



The Contribution of the Philosophy of Science in Research Science and Social Life

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Abstract: This article reviews the Contribution of the Philosophy of Science in Scientific Research and Social Life, which is a form of qualitative research and literature study or Philosophy of Science library research. The results of this literature review article show that: (1) History records that philosophy has bridged the change from mythcentric to logocentric, the change from thinking patterns based on myth and superstition to thinking patterns based on science (logos). This change in mindset has proven to have far-reaching implications for civilization. Nature and its phenomena that were previously feared are then studied, researched, and even exploited. From these investigations of natural phenomena, various theories and scientific findings were found that explain the changes and phenomena that occur, both in the universe (macrocosm) and in the human world (microcosm). (2) The influence of knowledge in the course of philosophical life from century to century, from myth, anthropos, and then to theos (theology/dogma) and changed to logos. That is the journey of the philosophy of knowledge to become a philosophy of science which later gave birth to the sciences of astronomy, cosmology, physics, chemistry, and so on. Meanwhile, from the investigation of the human microcosm, the sciences of biology, psychology, sociology, and so on have developed. Over time, these sciences have developed to become more specialized and increasingly produce technologies that have a direct and broad impact on civilization and human life. (3) The philosophy of science itself contributes to scientific

inquiry and in human life, especially These sciences then develop into more specialized and increasingly produce technologies that have a direct and broad impact on civilization and human life. (3) The philosophy of science itself contributes to scientific inquiry and in human life, especially knowledge in the form of deductive reasoning related to empirical and positivist (qualitative) and inductive reasoning with rationalism, constructivist and critical (qualitative). Although rationally science compiles its knowledge consistently and cumulatively, empirically science separates knowledge that is in accordance with facts and that which is not. Therefore, before being empirically verified, all rational explanations put forward are only hypothetical. (4) In addition, the philosophy of science has also substantially, methodically and relevantly provided a new paradigm in scientific research as well as for human life, namely; Positivism Paradigm, Constructivist Paradigm, and Critical Paradigm. These three paradigms are very important for a researcher who will compose a scientific work, be it a thesis, thesis or dissertation or other scientific paper.

Keywords: Contributions of Philosophy of Science, Research Scientific, Social Life.

INTRODUCTION

Talking about the philosophy of science, we cannot and should know a little about the history of western philosophy in understanding the context of the philosophy of science. And when we discuss the philosophy of science, what is its contribution to scientific research and social life, of course it is good for us to ask ourselves, to what extent this branch of philosophy has meaning and relevance to concrete practical problems that are more 'urgent', which demands practical-concrete solutions as well, such as employment problems for university graduates, increasingly limited funds and educational facilities and so on. In such a way that at one time the presence of this philosophy of science is still too early, but at other times it is also a bit late.

It is said that the philosophy of science is too early, because by some circles it is considered a 'luxury', non-economical, a waste of time, difficult to understand, not pragmatic. But it's also a bit too late. Because it is increasingly felt that there are various fundamental problems that require a fundamental rationale in overcoming them, such as the problem of pulpit freedom and academic freedom, the quality of education is sometimes unclear. So the thesis that states that the infrastructure is underdeveloped is true, but by the set of concepts that underlie it (Siswomihardjo, 1985).

In such a way that in understanding the tradition of philosophical thought of science, the first step of course we must know the history of the birth of philosophy itself, that the birth of the Pre-Socratic Greek Philosophy Period (600-400 BC) theoretically the development of science always refers to civilization. Ancient Greek. Where the universe is considered a source of virtue. Meanwhile, humans are encouraged and forced to make peace and imitate the behavior of the universe if they want to obtain the primacy of life. This view is certainly supported by several factors, including the (mytogenic) Greek mythology, Greek literature, and the influence of science at that time which had arrived in the Ancient East. Therefore, cosmology (natural philosophy) is the oldest field of philosophy. On the other hand, the first thought debate that arose was about "arche", which in Greek means the beginning or origin of the universe. They try to find answers about the essence or the most essential elements of nature. For them it is possible that what is diverse in nature can be returned, can be derived, and originate from the one as its essence. The natural philosophers also do not deny that the development of science in each period is due to the human mindset that has changed from myths to become more rational (George J. Mouly & Suriasumantri, 1991). For them it is possible that what is diverse in nature can be returned, can be derived, and originate from the one as its essence. The natural philosophers also do not deny that the

development of science in each period is due to the human mindset that has changed from myths to become more rational (George J. Mouly & Suriasumantri, 1991).. For them it is possible that what is diverse in nature can be returned, can be derived, and originate from the one as its essence. The natural philosophers also do not deny that the development of science in each period is due to the human mindset that has changed from myths to become more rational (George J. Mouly & Suriasumantri, 1991).

The emergence of various schools of Pre-Socratic philosophy in classical Greece or Ancient Greece, for example, was also influenced by the Milesian school of thought. This is because the characters are natives of Miletus, such as; Thales (624-546 BC) he was a philosopher who started the history of western philosophy in the VI century BC. Before Thales, Greek thought was dominated by a mythological way of thinking in explaining everything. Thales' thought itself is considered the first philosophical activity, because it tries to explain the world and the phenomena in it without relying on myth but on human reason. He is also known as one of the seven wise men (In Greek he is called "Hoi Hepta Sophoi"), whom Aristotle called "the first philosopher". Apart from being a philosopher, Thales is known as an expert in Geometry, Astronomy, and Politics. So it is not surprising that Thales is called the person who first thought about the origin of the universe. That's why Thales is considered a pioneer of natural philosophy (Natural Philosophy) along with Anaximandros (610–546 BC) and Anaximenes (560–520 BC), Pythagoras(570–495 BCE), Heraclitos(600–540 BC), Thales and these philosophers were classified into the Miletus School (Akhyar Yusuf Lubis, 2014).

Although the knowledge of philosophers in the Pre-Socratic school of the universe is still limited, it is in that limitation that they become polite and respectful to nature. But on the one hand, their cosmocentric view, which is centered on the cosmos, has made a basic problem of Greek philosophy a problem of reintegration, namely; how could they readjust to the cosmos as a natural order that the Greeks thought was divine? If we could parallelize it with Javanese philosophy, of course there would be a small universe and a big universe, which according to the Javanese hasanah, we humans are only a small part of this universe. So, of course, the problem is how we are able to adapt to the divine natural order, both microcosm and macrocosm.

