

Empiricist Epistemology as the Foundation for the Acquisition of Knowledge Through Sensory Experience in the Development of Modern Science

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Abstract

Empiricist epistemology is a major school of thought in the philosophy of knowledge that emphasizes that the primary source of human knowledge comes from sensory experience. This school of thought developed rapidly in the Western world, especially in the modern era, as a reaction to rationalism, which prioritizes reason as the source of knowledge. Figures such as John Locke, George Berkeley, and David Hume were central figures in shaping the foundations of empiricism. This paper discusses the definition of empiricism, its key figures, its basic concepts, and its influence on the development of modern science.

Keywords: Epistemology, Empiricism, Knowledge

Abstrak

Epistemologi empirisme merupakan salah satu aliran utama dalam filsafat pengetahuan yang menekankan bahwa sumber utama pengetahuan manusia berasal dari pengalaman inderawi. Aliran ini berkembang pesat di dunia Barat, terutama pada masa modern, sebagai reaksi terhadap rasionalisme yang mengedepankan akal sebagai sumber pengetahuan. Tokoh-tokoh seperti John Locke, George Berkeley, dan David Hume menjadi figur sentral dalam membentuk dasar-dasar empirisme. Tulisan ini membahas pengertian empirisme, tokoh-tokoh utama, konsep dasar, serta pengaruhnya terhadap perkembangan ilmu pengetahuan modern.

Kata Kunci : Epistemologi, Empirisme, Pengetahuan

INTRODUCTION

Understanding the sources of human knowledge is a crucial topic in philosophy. Since the time of Ancient Greece, philosophers have debated how humans acquire true knowledge. From this long debate, two major, opposing schools of thought emerged: rationalism and empiricism (Vera & Hambali, 2021).

Rasionalisme berpandangan bahwa akal budi merupakan sumber utama pengetahuan. Sebaliknya, empirisme menegaskan bahwa seluruh pengetahuan manusia berawal dari pengalaman indrawi. Empirisme anggotakan penekanan pada pengalaman konkret sebagai dasar pembentuk ide dan konsep pengetahuan (Fahmi et al., 2024).

Rationalism holds that reason is the primary source of knowledge. Conversely, empiricism asserts that all human knowledge begins with sensory experience. Empiricism places an emphasis on concrete experience as the basis for forming ideas and concepts of knowledge (Vera & Hambali, 2021).

On the other hand, the relevance of empiricism can also be seen in the field of education. Experiential learning approaches, such as learning by doing, represent concrete applications of empiricist principles in the learning process. This approach emphasizes learning experiences as

the primary means of building students' knowledge.(Weu et al., 2023). Therefore, the discussion of empirical epistemology is important to relate the philosophy of knowledge to today's scientific and educational practices.

THEORETICAL FOUNDATION

Epistemology as a Branch of Philosophy of Science

Epistemology is a branch of philosophy that discusses the nature of knowledge, including the origin, source, structure, method, and criteria for the truth of knowledge. Etymologically, the term epistemology comes from the Greek *epistēmē* which means knowledge and *logo* which means study or theory. Thus, epistemology is often referred to as knowledge theory or knowledge theory(Devinta et al., 2017; Suryati, 2025).

In the study of the philosophy of science, epistemology has an important role because it is the basis for understanding how scientific knowledge is obtained and accounted for its truth. Epistemology not only examines how humans know things, but also how to distinguish between authentic and erroneous knowledge(Suryati, 2025; Turrohma et al., 2024).

The Relationship of Epistemology with Ontology and Axiology

Epistemology is closely related to two other branches of philosophy, namely ontology and axiology. Ontology discusses the nature of existence or reality, while epistemology describes how humans know that reality. In other words, ontology answers the question of "what exists", while epistemology answers "how do we know what exists"(Rokhmah, 2021).

Axiology, as a branch of philosophy that examines values (ethics and aesthetics), also requires an epistemological foundation. The values of goodness, truth, and beauty are not only understood rationally, but also lived through human empirical experience. In this context, the epistemology of empiricism contributes to explaining how these values are understood through concrete experience(Suryati, 2025).

Epistemologists Empiricism

Empiricism is a school of epistemology that emphasizes that the main source of human knowledge comes from sensory experience. The term empiricism comes from the Greek *empeiria* which means experience (Fitri, 2025). According to this view, the human mind was initially *tabula rasa* (blank paper) which was then filled with experiences obtained through the five senses (Hafiz & Suparto, 2024).

