



Reconstructing the Role of Logic and Reasoning in Scientific Inquiry: An Epistemological Perspective

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ABSTRACT

Logic and reasoning constitute the fundamental intellectual instruments through which scientific knowledge is generated, evaluated, and justified. Despite their central role in the philosophy of science, contemporary scientific discourse is increasingly characterized by complex patterns of inquiry shaped by digital technologies, interdisciplinary collaboration, and evidence-based decision-making. These developments necessitate a renewed examination of the epistemological functions of logic and reasoning within scientific inquiry. This study aims to reconstruct the conceptual relationship between logic, reasoning, and scientific knowledge by examining their philosophical foundations and their relevance to contemporary scientific practice. Employing a qualitative library research approach, this study critically analyzes classical and contemporary literature in philosophy, logic, and the philosophy of science. The findings demonstrate that logic provides the normative framework for valid thinking, while reasoning functions as the cognitive process through which evidence, arguments, and observations are systematically interpreted to construct scientific knowledge. Furthermore, the analysis reveals that the interaction between logic and reasoning underpins hypothesis formulation, theory development, scientific verification, and critical evaluation, making both indispensable components of scientific inquiry. This study contributes to the philosophy of science by offering an integrated epistemological interpretation that positions logic and reasoning as complementary foundations for the development of reliable, rational, and evidence-based scientific knowledge in the twenty-first century.

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INTRODUCTION

Scientific knowledge has developed rapidly over the past several decades, driven by technological innovation, interdisciplinary collaboration, and the increasing complexity of global challenges. Contemporary scientific inquiry no longer relies solely on the accumulation of

empirical observations but also demands systematic reasoning, critical evaluation, and logical justification to ensure that scientific claims are valid, reliable, and accountable. In an era characterized by artificial intelligence, big data analytics, computational modeling, and evidence-based decision-making, the ability to construct sound arguments and evaluate evidence has become an indispensable component of scientific practice. Consequently, discussions concerning the philosophical foundations of scientific inquiry have regained considerable attention among scholars seeking to understand how knowledge is generated, validated, and continuously refined.

The advancement of science is inseparable from the intellectual processes through which researchers formulate hypotheses, analyze evidence, interpret findings, and construct theoretical explanations. These processes require more than technical competence; they require disciplined thinking guided by logical principles and supported by appropriate reasoning. Logic provides the normative standards that distinguish valid arguments from fallacious ones, while reasoning enables researchers to connect empirical observations with conceptual understanding in a coherent and systematic manner. Without these complementary processes, scientific inquiry would risk producing conclusions that are inconsistent, subjective, or insufficiently supported by evidence. Despite remarkable progress in scientific methodology, contemporary research continues to encounter numerous challenges related to reasoning quality. The unprecedented availability of digital information has undoubtedly expanded opportunities for scientific discovery; however, it has also increased the circulation of misinformation, weak arguments, and unverified claims. Researchers are frequently required to evaluate large volumes of information originating from diverse sources with varying levels of credibility. Under these circumstances, logical analysis and sound reasoning become increasingly important as intellectual instruments for distinguishing scientifically acceptable evidence from unsupported assertions. This situation demonstrates that scientific advancement depends not only on technological sophistication but also on the quality of human reasoning that underlies the entire research process.

Within the philosophy of science, logic has long been recognized as one of the essential foundations of scientific thinking. Since the classical works of Aristotle, logic has provided systematic principles governing valid inference, coherent argumentation, and rational judgment. Throughout the historical development of scientific thought, these logical principles have continued to evolve alongside changing conceptions of knowledge, methodology, and scientific explanation. Modern philosophy of science further recognizes that logic should not be understood merely as a formal system of rules but also as a dynamic intellectual framework that guides the formulation, evaluation, and justification of scientific knowledge (Losee, 2001; Chalmers, 2013). Closely related to logic is the concept of reasoning, which represents the cognitive process through which individuals analyze information, establish relationships among ideas, evaluate competing explanations, and arrive at justified conclusions. While logic provides normative criteria for valid thinking, reasoning reflects the practical intellectual activity through which scientific knowledge is constructed. Deductive reasoning enables researchers to derive conclusions from established premises, whereas inductive reasoning facilitates the formulation of general principles from empirical observations. Abductive reasoning, meanwhile, supports the development of plausible

explanations for observed phenomena by identifying the most reasonable interpretation of available evidence. The interaction among these forms of reasoning illustrates that scientific inquiry is fundamentally both logical and interpretative, requiring the integration of formal principles with critical intellectual judgment.