The cosmocentric view above is slowly being replaced by the anthropocentric one built by Socrates who assumes that the measure of goodness and truth lies in human reason. So to achieve the good of life, both individual and social. Man must develop his mind. Then this understanding of anthropocentrism was further developed by Plato and Aristotle, although both of them still made the universe an open book that always taught virtue. In this case, the understanding of Plato and Aristotle is still slightly overshadowed by a cosmocentric view, for example Plato's theory of "state", here the concept still uses an analogy with the human body. Likewise, Aristotle considers that the beauty of the order of the universe (cosmology) is a source of inspiration for the development of his philosophy (Supadjar,

Then the Western philosophy of knowledge also moved in the Middle Ages with figures such as; Blessed Augustine (354–430 BC) to Thomas Aquinas (1225–1274 BC), and we know it was during this period that the Christian judicial tradition began to enter. Therefore, it can mostly be said that the medieval philosophers were also called "theologians", with the style of medieval philosophical thought being "theocentric", centered on theos "God", and the God in question, of course, the Christian judicial God. In this medieval period what was believed to be divine authority, while reason or reason was removed (Bertens, 1976).

So that in the Middle Ages both the thoughts and the results of the thoughts of philosophers were limited by dogma or an-sich religion, in accordance with the socio-

political system prevailing at that time. All thoughts and works of philosophers, even artists and scientists are limited and shackled by the truth of Religion. This means that all works of philosophers, artists, and scientists may be published as long as it is in accordance with and does not conflict with the teachings of Religion. Even if it could even strengthen or legitimize the truth of religious teachings. So it was known in the Middle Ages with the motto "Ancilla Theologia", meaning all became "Servants of Religion". All products of human culture (philosophy, art, and science) must serve religion. Even in 529 BC, when Emperor Justinian came to power, all sources of Greek philosophical thought were closed. The free thought of the Greek philosophers was considered to have disturbed and weakened the Faith. Therefore, all philosophical schools in Athens, including the Academia, which was founded by Plato, were closed and books by Greek philosophers were burned (Hadiwijono, 1980).

Many historians consider that in the Middle Ages culture in the true sense did not develop. Culture in the sense of the product of the free human mind, without being limited and directed by the dogma of Religion, was never born in the Middle Ages. Therefore, in the history of Western culture, the Middle Ages is often judged as "The Dark Age" (8th century). Some even call it the "Barbarian Century", because as a result of the shackles of the works of mind by this religious dogma, humans do not have the freedom to develop the potential that exists within themselves. Humans are treated as objects or sheep who always have to be shepherded (Bagus, 1991).

After the Middle Ages, then philosophy entered the Modern/Renaissance period of the 14th century to the 17th century with its philosopher figures such as Rene Descartes (1596-1650 BC), David Hume (1711-1776 BC) with other thinkers The great men who gave birth to the renaissance included: Roger Bacon (1214-1294 BC), Machiavelli (1469-1527 BC), Copernicus 1473-1543 BC), Francis Bacon (1561-1626 BC), Thomas Hobbes (1588-1679 BC), John Locke (1632-1704 BC), George Berkeley (1685-1753 BC), Wittgenstein and Immanuel Kant. Where the core that was born by these philosophers is "changing the theological thinking paradigm to a scientific paradigm". At the beginning of the renaissance has been born of a belief in the emergence of a new culture and the belief that humans can do whatever they want. This new culture is based on the principle;

Meanwhile, in the 18th century, which is called the Age of Enlightenment/a new era marked by worldliness of teachings/thoughts (Secularism), belief in the ability of reason, the development of Utilitarianism, the development of new Capitalism, the discovery of Modern human Subjectivity, Rationalism and Optimism and belief in So that the characteristics of philosophical thought in this era are referred to as "logic thinking in philosophy and also as critical philosophy which often uses Kant's vocabulary", especially being critical of the authority of Revelation, critical of the authority of the cosmos, critical and tends to reject myths that are considered to be does not provide certainty, and which does not provide a definite grip. The birth of modern philosophy itself is due to the unwillingness to believe in the authority of truth as believed by the Greek philosophers who always glorified and believed in the authority of the cosmos.

Then when it comes to the philosopher Friedrich Wilhelm Nietzsche which is around the 19th century and entering the 20th century. Where the style of Western philosophical thought at this time became "Anthropocentric", where the characteristics of thought only emphasized or focused more on the ratio and human reason an-sich, and not on the universe or God as in previous eras. So that the characteristics of philosophical thought at this time are referred to as "logic thinking in philosophy and also as critical philosophy which often uses Kant's vocabulary", especially being critical and rejecting the authority of Revelation, critical of the authority of the cosmos, critical and tending to reject myths that are considered to be does not provide certainty, and which does not provide a definite grip.

In addition, in the 19th and early 20th centuries, his style of thought was centered on anthropos, as well as logocentrism. Where "Logos" means language, text, content, thoughts, words and speech. Therefore, 20th century philosophers argue that language is the most important object for their thinking. Philosophy is a text that must be interpreted. Philosophers conduct an investigation of the text and take a theme that interests them and question who composed the text. Philosophy is about philosophy or hermeneutics (Hamersma, 1992).

Therefore, the belief in the understanding of philosophy that occurred in the 18th century, 19th century to the 20th century which is referred to as the modern century until the Post-modernism century, made the philosopher Derrida who is very famous for his deconstruction theory provide sharp criticism and at the same time dismantle the establishment of the modern and postmodern centuries. Anthropocentric modernism and Logocentrism which always emphasizes the ratio or reason and complexity that departs from understanding language, meaning, symbols, understanding emotions that exist in humans. Although in this case Contemporary or Post-modern Philosophy muster the power to answer all the complexities of problems. However, it is still a concern for western philosophers to conduct studies instead of rushing to propose false solutions. Although the establishment of Anthropocentrism and Logocentrism is also considered by Derrida as an approach that causes restraint and shackles to writing. Anthropocentrism and Logocentrism not only caused the cessation of philosophy, but also led to the end of all human science. Because humans are forced into a system that gives rise to their own dogmatism by legitimizing the power of the "ego" into a single certainty that Modern humans always seek and glorify is a necessity, the only thing that can be said to be certain is an uncertainty. Therefore, according to Derrida, certainty is uncertainty. Because in this modern era, logos dominates the human mind, where humans are forced to seek the postulates of absolute truth as a single truth, general and universal. So the impact of this understanding is oppressive knowledge, because it forces humans to enter into a system that gives rise to dogma and legitimizes the power of ratio (Santoso, 2012).

