which have as their end the consideration of composite things, are very dubious and uncertain; but that Arithmetic, Geometry, and other sciences of that kind which only treat of things that are very simple and very general, without taking great trouble to ascertain whether they are actually existent or not, contain some measure of certainty and an element of the indubitable.

Descartes maintains that knowledge obtained by other sciences like physics, astronomy, and medicine as such are doubtful. These sciences are not certain because these are made of different parts or materials which may be doubtful. But mathematics and other sciences of the same class are certain and indubitable because these subjects are concerned with simple and indubitable objects.

During the time of Descartes, philosophers were searching for a certain method to prove their thoughts with assured correctness. But, one's idea is contested by others. Hence there is no method which can be accepted by all. Hence, there is no agreement, but disputes and issues arise in every philosophical discussion. In order to avoid such disputes and to obtain simple, clear and definite knowledge, Descartes wants to use the mathematical method in the field of philosophy with the hope that philosophy will have the same certainty as Mathematics. Mathematics had been agreed on as a model of certainty because its proofs can be checked and agreed to by other mathematicians so that the proofs are universal. For that reason, Descartes attempted to use the method of mathematics in philosophy.

The Application of the Method

The problem for Descartes is whether there was anything that human beings could be sure of and could know for certain. Then he proceeds to examine the foundations of human thought and to investigate the method of philosophy, mathematics and science. His famous works are *Discourse on method* (1637) and *Meditation* (1641). As he is a mathematician, he invented coordinate geometry and the graph which later was called The Cartesian coordinate.

Descartes tries to prove certainty by using a statement which he thinks that it is impossible for anyone to doubt. He uses doubting to reach that which cannot be doubted. In *Meditation I*, Descartes differentiates three kinds of grounds for doubt. One is the persons who are not normal in nature, those who suffer delusions and their senses are deceived. Descartes also believes that ordinary persons can be deceived from common sense due to their prejudices and biases so that their observations about something are mal- observations and some are non-observations. Another kind is that in dreams one is faced with issues and affairs which are different from the waking real world. Day dreaming is also this kind of condition. The third one is the doubt which is a suspicion of one's senses. These are the ground given by Descartes for doubting the common experience of being deceived by the senses. These are also the reasons why Descartes cannot accept experience as a sure of knowledge.

In *Meditation I of Discourse On The Method*, he asks a question concerning certainty. The question is whether there is anything of which he can be certain. *Elizabeth S. Haldane* described Descartes' thought in the book, "*The Philosophical Works of Descartes*" as follows; It is now some years since I detected how many were the false beliefs that I had from my earliest youth admitted as true, and how doubtful was everything I had since constructed on this basis; and from that time I was convinced that I must once for all seriously undertake to rid

myself of all the opinions which I had formerly accepted, and commerce to build anew from the foundation, if I wanted to establish any firm and permanent structure in the sciences.

In order to find the answer Descartes doubts everything which are formerly accepted by him as opinions. He looks for a foundation which cannot be doubted. In this Meditation, Descartes reflected on his earlier years and found that he had accepted many false opinions as true, and premises which are doubtful and uncertain. Hence he came to realize that he must reject those false opinions which were previously accepted in order to get firm and certain knowledge. In order to do so Descartes firstly examined the principles on which his former opinions were founded. Then he rejected those which were not certain.

Descartes found that the knowledge obtained from the senses were sometimes true and sometimes misleading. It is found in the book *The philosophical Works of Descartes* translated by *Elizabeths S. Haldane* as follows:

I have accepted as most true and certain I have learned either from the senses or through the senses; but it is sometimes proved to me that these senses are deceptive, and it is wiser not to trust entirely to anything by which have we once been deceived.¹

That is the reason why Descartes had doubted knowledge by experience. For him the senses are deceptive so that sense experience is not trustworthy. But he accepted some knowledge by direct experience when he said in *The philosophical Works of Descartes* translated by *Elizabeths S. Haldanas* follows:

There is the fact that I am here, seated by the fire, attired in a dressing gown, having this paper in my hands and other similar matters. And how could I deny that these hands and this body are mine.

Descartes asks how the senses deceive human beings till he arrives at the conclusion that he cannot deny the existence of himself in the place near the fire, wearing a winter dressing gown, holding a paper in his hand. That is why Descartes asserts that although men cannot be sure about the experienced world, he sometimes cannot doubt even though he knows something through the senses. That is why *in Meditation II*, he proves that while he is doubting everything, one thing which cannot be doubted comes up.