Recent developments in educational and scientific research have further emphasized the importance of strengthening logical reasoning as an essential competency for the twenty-first century. International discussions concerning higher-order thinking skills, critical thinking, scientific literacy, and evidence-based reasoning consistently identify logical thinking as a prerequisite for effective scientific inquiry. Educational reforms implemented across various countries increasingly encourage learners to evaluate evidence critically, formulate rational arguments, solve complex problems, and make informed decisions based on systematic analysis rather than intuition or unsupported opinion. These developments indicate that logic and reasoning should no longer be viewed solely as philosophical concepts but as practical intellectual competencies that directly influence scientific productivity and innovation.

Furthermore, the rapid development of artificial intelligence and computational technologies has generated renewed philosophical debates concerning the nature of reasoning itself. Although intelligent systems are capable of processing vast quantities of information and performing sophisticated analytical tasks, they ultimately operate according to logical structures and reasoning models designed by human intelligence. Consequently, the growing integration of digital technologies into scientific research does not diminish the importance of logic; rather, it reinforces the need to understand its epistemological role in ensuring that scientific conclusions remain transparent, rational, and accountable. This contemporary context provides a compelling reason to revisit the relationship between logic, reasoning, and scientific inquiry from a philosophical perspective.

Recent scholarly literature demonstrates a growing interest in examining logic and reasoning from diverse disciplinary perspectives. Rather than treating logic solely as a branch of formal philosophy, contemporary researchers increasingly recognize its significance in scientific methodology, critical thinking, cognitive science, educational research, and interdisciplinary knowledge production. This expanding body of literature reflects the understanding that scientific progress depends not only on empirical observation but also on the quality of reasoning used to formulate questions, interpret evidence, and justify scientific conclusions. Within the philosophy of science, numerous scholars have emphasized that logic constitutes the normative foundation of scientific inquiry. Chalmers (2013) argues that scientific knowledge cannot be understood merely as the accumulation of empirical facts but should be viewed as the outcome of systematic reasoning governed by logical principles. Similarly, Losee (2001) explains that scientific theories gain credibility through coherent logical structures that enable hypotheses to be evaluated, tested, and refined. These perspectives indicate that logic functions not only as an abstract philosophical discipline but also as an intellectual framework that supports the development of reliable scientific knowledge.

Recent discussions have further extended this perspective by examining the relationship between reasoning and scientific thinking. Paul and Elder (2019) maintain that scientific reasoning requires individuals to evaluate assumptions, analyze evidence critically, identify logical inconsistencies, and construct conclusions based on rational justification. Likewise, Facione (2020) identifies reasoning as one of the principal dimensions of critical thinking, emphasizing that scientific decision-making depends upon the ability to interpret information objectively while minimizing personal bias. These studies collectively demonstrate that reasoning represents the practical cognitive process through which logical principles are implemented within scientific investigation.

The increasing complexity of scientific research has also encouraged scholars to reconsider the role of logic in interdisciplinary inquiry. Contemporary scientific problems—including climate change, public health, technological ethics, and artificial intelligence—cannot be adequately understood through isolated disciplinary perspectives. Instead, they require systematic reasoning capable of integrating empirical evidence from multiple fields while maintaining conceptual consistency. Consequently, logic serves not only as a mechanism for validating arguments but also as an essential framework for synthesizing diverse forms of scientific knowledge into coherent explanations. This development illustrates that the epistemological function of logic has become increasingly significant within modern scientific practice.

Several recent studies have also investigated the contribution of logical reasoning to science education. Research on scientific literacy consistently indicates that students' ability to formulate arguments, evaluate evidence, recognize fallacies, and solve complex problems depends largely upon the development of logical reasoning skills. Educational scholars therefore argue that strengthening reasoning competence should become one of the primary objectives of science education because these abilities directly influence learners' capacity to engage in inquiry, make evidence-based decisions, and participate responsibly in scientific discourse. Such findings reinforce the idea that logic is not merely theoretical knowledge but an indispensable intellectual competency for both researchers and learners.