The presence of Post-modernism which is often associated with Jean-Francois Lyotard, Michael Foucault and Derrida with several concepts/paradigms that are contradictory to modernism such as deconstruction, decentralization, nihilism and so on, which basically wants to place small narratives rather than large narratives that placing all criticisms of universal knowledge, of the metaphysical tradition, foundationalism and of modernism (Maksum, 2014).

Although the presence of Post-modernism itself also received sharp criticism from Ernest Gellner in the book *Post-modernism, Reason and Religion*, published in 1992, where he stated that the presence of Post-modernism which is also inconsistent and also raises question marks and uncertainty is precisely will lead to relativism and for that he proposes the concept of rationalist fundamentalism, because rationality is a standard that applies across cultures (Titus, 1959).

Although Ernest Gellner's critique of Post-modernism appears as the antithesis, it does not bother Michael Foucault and Derrida, and instead continues to criticize Modernism's understanding of "epistemology", which is a branch of philosophy that questions knowledge, the problem in question is the source of that knowledge. what? whether the ratio of "thought" or sensory experience. In this regard, the philosophers Rene Descartes and David Hume are in a position that gets this criticism. Then he then questioned how the conditions for the possibility of knowledge were investigated by Immanuel Kant, and the limits of the extent to which rationality was also investigated by Immanuel Kant. While the part of the whole knowledge system was researched by George Wilhelm Hegel who was trying to build life, (Titus, 1959).

Historically, when philosophy entered the contemporary era and the end of the Post-modern era around the 21st century after Friedrich Wilhelm Nietzsche, it made this century even more absurd. The emergence of "killer" God philosophers such as Feurbach, Karl Marx, Nietzsche and Sartre. Feurbach, for example, projects that God is all-powerful because humans project themselves to be weak, whereas God is strong because of the strength of humans themselves. Criticism of atheist philosophers of the 20th century to the 21st century focused on the inability of humans to rationally account for their faith. The biggest enemy of 21st century religion is secular humanism, which is trying to revive the Greek-Roman culture which argues that the origin of human life is the human being himself. Eliminating supernatural and spiritual experiences from the reality of human life and cultural processes.

It is well realized that when the contemporary era or the Post-modern to post-modern era (20th century to 21st century) dominates human thought, this is a century with legacies of various kinds of debates that have lasted for centuries in the history of Western philosophy, which of course is very complicated. Even these two centuries are said to be centuries in an arbitrary form, where the contemporary era of Post-modernism Post Friedrich Wilhelm Nietzsche criticized the Greek period and the Middle Ages was an era or century that was very rigid, and has a metaphysical pattern, namely with all branches. the most abstract philosophy, and always questioning what is the basis of all things, always asking what ultimate reality is, always questioning the divine problem,(Appignanesi, 1988)

On the other hand, the emergence of the Contemporary era to post-modernism as a form of philosophical thought that developed after the modern era which was also marked by the presence of several schools of thought such as "Criticalism" Immanuel Kant (1724-1804 BC) who tried to reconcile between the schools of rationalism and empiricism. (Maksum, 2011). As well as the form of the existence of "Idealism" whose characters are; GWF Hegel (1770-1831 BC), which states that "every Thesa must have its Antithesis and from both will produce a Synthesis which has a combination of properties of thesa and its antithesis but synthesis is neither tesa nor antithesis". Then it was also marked by the emergence of Positivism, which was popularized by Auguste Comte (1798-1857 BC) which only took what was based on facts. For example, water boils at 100° Celsius (212° Fahrenheit) and the iron is 10 meters long. These measures are rational, quantitative and there is no possibility of disagreement. So this is where science in the true sense (Suriasumantri, 1993)

It is also marked by the emergence of the Phenomenological school which was pioneered by Edmund Husserl (1859-1938 BC), whose core philosophy is that in order to find the right thought, one must return to the "things" themselves, namely the nature of themselves, because the first thought does not open the veil that lies behind it. cover the essence of the need for a second thought in the form of "intuition". So that the knowledge obtained is not value-free but value-laden, in other words, the status of all knowledge is temporary and relative. Then mark the emergence of the flow of Existentialism, the character is Friedrich Wilhelm Nietzsche (1844-1900) as the author has alluded to before. The main idea of it is the will to power (will to power) which is shown to be *Übermensch* or superhuman. *Übermensch* is a way for humans to give value to themselves without turning away from the world and looking across the world, in other words, they no longer believe in the form of supernatural values of humans and the world. While existence itself is the way humans are in the world and their existence, because everyone has their own place in this life that is according to their respective abilities. So don't want something that's beyond your ability, because doing something that's beyond your own ability has a disgusting falsehood. The doctrine of this school is "existence precedes essence" which means that after humans are in this world, they themselves must determine who they are. Because in the beginning, humans are nothing without existence (Siswomihardjo, n.d.). in other words, no longer believe in the form of the supernatural value of humans and the world. While existence itself

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In such a way that departing from the emergence of several thoughts/schools above, Jurgen Habermas interprets the contemporary to post-modern era itself not as a culture or thought that is different or disconnected from modern culture and thought. However, the emergence of the contemporary to post-modern era is trying to overcome the various shortcomings that arise from the culture and thought of the modern age itself. Derrida considers that postmodernism is thought and culture that tries to take from classical, modern, and postmodern culture various things that are considered good, as the basis for postmodern thought and culture. In this view, postmodernism can be referred to as a synthesis or combination of classical, modern, and classical thought and culture.

Departing from the various explanations that the author has described above, of course, philosophy has led us to a phenomenon of the existence of various cycles of knowledge, thus forming a configuration by showing how the "tree of knowledge" has thrived as a form of human phenomenon, each of which branches at a different stage. then break away from the stem of philosophy, then develop independently with each thought, understanding, and have and follow their own methodology.

Similarly, when the emergence of the School of Thought known as empiricism (John Locke), rationalism (Descartes), criticism (Immanuel Kant), Positivism (August Comte), Phenomenology (Husserl), Constructivism (Feyerabend) and so on, where each each School of Thought has its own method, so that methodology becomes a very interesting part of

epistemology (the basis and procedures for moving towards knowledge) is also (Storig, 1970).