Descartes wants to concentrate on truth. So, he tries to reject everything which is completely false. He detects and doubts until he reaches the one which is completely indubitable. In this way, he tries to doubt everything till he observes the truth "I am thinking therefore, I exist". For him it is so secure and certain that it cannot be shaken by anyone of the sceptics.

I am thinking therefore I exist, which makes me sure that I am telling the truth, except that I can see very clear that, in order to think, one has to exist, I conclude that I could take it to be a general rule that things we conceive of very clearly and distinctly are all true, but that there is some difficulty in being able to identify those which we conceive of distinctly.²

Thus he reaches a rational, self-evident proposition. To doubt means to think, to think means to exist; "*cogito, ergo sum*", I think, therefore I am.²⁶ In this way, he formulated his classic phrase. Descartes proves the objective truth of "I exist" by using the method of doubt. He proves his existence because he must exist to doubt. He has clear and distinct idea of his

¹Elizabeth S. Haldane. (1911). *The Philosophical Works of Descartes*.p.7.

² Rene' Descartes. (2006). *A Discourse On The Method*– A new translation by IanMaclean. p.29.

mind. In *The Philosophical Works of Descartes* translated by Elizabeths S. Haldan it is stated that:

We must come to the definite conclusion that this proposition: I am, I exist, is necessarily true each time that I pronounce it, or that I mentally conceive it.¹

In the first step of the meditation, Descartes defines a general rule. The rule is that whatever is clearly and distinctly perceived must be true. For him something can be accepted as clear when everyone is able to aware of it. Distinct means that something is so precise and different from everything because it contains only what is clear. He remembers that he has many habitual beliefs which are clear and distinct His belief in God is one of his beliefs which are habitual. Descartes thinks that it is necessary to establish that there is a God. Hence he tries to prove the existence of God and that He is not a deceiver. Hence, after Descartes has achieved the first principle of criterion of truth, he continues to prove the second truth which is the existence of God. That is, from the certainty of his existence or his mind or self, he tries to deduce the certainty of God. He proceeds to demonstrate the existence of God. For him the idea of God is one of the innate ideas which are very clear and distinct. One can perceive that God is eternal, omniscient, and omnipotent, the source of all goodness and truth and the creator of all things. God is perfect and infinite. Hence, Descartes draws the conclusion that God exists.

Descartes continues to prove that there is no ground for him to believe that God will deceive. As Descartes is a finite, imperfect being he cannot be the cause of God's existence. Since God is infinite and perfect, God must exist as a cause for His existence and for the existence human beings and the external world. That is, whatever exists there must be a cause which determines the existence. In this way the existence of God is self-evident.

Descartes has started in his guideline that the things that one conceives very clearly, and very distinctly are all true. Hence "God is or God exists" is true because He is a perfect being and everything that is in human beings comes from God. For Descartes God is a substance that is infinite, independent, supremely intelligent, supremely powerful. Descartes believes that from God, he and everything derive their existence. That is why he draws the conclusion that God necessarily exists.

The proof of the existence of God may not be logical for the present century. But the merit of Descartes method lies in the working out of the proof and the drawing of the conclusion.

For in the first place, even the rule which I stated above that I held – namely that the things that we conceive very clearly and very distinctly are all true – only certain because God is or exists because He is a perfect being, and because everything that is in us comes from Him.²

Another problem to be considered is the existence of the external world. Descartes assumes that there are bodies outside of each and every one. But one can doubt whether they actually exist. One has feelings of pleasure and pain, appetites and sensations which can deceive him or her. The senses are misleading so they cannot prove the existence of bodies by one's experience. One cannot be sure whether they exist independently of one's thinking. Hence, in Descartes' *Discourse On The Method*, he introduces such concepts such as the

¹ Elizabeth S. Haldane.(1911).*The Philosophical Works of Descartes*.p.9.

² Rene' Descartes. (2006). *A Discourse On The Method*– A new translation by IanMaclean. p.33.

reality of the physical world, the reality of cause and effect and the reality of God. This discussion of Descartes on these concepts is supported by the following quotation.