Although previous studies have substantially enriched discussions concerning logic and reasoning, several conceptual limitations remain evident. First, many studies examine logic and reasoning as separate constructs. Logic is frequently discussed from the perspective of formal philosophy, whereas reasoning is analyzed within cognitive psychology or educational research. Consequently, relatively limited attention has been devoted to explaining how these two concepts interact as complementary epistemological foundations that collectively shape scientific inquiry. This separation often obscures the dynamic relationship between normative logical principles and the cognitive processes through which scientific knowledge is generated.

Second, previous literature generally emphasizes either formal logical structures or practical reasoning skills without integrating both dimensions into a comprehensive philosophical framework. As a result, discussions concerning scientific inquiry often overlook the fact that scientific knowledge is constructed through continuous interaction between logical validity, rational interpretation, empirical observation, and reflective judgment. A more integrative analysis

is therefore required to explain how logic and reasoning mutually reinforce one another throughout the scientific process.

Third, the rapid transformation of scientific practice resulting from digital technologies, artificial intelligence, computational modeling, and evidence-based research has generated new epistemological questions concerning the role of human reasoning in knowledge construction. While many contemporary studies acknowledge these developments, relatively few have critically examined whether classical conceptions of logic continue to provide an adequate philosophical foundation for understanding scientific inquiry within increasingly complex research environments. This indicates the need to revisit classical philosophical concepts while simultaneously interpreting them in light of contemporary scientific developments.

These limitations reveal a significant research gap. Existing literature has extensively discussed logic, reasoning, and scientific methodology individually; however, comparatively few studies have attempted to reconstruct their conceptual relationships within a unified epistemological framework. Furthermore, limited attention has been given to explaining how logical principles and reasoning processes collectively support hypothesis formulation, knowledge validation, theory development, and scientific justification throughout the entire process of scientific inquiry.

Based on this research gap, the present study offers a conceptual contribution by reconstructing the relationship between logic and reasoning from an epistemological perspective. Rather than describing these concepts independently, this study synthesizes philosophical theories and contemporary scientific discourse to explain how logic functions as the normative foundation of valid thinking while reasoning represents the cognitive mechanism through which scientific knowledge is constructed, evaluated, and justified. The novelty of this research therefore lies in its integrative interpretation that bridges classical philosophy of science with contemporary discussions concerning scientific inquiry and knowledge construction.

Accordingly, this study aims to analyze the philosophical foundations of logic and reasoning, examine their conceptual relationship within scientific inquiry, and evaluate their continuing relevance to the development of contemporary scientific knowledge. Through a qualitative library research approach, this study critically synthesizes classical philosophical literature and recent scholarly publications to develop a comprehensive epistemological understanding of logic and reasoning. It is expected that the findings will enrich the discourse in philosophy of science while providing a stronger conceptual basis for researchers, educators, and academics seeking to promote rigorous, rational, and evidence-based scientific inquiry.

METHOD

This study employed a qualitative approach using the library research method to examine the epistemological role of logic and reasoning in scientific inquiry. This approach was selected because the study focuses on analyzing philosophical concepts and theoretical arguments rather than investigating empirical phenomena. Library research enables an in-depth exploration of classical and contemporary literature to develop a comprehensive understanding of the relationship between logic, reasoning, and the construction of scientific knowledge. The data consisted of

primary and secondary sources. Primary sources included classical works in logic and the philosophy of science, while secondary sources comprised peer-reviewed journal articles, scholarly books, and other relevant academic publications discussing logic, reasoning, scientific inquiry, and epistemology. The literature was selected based on its relevance, academic credibility, and contribution to the objectives of the study.

Data were analyzed using qualitative content analysis with an interpretative approach. The analysis involved identifying key concepts, classifying major themes, comparing scholarly perspectives, and synthesizing the findings to reconstruct the conceptual relationship between logic, reasoning, and scientific inquiry. Through this analytical process, the study provides an integrated epistemological interpretation of how logic and reasoning function as complementary foundations for the development of scientific knowledge.