When humans attempt to step up and achieve knowledge, humans also carry out investigations about what is happening in the world, this is usually done in two forms of methods, namely both inductively and deductively (Affandi, 2019)

This shows, because in the development and various cycles of knowledge with their respective scientific methods cannot be separated from the philosophy of science. Because philosophizing means thinking. And the method of thinking that is inductively, deductively can provide a scientific research or scientific methodology so that the development of science is progressing and can be realized because of human activities in the form of research conducted by scientists, as did some philosophers including; Francis Bacon (1551-1620), then Karl Raimund Popper and Thomas Kuhn who have made observations on the activities or workings of these scientists (Affandi, 2019). So on the basis of this explanation,

LITERATURE REVIEW

Definition of Philosophy

Etymologically, philosophy comes from the Greek philosophia (from philein which means to love, or philia; love, and sophia; wisdom) which gave birth to the English word "philosophy", which is usually translated as "love of wisdom". In the traditional description from Ancient Greece, Pythagoras (572-497 BC), is stated as the person who first used the word philosophia (Affandi, 2019).

When asked if he was a wise man, Pythagoras is also reported to have called himself philosophos, meaning lover of wisdom. But many sources assert that sophia has a broader meaning than the wisdom of an-sich. It means various truths, extensive knowledge, intellectual virtue, sound judgment, and even ingenuity in deciding practical matters. So philosophy was originally a very general word to describe the pursuit of mental virtue (Kneale, 1972).

Plato's conceptions of philosophy vary and can be found in all of his dialogues that explain philosophy which is still considered a study that mostly discusses the main issues of Plato's dialogues with his method called dialectics (the art of discussion). For Plato philosophy must proceed by criticizing prevailing opinions. Where intellectual wisdom is obtained through a process of critical examination, discussion and explanation of ideas. In his conception, Plato asserted that philosophy is an investigation into the ultimate nature of reality. Philosophers seek the ultimate causes and principles of things. The result is knowledge of ultimate reality (Kneale, 1972).

Aristotle in his book Metaphysics has his own concept of philosophy, namely as a science that investigates things that exist as things that exist that are different from their parts from one another. For him science is considered the first and last science, because logically it is required for every other science and to understand it one must also master the other sciences (Kneale, 1972).

While the Roman thinker Cicero called philosophy "the mother of all the arts". He also defined philosophy as art vitae (the art of life). At the same time, Cicero also said that the medieval philosophical conception was regarded as a servant of theology, namely as a means of establishing truths about "God" that could be reached by human reason. Therefore, he asserted, the philosophy of Thomas Aquinas puts the theological truths received by belief through revelation cannot be challenged by a philosophical truth that is reached by human reason, because these truths have the same source in God. Philosophers are free to investigate anything by rational methods,

A philosopher of realism John Wild considers philosophy as an attempt to understand the most basic facts about the world we live in and explain these facts as far as possible. This

effort is based on three main teachings: (1) There is a real world of existence that humans do not create or construct; (2) existence that is real and can be known by the human mind, and (3) such knowledge is the only reliable guide for human behavior (Wild, 1948).

According to John Dewey, philosophy is an expression of human struggle in continually adapting the collection of traditions that make up the true human mind to new scientific tendencies and political ideals that are not in line with recognized authority. So philosophy is a tool for making adjustments between the old and the new in a culture (Dewey, 1927).

Philosophy is a view of life and as a staunch effort of ordinary people as well as intelligent people to make life as understandable and meaningful as possible (Brameld, Theodore, 1961). While the British thinker Francis Bacon called philosophy "the great mother of the sciences". Philosophy masters all knowledge as its field. As for Sidgwick, philosophy is a science that examines the special notions, fundamental principles, rigorous methods, and main conclusions of a science with the aim of coordinating it with those of the other sciences. In this sense philosophy can be called the science of the sciences (*scientis scientiarum*) (Sidgwick, 1971).

Philosophy is also said to be the science of the sciences, the theory of all theories and is a continuation of the investigation of the presuppositions of science in general (Lewis, 1973). Philosophy is also considered as the science of basic human nature. Every other branch of human knowledge as a creation of the human mind is regarded as dependent on philosophy for its foundations (Johnstone, Henry W., 1968). Philosophy is also a field of reality or existence that philosophers see can never escape the grip of philosophy, namely value. Therefore philosophy is described as the science of values (Johnstone, Henry W., 1968).

For Herbert Spencer philosophy still remains to be maintained as the name for the knowledge of the highest level of generality. This is tacitly strengthened by the inclusion of God, nature, and man in its sphere (Herbert, 1955).

According to Mora, who is also a critical philosophical thinker, philosophy is a point of view of all possible objects as far as objects of scientific investigation, religious beliefs, artistic activities, shared experiences, and so on (Mora, 1960). While Whitehead describes philosophy as an attitude towards teachings that are accepted without knowledge. By being accepted "without knowledge" it is meant that the full meaning of the teaching in terms of the limitations of the associated circumstances is not understood. So man persistently seeks to expand his thinking through his environment (Whitehead, 1953).

Winch described philosophy as an investigation into the nature of human knowledge of reality and the differences that such knowledge might make to human life (Winch Peter, 1958). As for Ducasse in his book "Philosophy as a Science (1941) explains that philosophy is an attempt to seek knowledge. The knowledge that philosophers seek is about facts called judgments using words such as good and bad or moral and immoral (Winch Peter, 1958).

Russell in his writings on the critique of knowledge defines philosophy as a critique of knowledge. Therefore, philosophy critically examines the principles used in science and in everyday life, and looks for any discrepancies contained in these principles (Russell Bertrand, 1959). Windelband's conception that the essence of philosophy is to examine in depth the fundamental presuppositions in the particular sciences and in common life. The examination of these presuppositions is philosophical (Wilhelm, 1914).

Analytical philosophers in the present century say that philosophy is a critical analysis of the basic concepts by which people can think about the world and human life (Alston, 1964), the conception of philosophy as an analysis of concepts followed by a view of philosophy. as a study of language use (Pap Arthur, 1956). Therefore, Rudolf Carnap concludes that the conception of philosophy is a logical sentence form of scientific language (White, 1957). While Negel said that philosophy is a critical commentary on existence and

the claims that we have knowledge of it. Philosophy is considered to help what is blurred in its experience and object (Ernest, 1956).

From the examples of understanding philosophy above, that philosophy is not meant to be complete. This means that philosophy is clear that there will be diversity, the possibility of changing the different views of philosophy. The vague situation created by the diversity of these conceptions is absolutely inevitable and constitutes a problem which is called "the present situation in philosophy". The situation is precisely done by Mora as follows: (Mora, 1960).