And yet I venture to say that I have not only found the way to satisfy myself in a short space of time about all the principal difficulties usually discussed in philosophy, but I have also come to see certain laws which God has established in such a way in nature, and of which He has imprinted notions of such a kind in our souls, that after sufficient reflection on them, we cannot doubt that they are strictly observed in everything that exists or occurs in the world.¹

Descartes continues to prove that the external world must exist. If the external world does not exist, God will be a deceiver. God cannot be deceiver because Descartes has a belief that God creates him. God is said to be supremely good and Descartes has said that he has fixed in his mind the belief that an all-powerful God exists by whom he has been created. Hence, the external world that God creates must exist. Thus, Descartes by using the mathematical method proved the truths of his existence, the existence of God, and the existence of the external world from his truth of "*Cogito Ergo Sum*" as a self-evident truth. Descartes had, thus, searched truth and certainty by applying the method of doubt at the beginning of his pursuit for certainty.

This proof leads him to develop a view of the world which consists of two kinds of substance namely mind and body or matter. In his thinking, he sees human beings as the subjects who are experiencing or observing the material objects of the external world. It is remarkable that this idea of Descartes is the division of nature into two kinds of substances which are separated as mind and body, subject and object, the observer and the observed. Hence, this way of thinking of Descartes is referred to Western thinkers as "Cartesian dualism". It can be said that he affirms one absolute substance that is God and two relative substances which are mind and body. The two substances, mind and body depend on God and they differ from one another.

For Descartes the two relative substances mind and body exist independently of one another and fundamentally different from one another. The attribute of body is extension. As body is mere extension it is passive because it cannot move itself. The attribute of mind is thinking. So for Descartes, mind is active and free. Since mind and body exclude one another there can be no interaction between them. Mind cannot cause changes in the body and body cannot cause changes in the mind.

Descartes basic intention was to consider any belief that is doubtful as false. His method of doubt is served to make clear the way to his search for truth. But from doubting he finds something that lies beyond all doubts. From the certainty of his existence he proceeds to demonstrate the certainty of God's existence and the existence of everything that is clear and distinct. In this way he provides the epistemological foundation in his attempts to pursue certainty as well as truth.

Descartes' method that scientific knowledge is to start from indubitable premises and deduce the consequences of these premises by logical reasoning is accepted by Spinoza (1632-1677) and Leibniz (1646- 1716).

The British empiricists, Locke (1632- 1704), Berkeley (1685- 1753) and Hume (1711-1776) opposed Descartes' innate ideas and existence of self. Locke described his theory of "*tabula rasa*" that men are born with minds like clean slates on which nothing was written. So,

¹ Rene' Descartes. (2006). *A Discourse On The Method*– A new translation by Ian Maclean. p.35.

knowledge comes from experiences. The more experience a person has the more knowledge will be obtained.

Western epistemological schools of rationalism and empiricism try to find out the roots of knowledge. They try to prove by constructing specific methods which seem to them to be complete. Rationalists hold that "truth comes from within" because they believe that truth can be known only by reason. The empiricists argue that "truth comes from without" because the empiricists believe that experience is the primary source of knowledge.

The school of rationalism grew out of Descartes' application of deductive method and the use of reason. Rationalism of Descartes, Spinoza and Leibnitz has important influence on Western thinking.

CONCLUSION

Since the ancient Greek period, Socrates had constructed the basis of knowledge on reason by his method of mutual conversation. In the same way Plato firstly built his systematic metaphysics presenting four segments. In his four segments, conjecture is placed at the lowest level because it is a mere guess work. Senses are set at the second level of opinion which is lower than the level of knowledge. Mathematical knowledge is set at the third segment. The fourth segment which is the highest represents rational insight of the forms or ideas. Hence for Plato reason is set at the highest level of knowledge. Aristotle also strengthened rationalism by his method of golden mean. For Aristotle human soul was consisted of both rational and irrational parts such as feeling, desires and appetites. Since a virtuous soul must be well ordered, the right relation must exist between the rational and irrational parts. Hence Aristotle sought the mean between the two extremes since virtue for him is a kind of moderation.

Although Descartes is a rationalist, he is different from the traditional trends of the Greeks because he innovated his new method of doubt in order to obtain objective truth. Descartes founded his method on the concepts of innate ideas and thinking being. From his thinking he deduced the existence of thinking self and from his innate ideas he proved the existence of God and the external world.