FINDINGS AND DISCUSSION

The Nature of Logic

The Latin word "logos," meaning "word" or "utterance," is the origin of the English term "logic," as stated by K. Prent C.M.T. Adisubrata in Mundiri. Another variant of the word he mentioned is mantiq; this word comes from the Arabic word nataqa, meaning "to write" or "to open," among others. Logic, according to George F. Kneller's book *Logic of Language Education*, is a method for teaching students in evidence-based and principled reasoning. However, as explained by Irving M. Coppi in Mundiri, the term "logic" refers to the study of rules and procedures for establishing the validity or invalidity of arguments (Rosenberg & McIntyre, 2019).

To complement Irving's opinion, W. Poespoprodjo offers the following definition of logic: "Logic shows, establishes, explains, and proves laws and rules that will prevent us from error (falsehood)" For example, Susanto. Based on the arguments put forward by the scientists above, it is clear that logic is a discipline that deals with facts, rules, laws, and techniques or processes for obtaining logical and rational knowledge. After much group deliberation, we conclude that logic is easy. We usually only do it at first (Cherniss, 2016).

Conversations with ourselves, other people, animals, books, words, paragraphs, explanations, and the world around us occur continuously as we try to deduce meaning from our senses and the information we receive through our senses of sight and touch. Many times, almost without emotion. On the other hand, seeing clearly and accurately is also a challenging task, especially when it requires precision. After careful side-by-side comparison, it will soon become apparent that many sentences do not match. You have a keen eye for detail and a keen capacity to notice relationships, anomalies, hidden errors, and so on in the realm close to mental processing (Wu & Wang, 2018).

What others think of us is something that almost everyone worries about. Unfortunately, biases and sentiments can still follow us like ghosts, causing us to jump to irrational conclusions. In addition, prejudice and lack of knowledge affect our spiritual journey. Finding the right practical solution or understanding why we cannot receive a grant can sometimes be a challenge. When faced with such ambiguity, individuals are forced to challenge their preconceived notions and

delve deeper into the legal principles that govern human behavior in search of satisfaction.

Logic, first proposed by Aristotle in his work *To Organon*, is consistent with this. Among other things, we must be able to distinguish between accurate, late, and profitable predictions. The term "logical" is often used and heard, according to Andre Ata et al. in Mukhtar. The term commonly used for a way of thinking or living life that is based on a ratio or rational relationship that can be understood, although not universally agreed upon as right or wrong, includes logic and logistics. To distinguish between good and bad laws, the criminal process relies on logic, which is rooted in the precautionary principle in good criminal law (Suleimenov et al., 2023).

Investigation is a method of finding facts to support statements based on existing information. Basically, we are just a herd of people who wonder, feel, act, and behave. Evidence is obtained from the mental processes involved in various attitudes and behaviors. According to Pascal, "the heart also has its own logic." However, instead of information related to planning, investigation produces knowledge related to observation. However, it should be noted that not all actions carry an implicit threat of imprisonment. Therefore, the study of criminal law is basically investigative and is characterized by a focus on the analysis of guilt. Special procedures need to be followed when proving something so that the results are reliable. Acceptance will be considered valid after such payment. This kind of reasoning is known as logic.

Logic and Reasoning

The Greek term *logos* means "reason" and means "reasoning through speech or writing." This is where the English word "logic" comes from. Findings or research that lead to true thinking are a means to draw conclusions, says Cecep Sumarna in Logika Susanto. For Jan Hendrik Rapar, the Greek word "logic" can mean "something related to," "reason," "thought," "word," "conversation," or "belonging to" the language. Poedjawijatna argues that logic, often called the philosophy of reason, is a branch of philosophy that investigates human nature and how we use reason to guide our actions and decisions (Susanto, 2021).

If something is systematic, true, valid, and refutable, then it must be logical, says Amsal Bakhtiar. The reasoning behind this is clear: logic seems to be based on assumptions, including the fact that their number cannot be more than one. The evidence presented above leads us to believe that logic is a way of knowing through the systematic use of signs, words, and language. The components mentioned above constitute what is known as non-logic courses. The basic science of logic provides a systematic description and explanation of the principles that humans must follow in order for their reasoning to be accurate, comprehensive, and consistent (Marion & Rückert, 2016).