“Some claim that philosophy is a science, or something very close to it; some argue that, if it is not yet a science, it should eventually become one. Some say that philosophy has no meaning unless it is concerned with moral and practical issues; some, on the other hand, maintain that philosophy theory and human practice inhabit two entirely different, nas opposite, worlds. In addition, there appears to be an interminable breaking up of philosophy into disciplines and subdisciplines. Emphasis is placed by some on epistemology, by other on logic, by others yet on metaphysics, but what epistemology, logic or metaphysics is about changes with each one of the philosophers advancing there views.

We can thus say practically anything we like about philosophy/ philosophy is concerned with facts. Philosophy is concerned with values; it deals with knowledge, it deals with actions; it consists in intuition, it consists in reason; it refers to everything, it refers to nothing; it produces anxiety, it cures them. The question “What is contemporary philosophy?” seems futile; more than ever we face not philosophy but philosophies, philosophies in growing number and with increasing sharp contrasts”.

(Some claim that philosophy is a science or something very close to science; others claim that if philosophy is not yet a science, it must eventually become a science. Some argue that philosophy has no meaning except when it comes to moral questions. and practical; on the other hand some maintain that philosophical theory and human practice inhabit two entirely different, or even contradictory, worlds. Moreover, there seems to be an endless breakdown of philosophy into its branches and sub-branches. By some emphasis placed on epistemology, by others on logic, by others on metaphysics, some on what epistemology, logic or metaphysics is, this is different for each philosopher who put forward those views.

So practically we can say whatever we like about philosophy. Philosophy is concerned with facts, concerned with values; philosophy speaks of knowledge, actions; philosophy consists of intuition, reason; philosophy refers to everything, to nothingness; philosophy produces anxiety, philosophy cures it. The question "What is philosophy today?" apparently useless; more than ever we are dealing with not philosophy but philosophies which are increasing in number and with increasing sharp contradictions).

The confusion in the understanding of philosophy can also be seen from its divisions into various branches. So philosophy seems that there is no orderly measure imposed on the division and no "methodical" procedure is used to classify the branches that arise. Note that for the most part only “arbitrariness” prevails in the division of philosophy (Joad, 1994).

Understanding the Philosophy of Science

To understand the meaning and significance of the philosophy of science, below are the definitions of the philosophy of science from several experts which are summarized in the Philosophy of Science, compiled by Ismaun (Ismaun, 2002).

- 1) Robert Ackerman “philosophy of science in one aspect as a critique of current scientific opinions by comparison to proven past views, but such a philosophy of science is clearly not a discipline autonomous of actual scientific practice”. (The philosophy of science is in a sense a critical review of current scientific opinions in comparison to the criteria

- developed from such opinions, but the philosophy of science is clearly not an independent branch of science from actual scientific practice.
- 2) Lewis White Beck “Philosophy of science questions and evaluates the methods of scientific thinking and tries to determine the value and significance of scientific enterprise as a whole. (Philosophy of science discusses and evaluates the methods of scientific thought and tries to discover and the importance of scientific endeavor as a whole).
 - 3) Cornelius Benjamin “That philosophic discipline which is the systematic study of the nature of science, especially of its methods, its concepts and presuppositions, and its place in the general scheme of intellectual disciplines. (The branch of philosophical knowledge which is the systematic study of science, in particular its methods, concepts and presuppositions, and its location within the general framework of the branches of intellectual knowledge).
 - 4) Michael V. Berry "The study of the inner logic of scientific theories, and the relations between experiment and theory, ie of scientific methods". (The study of the internal logic of scientific theories and the relationships between experiment and theory, i.e., of the scientific method).
 - 5) May Brodbeck “Philosophy of science is the ethically and philosophically neutral analysis, description, and clarifications of science.” (Ethically and philosophically neutral analysis, description and explanation of the foundations of science.
 - 6) Peter Caws “Philosophy of science is a part of philosophy, which attempts to do for science what philosophy in general does for the whole of human experience. Philosophy does two sorts of thing: on the other hand, it constructs theories about man and the universe, and offers them as grounds for belief and action; on the other, it examines critically everything that may be offered as a ground for belief or action, including its own theories, with a view to the elimination of inconsistency and error. (The philosophy of science is a branch of philosophy, which tries to do for science what philosophy in general does to all human experience. Philosophy does two kinds of things: on the one hand, it constructs theories about man and the universe, and presents them as foundations. for beliefs and actions; on the other hand,
 - 7) Stephen R. Toulmin “As a discipline, the philosophy of science attempts, first, to elucidate the elements involved in the process of scientific inquiry observational procedures, patterns of argument, methods of representation and calculation, metaphysical presuppositions, and so on and then to evaluate the grounds of their validity from the points of view of formal logic, practical methodology and metaphysics”. (As a branch of science, the philosophy of science tries first to explain the elements involved in the process of scientific inquiry: observational procedures, patterns of discussion, methods of substitution and calculation, metaphysical presuppositions, and so on. and then assesses the grounds for his error from the point of view of formal logic, practical methodology, and metaphysics).

Philosophy of Science as the successor to the development of the philosophy of knowledge is a branch of philosophy of science whose target object is science (knowledge). People say: A branch of philosophy that was also born in the 16th century which is called “Wissenschaft Lehre, Philosophy of Science. Wetenschapsleer” which we now translate into philosophy of science (Siswomihardjo, 1999).

Because scientific knowledge is "a higher level of knowledge" in our daily knowledge tools, the philosophy of science cannot be separated from the philosophy of knowledge. The objects of the two branches of knowledge often overlap here and there, but it is necessary to distinguish the formal aspects and not to be obscured as the authors point out (Siswomihardjo, 1999).

The essence of science which is the pillars for the existence of science and becomes the object of the philosophy of science is; Ontology, Epistemology and Axiology (Suriasumantri, 1984). Ontology includes the problem of what is the nature of science, what

is the nature of truth and reality inherent in that knowledge, which cannot be separated from the view of what and how "that exists" (Peursen, 1985). The understanding of individualism or spiritualism, materialism, dualism, pluralism and so on, is an ontological ideology that will determine the opinions and even beliefs of each of us about what and how the truth and reality are to be achieved by science.

While epistemology includes the procedures and means to achieve knowledge. However, differences regarding the choice of ontology will result in the means to be used, namely reason, experience, intuition, intuition or other means, showing the strengths and weaknesses of an approach and the limits of the validity of a result obtained through a scientific approach. The axiology includes values, parameters for what is called truth or reality. as our lives explore various areas such as the social area, the physical-material area and the symbolic area, each of which shows its own aspect. More than that, axiology also shows what rules we must pay attention to in applying knowledge to a practical level (Peursen, 1985).