In Greek Philosophy, Plato also placed great emphasis on mathematical studies when one was engaged in philosophical inquiry but not the mathematical method as a model. Descartes is the first philosopher in modern times who tries to approach the epistemological problem with the methods of mathematical inquiry in order to achieve certainty, which is his philosophic concern. In his philosophy he has contributed a new method of how self-evident propositions which are the sole basis of knowledge are deduced by reason. That is the reason why he can be regarded as the father of modern philosophy.

The question raised by the earliest philosophers or the Pre-Socratics was "what does the world consist of". But Socrates had taken his fundamental question as "how ought we to live?" It was Descartes who replaced these questions with "what can I know?" It is an epistemological question so that Descartes was the first who put the theory of knowledge in the Western intellectual world and that fact made him famous as the first modern philosopher.

Descartes was also the first philosopher who wanted to use mathematics as a model for philosophical inquiry. Mathematics, especially in Geometry, the method is to begin with axioms. On the basis of these axioms, theorems are derived to prove. In such a deductive system like mathematics, the certainty of the conclusion depends on the certainty of initial premises. Hence axioms are self-evident which are not required to be proved. What Descartes needs in philosophy is that kind of axiomatic beginning point which is self-evident in the sense that in that point there is no possibility of sceptical doubt. In a deductive system the certainty of the conclusion depends on the certainty of the initial assumptions which are

premises. Descartes thinks that the whole of his philosophical system is in need of similar self-evident premises. Such an axiomatic beginning point must be beyond the possibility of sceptical doubt. After Descartes, Spinoza (1632- 1677) and Leibniz (1646- 1716) used the mathematical method as a model.

Descartes introduces some fundamental things into Western thought. He believes that scientific discovery should be started from indubitable facts and then logical consequences are to be derived deductively. That chain of deductive reasoning became fundamental to Western science. Most of the subsequent thinkers accept that observation is indispensable for establishing facts which are used as premises. But at the same time they acknowledge Descartes' method of starting from reliable facts and his application of deductive reasoning to those facts. By Descartes deductive method the intellectuals and the scientists of his time are made sure for the possibility of a mathematically based science. That is the reason why most subsequent thinkers are convinced that his method gives reliable knowledge about the world.

After Descartes, great philosophers did not share his view on the existence of God. Except his view concerning the existence of God, his chain of deductive reasoning comes to be the foundation of Western science. Even those who believe in sensory observation as indispensable for establishing premises accept Descartes method of starting from reliable facts which cannot be doubted. That is the reason why his method though it starts with doubt becomes a contribution for modern science to seek knowledge about the world with certainty.

People in the West of his time came to have an understanding that human being can know the world with certainty but that kind of certain knowledge is available only when one follows the right method. Descartes comes to be influential in the West because of his method to the pursuit of certainty.

In his thinking, Descartes tries to free his mind from bias and prejudice. In the First Meditation, Descartes introduces his philosophical method and gives suggestions about philosophizing and pursuing knowledge. There are many elements in this meditation. Among them an important element of his method is to undermine prejudices. But it seems clear that concerning his proof about the existence of God, he is unsuccessful at this. It might be the case that he needs to prove God's existence at this point to justify his assumption about the existence of the external world by offering this proof.

In Descartes philosophy, one can find the awakening of the relative spirit, criticism and revolt against authority and tradition which are the spirit of modern philosophy. With Descartes philosophy, reason becomes the authority in philosophy. By his philosophy the Western world of his time comes to understand and accept that truth is not something that has to be handed down by authority but has to be acquired through reason and philosophic inquiry. His philosophy places human reason at the highest authority in the pursuit of knowledge although the theological bias is present in his proof of the existence of God and the existence of the material world as the creation of God.

As a rationalist, Descartes believes in the power of human reason. By this rational power he has proved that human reason can reach sure and universal knowledge. Spinoza shares this faith when the latter follows the method of Descartes. But Spinoza finds out a problem that is unsolved by Descartes. That is, Descartes idea that reality consists of two different substances mind and matter but there is no interaction between them. With Spinoza, the problem is there is no moral choice in Descartes' system where everything is determined by the necessity of deductive reasoning. If everything is scientifically determined as it is in Descartes' system, where the place of God is. The question concerning the place of God confront the thinkers from the seventeenth century up to the twentieth century.

The philosophical significance of Descartes' work especially lies in his establishing human knowledge on the firm foundation. He had studied mathematics, which is formal. By using mathematics as a method he found deductive reasoning and by the guidance of reasoning he can refute scepticism according to which nothing else can be known for certainty.

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