Applying sound reasoning to our competing worldviews and accepting our intellectual neutrality are two of the stated goals of logic. Naturalist logic and artificialist (or scientific) logic are two schools of thought in the formalization of logic that differ in the quality of the arguments they put forward. Naturalist logic is essentially a discipline that studies human nature. When it comes to following logistical rules, humans can usually work on their own. In the case of humans, naturalistic reasoning has the same capacity to make comparisons. A person's familiarity and

understanding of the material. Human work, in this view, should begin with careful preparation and develop organically, unconstrained by the whims of the planner or the emotions of the worker. The logic dictated by human nature is always present.

Scientific logic all the planning and organizing necessary to build a roof has been done. Logic is an essential component of any study, at least in theory, and science is the source of such information. We should be able to operate more successfully, efficiently, and safely if we follow this line of thought. Using information to explain the existence or nonexistence of something diminishes the existence of that thing. In the same way that the organon is a tool for actual thought, Aristotle was the one who largely paved the way for the Western idea of artificial logic (Rescher, 2018).

However, to avoid it, there is a clear boundary between artificial material and formal intelligence. Major logic refers to material logic, while minor logic describes formal logic. People cannot get what they want in life unless they follow rules, and formal logic is about those rules and regulations. Here are the parts and objectives of knowledge, the learning process, the means of learning, and finally, the approach. A person's critical, systematic, logical, intelligent, temperamental, methodical, and intuitive thinking skills are honed by the use of logic at a deeper level. increasing one's ability to behave objectively, transparently, and abstractly. increasing stability and the capacity to distinguish between right and left. encouraging and motivating individuals to express themselves in a structured manner.

It would be easier to diagnose and cure the condition if the eyes could become more sensitive to light, sound, and pain. having the ability to examine certain events. The topic is that humans are born with strong morals, the ability to believe, dream, distinguish, see, and remain silent. Allah SWT also gives additional qualities to humans. All information, whether obtained through belief, feeling, seeing, or hearing, is based on experience. This is the basis of wisdom and teaching. The process of observing and evaluating the results of learning is known as judgment. This is related to what Pascal, a physicist, said about the inherent logic of ternary. In the same vein, it is worth mentioning that nothing should be done on the basis of suspicion of breaking the law. Therefore, to identify a particular crime, reasoning is an act that depends on belief with certain norms. One cannot break the law without facing consequences. Some religious practices depend on feelings and long-standing traditions, while the majority adhere to written canons (Ihsan, 2022).

A hypothesis is a theory in progress, and hypothesis testing is a way to see if the theory is true. According to Adib Nalar, reasoning boils down to prioritizing four principles of thought (identity, contradiction, exclusion, and compromise) in order to make room for new information. In short, reasoning is a way to bring two concepts together, or more precisely, to exemplify a concept so that others can better understand it. Thinking quickly is important because it shows strength. The first of Aristotle's three principles of reasoning is "identity," which states that two things are identical; the second is "contradiction," which states that two things cannot be considered simultaneously; and the third is "exclusion," sometimes called the principle of the "middle way" or the "third possibility," which states that two possibilities cannot be considered simultaneously. There are two different forms of discipline (Suriasumantri, 2007):

First, direct reasoning. It is impossible to make an objective examination of a proposal if only one is accepted and then compared with the other proposals. In direct reasoning, there is only one guiding premise. In order to offer a comprehensive evaluation of the proposed plan, it is important to explicitly state the premises implied earlier. For example, every time the ball is played, both teams use Rejois shampoo ($S=P$). Continuing with the star movie, Rejois is the second example. The idea of direct reasoning, which Aristotle originally used to describe reasoning, is based on a single proposition. By comparing the subject and the prediction, the result is obtained from a single suggestion.

Second, it does not have an unlimited safety net. It relies on one suggestion and fails to offer a thorough examination. Two premises form the basis of a conclusion. Everyone in the class is a favorite child, for example. Budi plans to become a historian. Budi is a loner. Eight steps to a conclusion: logic is the basic idea of several previously understood statements. This claim is based on the concept of a pendulum swing, which describes the relationship between two pendulums whose relative positions can be measured using certain instruments.

Many forms of research are built on previous findings or assumptions recognized in the legal system. Many ideas and conclusions in reasoning come from mental operations based on sensory perceptions, which may be empirical or based on field facts. Also, depending on the sentiment that is well written, there will be a well-written proposal. People are willing to accept new suggestions that are less understood if they have received fifteen well-written or well-conceived offers. The process of marking is the name for this (Ervin & Corral, 2022).