With this we get an idea that the philosophy of science is a philosophical study that wants to answer questions about the nature of science, which is viewed from an ontological, epistemological and axiological point of view. In other words, the philosophy of science is part of epistemology (philosophy of knowledge) which specifically examines the nature of science, such as:

- 1) What does science study? What is the true form of the object? What is the relationship between the object and the human perception that produces knowledge? (Ontological basis).
- 2) What is the process that enables the acquisition of knowledge in the form of science? How does this work? What things must be observed in order to acquire true knowledge? What are the criteria? What is the truth called? Are there criteria? What methods/techniques/means help us in gaining knowledge in the form of science? (Epistemological foundation).
- 3) What is knowledge in the form of science used for? How is the relationship between the way of use and moral rules? How to determine the object under study based on moral choices? How is the relationship between procedural techniques which are the operationalization of the scientific method with moral/professional norms? (Axiological basis) (Suriasumatri, Jujun S., 1984). In its current development, according to the author, the philosophy of science also directs views on strategies for the development of science which also involve ethics and heuristics to the cultural dimension to capture not only the usefulness of science, but also its meaning and significance for human life. Therefore, in today's science development strategy, we see three kinds of opinions. First; the opinion that science develops in closed autonomy, where the influence of context is limited and even excluded. Second; opinion which states that science and context permeate and influence each other. So that it allows the emergence of new ideas that are always actual and relevant to the fulfillment of the needs of human life, in accordance with the development of time and circumstances. Third; the opinion which states that science must be dissolved in its context, is not only a reflection, but also provides a justification for the context. according to the development of time and circumstances. Third; the opinion which states that science must be dissolved in its context, is not only a reflection, but also provides justification for the context. according to the development of time and circumstances. Third; the opinion which states that science must be dissolved in its context, is not only a reflection, but also provides a justification for the context.

In addition, the development of scientific research with scientific research methods cannot be separated from the philosophy of science as a method of thinking. Because the

method of thinking is done either deductively or inductively, it will certainly provide a scientific methodology so that the format of research and writing can be standardized.

RESEARCH METHOD

In writing this scientific article, the author uses qualitative methods and literature studies or library research. For this reason, a review of literature books is carried out in accordance with the theories discussed, especially in the scope of Islamic Education Management. The writing of this scientific article is carried out by the author by analyzing reputable scientific articles, as well as scientific articles from journals that are not yet reputable, all of the scientific articles cited are sourced from Mendeley and Scholar Google.

In qualitative research, literature review must be used consistently with methodological assumptions. This means that it must be used inductively so that it does not direct the questions posed by the researcher. One of the main reasons for conducting qualitative research is that the research is exploratory, (Ali & Limakrisna, 2013).

Furthermore, it is discussed in depth in the section entitled "Related Literature" or Literature Review ("Review of Literature"), as the basis for formulating hypotheses and will then become the basis for making comparisons with the results or findings revealed in the study. (Ali & Limakrisna, 2013).

FINDINGS AND DISCUSSION

Contribution, Interaction, Between Philosophy and Science

Since the time of Classical Ancient Greece, philosophy and science are one, there is no problem to distinguish between the two. However, when Aristotle's theoretical conception emerged which divided rational knowledge into three types which have their own subdivisions, namely; theoretical knowledge, practical knowledge and poetic knowledge. Thus philosophy and science undergo a distinction, and become a more organized form of collection with its own appropriate object. Thus, theoretical knowledge is divided in the form of Mathematics (as a pioneer and the most valuable part of natural philosophy), and physics (as a natural science and sometimes translated into natural philosophy) (by Aristotle referred to as "prote philosophia" (a form of philosophy). first) whose object is the eternal, unchanging, and separate from matter. While practical knowledge includes ethics, economics and politics. Meanwhile, the knowledge of poetics is concerned with artistic or artistic production (Greek, 1967)

The division of the types of philosophy and how they correlate with other sciences, of course, we will depart from the introduction, growth and development of philosophy itself. The growth and development of philosophy has interrelationships among the parts of systematic philosophy, special branches of philosophy and branches of scientific philosophy (Gie, 1979)

An example can be given to show and explain the existence of such interconnectedness that Ethics as the fifth part of systematic philosophy must have to do with political philosophy as a special branch of philosophy, namely in relation to the application of moral judgment to questions concerning the individual as regulated in a country. . Political philosophy has political science as its parallel and complement, because both investigate issues concerning the state, one philosophically and the other scientifically. The nature and foundations of political science are studied by a branch of scientific philosophy, namely the philosophy of social science. Thus, the reciprocal relationship between political philosophy and the social sciences is inevitable. because both are concerned with the basic concept of the state and of course there is a further mutual connection between the philosophy of the social sciences through the philosophy of science in general and the methodology or logic of the third or fourth part of systematic philosophy in relation to questions or conclusions in

political science. So it is very clear that philosophical knowledge has a structure as illustrated in the diagram below.

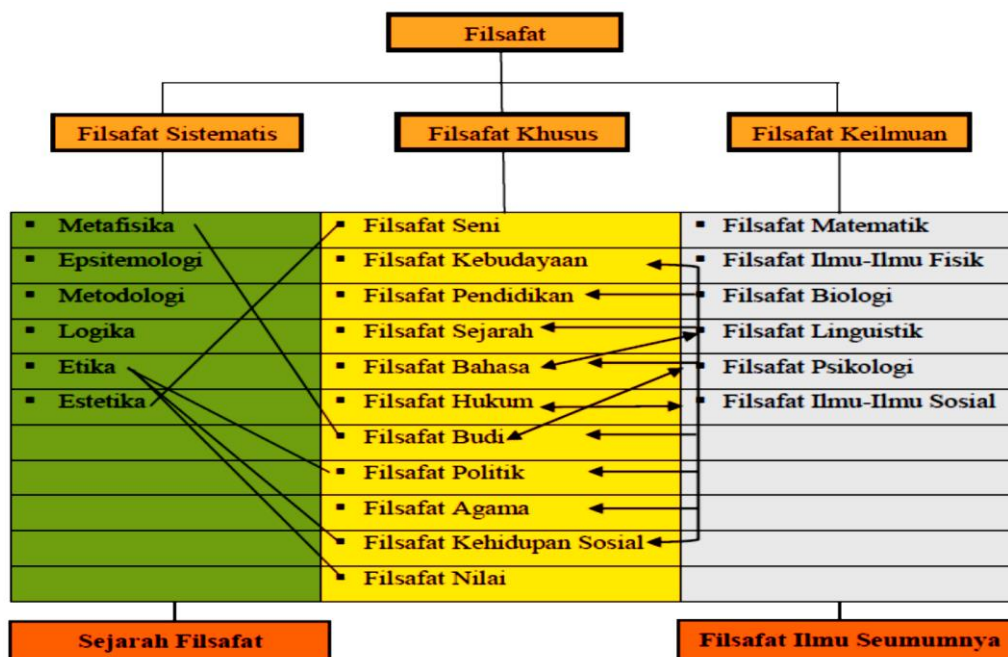


Diagram. I
Map / Structure of Knowledge of Philosophy Today (Gie, 1979)