Empiricism developed as a reaction to rationalism that placed reason as the primary source of knowledge. Empiricists argue that valid knowledge must be observable, tested, and empirically verified (Dewi et al., 2025).

The Difference Between Empiricism, Rationalism, and Criticism

According to the study of epistemological philosophy, empiricism affirms that sensory experience is the primary source of knowledge, while rationalism emphasizes the role of reason in acquiring knowledge(Sukatini et al., 2023).

Immanuel Kant through philosophy *Criticism* Offering a synthesis between empiricism and rationalism, it states that human knowledge is formed from the interaction between

empirical experience and the a priori structure of reason(Dinata, 2021).

METHOD

This study uses a qualitative approach with a literature study method (*library research*). Research data was obtained from various relevant written sources, especially scientific journals, books, and articles that discuss epistemology, empiricism, philosophy of science, and their relevance in science and education.

Source search is carried out through academic platforms such as Google Scholar, ResearchGate, and digital libraries. To facilitate reference management, the author uses the Zotero application so that all sources can be arranged systematically. The data obtained was analyzed using descriptive-interpretive analysis techniques to understand the concepts, views of figures, and the epistemological implications of empiricism.

RESULTS AND DISCUSSION

Main Figures of Empirism

The results of the study show that the development of empiricism is greatly influenced by the thought of modern Western figures, especially John Locke, George Berkeley, and David Hume.

John Locke affirmed that there are no ideas inherent in human beings. According to him, all knowledge comes from experience through two paths, namely sensation (external experience through the five senses) and reflection (internal experience through the thought process). All complex ideas are built from simple ideas as a result of experience(Anshari, 2024; Sahib & R, 2025).

George Berkeley developed empiricism towards subjective idealism by stating that the existence of something depends on perception (*esse est percipi*). According to him, objects have no existence outside the mind that perceives them(Aisy et al., 2024).

David Hume developed empiricism with a skepticism approach. It distinguishes between impressions (direct effects of experience) and ideas (copies of those effects). Hume doubted the certainty of cause-and-effect relationships and stated that causality is simply a human habit of thinking based on repeated experience(Babtista et al., 2024; Suyudi & Putra, 2020).

Key Principles of Empirism

The main principle of empiricism asserts that sensory experience is the basis of all knowledge(Fitzgerald, 2025). The process of sensing produces perceptions that become the material for the formation of ideas and concepts. Because it comes from experience, human knowledge is limited to things that can be observed and experienced empirically(Sativa, 2011).

Empiricism also rejects the existence of innate ideas. Knowledge is considered the result of the accumulation of human experience in interaction with his environment, not as an innate inheritance from birth(Sari & Sirait, 2021; Sativa, 2011).

Criticism of the Epistemology of Empirism

Empiricism has been criticized by rationalism which considers that experience does not

always provide certainty and can be deceptive. Immanuel Kant also criticized empiricism for ignoring the active role of human cognitive structures in shaping knowledge (Dinata, 2021; Fitzgerald, 2025; Tarman & Suherman, 2024).

In addition, empiricism is considered to have limitations in explaining abstract and metaphysical concepts such as justice, beauty, and God. Nevertheless, empiricism has still made a major contribution to the development of modern science (Fitri, 2025; Sholikah et al., 2022; Vera & Hambali, 2021).

The Relevance of Empiricism in Science and Education

In the field of science, empiricism is the basis of modern scientific methods that emphasize observation, experimentation, and verification. The inductive method introduced by Francis Bacon shows the strong influence of empiricism in scientific practice (Febriana & Astuti, 2025; Setianingsih, 2019).

In the field of education, empiricism is reflected in the experiential learning approach. This approach emphasizes the active involvement of students through observation, practice, and reflection, so that learning is not only theoretical but also applicable (Febriana & Astuti, 2025; Kumari, 2024; Purnami & Rohayati, 2013).

CONCLUSION

Empirical epistemology is a school of philosophy of knowledge that places sensory experience as the main source of human knowledge. Knowledge does not come from innate ideas, but from human interaction with reality through the five senses. The thought of figures such as John Locke, George Berkeley, and David Hume made important contributions in shaping the foundations of modern empiricism. Despite criticism from rationalism and criticism, empiricism still has a significant role in the development of science and education. In science, empiricism gives birth to scientific methods based on observation and experimentation, while in education, empiricism encourages experiential learning. Thus, the epistemology of empiricism is not only philosophically relevant, but also has far-reaching practical implications in the academic and educational worlds.

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