The antecedent is the research proposal, while the effect is the end product of the project. The relationship between evidence and hypothesis is necessary. To prove a claim, one must gather evidence, which may be facts, opinions, physical objects, or other items derived from factual material. The Indonesian term *nalar*, consideration of good and bad, morality, and common sense is the origin of this word. To help understand this study, we have included some keywords. The capacity to sell is unique to humans. When others do not fully understand something, humans can step in and explain it to them.

People can find out what they are like morally, ethically, and aesthetically by taking this test. The purpose of expanding human understanding is to help people cope with and manage the pressures of everyday life. More and more information will be gained from this trial. Language, a powerful and essential tool for human communication, helps us understand each other and the world around us because it allows us to express ourselves verbally and in writing. However, the purpose of logic is to provide explanations based on beliefs about facts and laws. In this sense, the study of logic is a collection of information that conveys the rules of discourse and thought, which paves the way for precise and unambiguous assumptions. In criminal logic, inductive and deductive reasoning are the two main components. Making or finding deductive arguments is the essence of deductive reasoning, a branch of logic. A truth can be said to be deductive if it directly observes or follows logically from its premises. You can say that a deductive argument is long or short, true or false.

The conclusion drawn from a deductive argument can only be considered valid if the

conclusion follows naturally from its premises. As a theory of inference based on the idea of words or symbols, logic can be explained visually in a way that captures the scope and depth of a concept. This formal determination will be valid if it is carried out with a correct unitary diagram because the sentence will also be true. This is based on the concept of unity, which states that all laws in their application use a unitary diagram (Yu et al., 2024).

The basic idea behind its use is that deductive logic, a part of formal logic, relies on the relationship between two categories of statements. The principles of criminal law in the deductive logic system are based on a number of things, one of which is the fact that there are certain universal facts that can be proven. This system of punishment illustrates these principles. Another name for this branch of business reasoning is material logic, which bases its claims on evidence from the real world. That is, the conclusion is not explained or proven; at best, it is open to the possibility that it is false. That is, the conclusion is not explained or proven; at best, it is likely to be false. Deductive and inductive sentence calculus are two major branches of logic. In deductive reasoning, sometimes called deductive logic, the goal is to construct and evaluate arguments based on deductive reasoning. In contrast, the validity of the inferred result is deductive, meaning that the result follows naturally from the premises. A strong or weak argument can be considered valid or invalid.

Logic and Science

Hadiatmaja and Kuswa Endah in Mukhtar state that logic is a discipline that discusses the problem of thinking, namely adhering to the principles of logical reasoning. In the field of logic, the standards and measures of thinking are discussed, namely the ability of human reason to achieve truth, and the principles of thinking that allow someone to state the right and correct conclusions. Although not all forms of thinking involve reasoning, the problem of reasoning is presented logically (Johnson-Laird et al., 2015).

Activities that involve reasoning in logic are often known as logical reasoning. The ability to reason is fundamental to human cognition because it allows us to build on previous reasoning to arrive at new conclusions. Logic uses the terms "premise" and "conclusion" to describe different types of reasoning: acceptable reasoning and unreasonable reasoning. The idea of reasoning is considered fundamental because it forms the foundation of logic. To solve some difficulties, people need a special way of thinking, and one of them is reasoning.

So, emphasizes that logic is the essence of science. Therefore, it is not entirely in accordance with logic as the basis of science when viewed through the lens of philosophy. Reason, the phenomenological nature cannot be understood by a philosophical system that does not have logic. Philosophy provides a logical foundation for this nature. Philosophy without reason is the path to enlightenment. Using sound reasoning in everyday life can help people trust each other, which in turn will allow them to reach their full potential. engage in human cognition or rational thinking (Aina, 2022). By supporting the activity of reason, which seeks to expand the knowledge we have gained from our five senses, thinking helps us achieve our goals. The term "thinking" thus represents reason, which is a normal and purposeful activity. However, thinking (and being able

to think clearly) is still important. Feelings, the five senses (sight, hearing, smell, taste, and touch), memory, and imagination are all part of this. However, thinking can also mean engaging in mental processes related to the physical world. scary truth.