Scientific Research and Scientific Methods in Philosophy of Science

To carry out scientific activities well, it is necessary to think. The availability of these facilities enables regular and careful research and scientific studies to be carried out. Mastery of the means of scientific thinking is something that is imperative for a scientist. Because without mastering this, good scientific activities or research cannot be carried out (EB, 1956).

However, mastery of the scientific method is a prerequisite to be able to understand the way of thinking contained in the steps of scientific research. Aspects of the philosophy of science should be directly linked to scientific thinking activities in general and research activities in particular. Research steps that include what is researched, how research is carried out and for what research results are used in a coherent manner with the foundations of ontology, epistemology, and scientific axiology. Thus, philosophical knowledge that is concretely potential can strengthen the ability of scientists to carry out scientific activities or research operationally (Nas, 1963).

The scientific method itself is a procedure in obtaining knowledge which is called science. So science is knowledge that is raised through the scientific method. But keep in mind, not all knowledge can be called science, even this scientific method cannot be applied to knowledge that does not belong to the group of sciences. Because science is knowledge that has to go through certain conditions. The conditions that must be met so that knowledge can be called science are listed in what is called the scientific method. Mathematics and language do not use scientific methods in compiling their knowledge, because mathematics is not a science but knowledge which is a means of scientific thinking.

In the previous discussion, the author has explained about the development of scientific research with research methods that cannot be separated from the influence of the philosophy of science as a method of thinking.

Because the method of thinking, whether done deductively or inductively, will certainly provide a scientific methodology, so that the format of research and writing can be standardized.

Deduction itself comes from the English absorption word deduction which means drawing conclusions from general conditions, finding the special from the general. Deduction is a way of thinking that is captured or taken from general statements and then drawn specific conclusions. Deductive conclusion drawing usually uses a pattern of thinking called "syllogism". Deductive thinking method is a method of thinking that applies general things first and then connected them in specific parts. While thinking inductively is a way of studying something that starts from specific things or events to determine general laws. Induction is a way of thinking in which general conclusions are drawn from individual cases. Inductive reasoning begins by putting forward statements that have a specific and limited scope in constructing an argument that ends with a general statement. Inductive thinking is a method used in thinking by starting from the specific to the general. The law deduced by the investigated phenomenon applies to similar phenomena that have not been studied. Generalization is a form of inductive thinking method. The way of induction takes the middle way, which is between the way that examines only one proof and the way that counts more than one, but all of them can be counted one by one. Induction presupposes that because some (not all) of the evidence he examines are true, then all other evidences in his class with him are also true (Suriasumantri, Jujun S.,

Thus, it is clear that scientific reasoning and the results of scientific research are essentially a combination of deductive and inductive reasoning. Where further deductive reasoning is related to empirical and positivist (qualitative) and inductive reasoning with rationalism, constructivist and critical (qualitative). Although rationally science compiles its knowledge consistently and cumulatively, empirically science separates knowledge that is in accordance with facts and that which is not. Therefore, before being empirically verified, all rational explanations put forward are only temporary. This temporary explanation is usually called a hypothesis.

Inductive reasoning is reasoning that does not have a logical conclusion to be pursued. Often also, inductive reasoning is intended as drawing specific facts or observations to general conclusions that are only used to explain the various facts that exist. In other words, the withdrawal of understanding (reasoning) from the particular to the general. Whereas deductive reasoning, on the other hand, draws general facts to specifics. Deductive reasoning is a reasoning process that involves reaching a conclusion from a set of conditional propositions or from a pair of syllogistic premises. It is more understandable if I correlate the two methods of reasoning with research methods, namely; quantitative (deductive) and qualitative (inductive) research. The variety developed by the two studies is different from each other. Quantitative research puts more emphasis on deductive reasoning, so the problem is related to comparisons or relationships with each other, only to the extent of comparisons not knowing deeper. Whereas in qualitative research, the researcher is not limited by the theme, the researcher is free to describe as a whole related to the problem or research theme. This refers later to the method used in qualitative research, namely inductive reasoning (The researcher is not limited by the theme, the researcher is free to describe as a whole related to the problem or research theme. This refers later to the method used in qualitative research, namely inductive reasoning (The researcher is not limited by the theme, the researcher is free to describe as a whole related to the problem or research theme. This refers later to the method used in qualitative research, namely inductive reasoning (Suriasumantri, 2005).

To discuss and see the three paradigms in scientific research and also social science in the context of what and how the contribution of the philosophy of science in the context of epistemology and a series of studies of philosophy of science. Then the author will discuss

the three paradigms in research, namely; first; Positivism, second; Constructivist, and the third is Critical.

These three paradigms are very important for a researcher, for those who will compose a scientific work, whether it be in the form of a thesis, thesis or dissertation or other scientific paper. In this case, the writer will look at the different paradigms in the research process both ontologically, epistemologically and axiologically.

The paradigm itself according to Guba (Mustansyir, Rizal and Munir, Misnal, 2001) is a set of basic reality beliefs that will guide human actions to be used to explore the truth, namely; how humans view the world. Also how humans are able to understand the intellectual tradition that underlies certain theories. For example, the positivist tradition will give birth to theories related to positivistic theories. Then the critical traditions will give birth to theories that are critical.

Historically, the word paradigm was first used in research by Thomas Kuhn in 1962. The scientific research paradigm by Kuhn was used to describe the conceptual framework accepted by the research community or scientists and provide them with guidelines for conducting research. So the map of the path that must be taken by every scientist in conducting research is expected to find a clear path by determining the paradigm ((Kuhn, 1993).

The importance of understanding the paradigm in conducting scientific research, because; First, how the research design we make, of course depends on the design we make. Second, what approach is used. Third, what method is suitable, and fourth, how is the relevant method in collecting data. Therefore the paradigm is very important, as a starting point to get to the last point for us to determine.

Paradigm differences also describe a procedure for finding the truth. So the truth of ontology, epistemology and axiology in the context of the paradigm will be a procedure in finding the truth more varied both through the positivistic paradigm which will see more from the outside and its quality aspects. And this positivistic paradigm or the subject or object under study, such as research on the COVID-19 pandemic, the existence of social distancing and keeping a distance. So in this positivistic paradigm it fits, so you must keep your distance so you don't get infected, keep your distance so that objectivity is maintained.

Then the second is the constructivist paradigm, this research will look at how the problem is constructed, the patterns that occur, then the tendency of the phenomenon in the subject's point of view which is the main consideration.

Then the third is the critical paradigm. This critical paradigm will challenge the establishment. Because power shows more hegemony and oppression. This creates a new destiny, a new social order. For example, a more prosperous society, a just society. So that research with a critical paradigm is the key word, namely the paradigm to challenge the establishment (the existence of hegemony, the existence of oppression). But basically the goal of the critical paradigm is to create a new, better world. A new fate that values equality more.

To clarify the map of the differences in scientific research paradigms when viewed from ontology, epistemology and axiology. It can be seen in the image below.

Differences in Scientific Research Paradigm
When viewed from the ontology (Guba and Lincoln, 1994)

positivistic	Constructivist	Critical
The key word is "Critical Realism" that is, there is a real reality that is governed by	The key word is "Relativist" namely; reality is a social construction.	The key word is "Historical Realism" ie

<p>certain universally applicable rules. Although the truth of this knowledge may only be obtained probabilistically</p>	<p>So something constructed by society, whether political, cultural, social, economic and so on, including the construction of science as well. Therefore, the truth of reality is relative, applies according to the context, is specific which is considered relevant by social actors. Suppose; research in the context of Islamic studies. When the Prophet Muhammad was born that women may marry as many men as possible, but a few years later the prophet came with a message of Islam and then limited it to four. Although in the context at that time it was relevant and had a vision to reduce oppression, exploitation of women. But in the current context is it still relevant, suitable or not. Of course it's still relative and debatable</p>	<p>the observed reality is the reality of all (Virtual Reality). Which has been formed through historical processes and social, cultural and economic political forces. In this case, it needs to be criticized, dismantled and explored in the historical context of how the reality is behind it</p>
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**Differences in Scientific Research Paradigm
When Seen From Epistemology**

positivistic	Constructivist	Critical
<p>The key word is “Dualist” or “Objectivist”. This means that there is an objective reality as an external reality outside the researcher. So the researcher must keep as far as possible from the object of research. So it avoids closeness subjectively. This research is suitable to be carried out in the era of covid-19</p>	<p>The key words are “Subjectivist Transactionalists” namely; This means that understanding a reality or our research findings is an interaction between the researcher and the one being studied.</p> <p>For example; Clifford Geertz's phenomenal research that makes Muslim categories. There are abangan Santri, there are priyayi.</p> <p>This understanding of reality is an interaction between the researcher and the person being studied with a long experience.</p> <p>Or a researcher on headscarves who examines people who wear headscarves, it turns out that the results of the interaction between researchers and hijab wearers have various assumptions.</p>	<p>The key word is “Subjectivist Transactionalist”. The same is true for the critical epistemological paradigm with the constructivist one.</p> <p>The relationship between the researcher and the researched is always bridged by certain values. Understanding a reality is value mediated finding. Because there are values that are mediated between those studied with the research subject</p>

	Some wear the hijab because of the environment, some wear the hijab because the environment forces them to wear the hijab. Or those who wear the hijab because fashion follows the style of the artist they idolize, or the reason for wearing the hijab is because of ideology	
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**Differences in the Paradigm of Scientific Research
When Seen From Axiology**

positivistic	Constructivist	Critical
The position of the researcher as a "server". So values, ethics, morals must be outside the research process. So the critical paradigm positivistic researcher should not be confined by values, ethics, morals and have to get out of it. The position of the researcher as a "disegintegrated scientist" and the purpose of the research is to explain (explain, predict). For example, the electability of party candidates	Position of researcher as "facilitator" Values, ethics, moral choices are an inseparable part of research. Opposite of positivist Researchers as fashioned participants. So researchers have a passion for	Position of "activist" researcher Values, ethics, moral choices, it is an inseparable part of research. So it's the same with constructivist basically But researchers position themselves as intellectually transformative

CONCLUSION

History records that philosophy has succeeded in changing the thought patterns of the Greeks and mankind throughout the world from thoughts based on superstition and myth to thoughts that use logic, evidence, and scientific principles. Philosophy has bridged the change from mythcentric to logocentric, the change from thinking patterns based on myth and superstition to thinking patterns based on science (logos). This change in mindset has proven to have far-reaching implications for civilization. Nature and its phenomena that were previously feared are then studied, researched, and even exploited. From these investigations of natural phenomena, various theories and scientific findings were found that explain the changes and phenomena that occur,

The influence of knowledge in the course of philosophical life from century to century, from myth, anthropos, and then to theos (theology/dogma) and changed to logos. That is the journey of the philosophy of knowledge to become a philosophy of science. Even though it started from the research of the universe, and then the sciences of astronomy, cosmology, physics, chemistry, and so on were born. Meanwhile, from the investigation of the human microcosm, biology, psychology, sociology, and so on are developed. Over time, these sciences have developed to become more specialized and increasingly produce technologies that have a direct and broad impact on our civilization and environment, or on human life.

The philosophy of science itself contributes to scientific inquiry and in human life, especially knowledge in the form of deductive reasoning related to empirical and positivist (qualitative) and inductive reasoning with rationalism, constructivist and critical (qualitative). Although rationally science compiles its knowledge consistently and cumulatively,

empirically science separates knowledge that is in accordance with facts and that which is not. Therefore, before being empirically verified, all rational explanations put forward are only temporary. This temporary explanation is usually called a hypothesis.

In addition, the philosophy of science is also substantially, methodologically and relevantly has provided a new paradigm in scientific research as well as for human life, namely; Positivism Paradigm, Constructivist Paradigm, and Critical Paradigm. These three paradigms are very important for a researcher who will compose a scientific work, whether it be in the form of a thesis, thesis or dissertation or other scientific paper.

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