Reasoning, thinking, analyzing, proving, presenting arguments, drawing conclusions, examining thinking styles, and so on are all aspects of thinking that come from one's self-perception. Scientific Progress through the Application of Logic. If it is clear and useful to human life, then no further explanation is needed. Logic has been part of our perception of the world since the beginning. Logic was considered irrational by Aristotle and his followers when it was not included in other sciences. Logic is a philosophy that preserves knowledge, Aristotle said. As long as humans exist, their ideas and the benefits they bring will be debated and used (Laplane et al., 2019).

There are certain techniques for analyzing data collected from this research because the information it contains is basically true. Following the steps outlined above is essential to reaching valid and legitimate conclusions. The process of deducing these findings is known as logic, and is a way of conducting research that is consistent with valid ones. While there is no one right technique for reaching a conclusion, there are several research methodologies that can shed light on the topic from a scientific perspective. Deductive and inductive reasoning both rely on pre-existing information to form assumptions. One of the points, how to have a thorough understanding, is explained in this lecture. It is clear that there are two viable options for anyone seeking in-depth information. The first relies on rational thinking, while the second is based on personal experience (Christianto & Smarandache, 2019).

Previous schools of thought, such as rationalism and empiricism, have ways of testing competing theories. We rely heavily on our intuition and knowledge to help us understand. However, all of this information has been gathered so far using logic and evidence. A piece of intelligence is any information gathered outside of traditional legal channels. I cannot express my feelings to you because it is personal. The usefulness of the statement can be judged by using intuitive knowledge as a hypothesis for further analysis. Stanley says that this intuitive understanding is characterized by Maslow as a learning curve. In fact, Nietzsche says in George that intuition is better than other types of knowledge.

There are many major problems with prosecution. However, what is important is how we can understand or deal with entities that have not yet yielded analytical findings. Since this is a very personal issue for me, I cannot provide a comprehensive solution. Nevertheless, the truth remains that discourse can teach us anything. Something that is considered important to understand. Burhanuddin was born. "Common sense" knowledge, "bias" knowledge, and expert knowledge are the three categories of human understanding that I want to explain. The fact that everyone has something because of their good behavior is a form of this kind of information that we can also understand. People describe it as red when they feel the color red, as hot when they feel the heat of an object, and so on. This field of study mainly deals with quantitative and objective facts, such as those found in the natural sciences and related disciplines (Juhata et al., 2024).

Written conceptual information is the source of philosophical or speculative understanding.

Once you have a good grasp of the basics, you will be well equipped to investigate further the nature and generalities of knowledge. The path to God's knowledge, or secret wisdom, is through His servants. Every person who practices a religion must have knowledge of it. Religion is a good and structured kind of knowledge, but knowledge is a product of human understanding of certain things, and this is different from religion.

Knowing more is easier with the use of certain tools, and knowledge is a universal tool that can improve human life in every way. Humans need information for the most basic reason: they cannot survive in a less developed world. Regardless of where they live, people have the freedom to believe what they want, express themselves as they please, and live their lives according to their beliefs. Ultimately, education should give individuals the skills they need to take responsibility for their own lives. Some of the advantages of logic are as follows: first, it encourages people to be more careful. Second, by studying and experiencing the behavior of good explorers, he educates young people to become good explorers as well. Therefore, having faith helps people understand things more clearly and quickly, which ultimately leads to better decision making.

CONCLUSION

In literature, the term "logic" refers to the work that discusses rules, regulations, and procedures for obtaining reasonable and correct understanding. Logic is a systematic approach to learning that utilizes language, writing, and reason. The various aspects of logic can be classified according to the perspectives and qualities they possess. Natural logic and scientific logic are the two main branches of logic. Aristotle (384-322 BC) established artificial logic, a body of knowledge about laws, with the main purpose of tracing the reasoning behind every error. The modern understanding of logic is known as "analytic" or "dialectic." The ability to reason is a type of knowledge that is obtained through introspection and the subsequent production of conclusions. People are defined here as beings capable of abstract thought, emotion, behavior, and action. Knowledge gained through feelings or thoughts is the source of their attitudes and actions. Thinking is associated with research findings. One way to obtain information is through reasoning, which is basically just thinking about things and coming to a conclusion. To obtain new knowledge, reasoning is a mental process that involves combining several thoughts to show a topic.

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