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Original Article

Examining the Dialectics of Positivism and Logical Positivism Philosophy at the University Level

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Abstract

This study aims to conduct an in-depth literature review on the paradigmatic and dialectical transition between classical positivism and logical positivism in the scientific structure of higher education. Positivism , pioneered by Auguste Comte, positions the scientific method as the sole means of understanding reality through empirical observation . The evolution of this paradigm towards neopositivism by the Vienna Circle shifted the academic focus to formal language analysis , the rigor of mathematical logic , and the principle of strict verification. The research method used is a qualitative literature study with a descriptive-analytical approach that refers to the standard methodology of literature review from John W. Creswell. The results of the discussion show that the dialectic of these two schools of thought results in the standardization of research methodology in higher education that is quantitative and value - free (value-free science). However , this dominance has sparked criticism from Karl Popper 's critical rationalism and Thomas Kuhn's paradigm theory . The study concludes that higher education must be able to maintain a dialectical space between scientific precision and humanities values in order to address the challenges of complex reality .

Keywords: *Positivism , Logical Positivism , Philosophy of Science, Epistemological Dialectics , Higher Education*

INTRODUCTION

The study of modern science at the university level is fundamentally based on the philosophical foundation of positivism . This school of thought emerged as an antithesis to the dominance of metaphysical thought , which was considered speculative . The father of positivism , Comte (1855), in his work The Positive Philosophy , stated that Ideas govern the world, or throw it into chaos . For Auguste Comte, the progress of civilization can only be achieved if humans leave theological explanations to the positive stage , where knowledge is based on fixed laws that can be observed empirically . This development underwent a logical radicalization in the 20th century through the Vienna Circle movement , which gave birth to logical positivism . In his classic book Language, Truth and Logic , Ayer (2001), asserted that A proposition only has cognitive meaning if it is analytical (a tautology) or empirically verifiable; otherwise, the statement is

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Yullian Rachmat Yudhi Sentausa *et al.*

considered meaningless (literally senseless). This view drastically changed the university curriculum by removing ethical and aesthetic speculation from the realm of primary science .

The dialectic between Comte's social empiricism and Ayer's logical rigor creates intellectual tension in higher education . On the one hand , universities are required to produce precise , evidence -based research , but on the other, concerns arise about reducing humans to mere "dead data." 1 This article aims to outline this dialectic by referring to the thinking of global experts , in order to map how this paradigm shapes global and local academic standards in Indonesia.

RESEARCH METHODS

This research report was compiled using a library research method with a qualitative-descriptive approach that focuses on conceptual analysis . The author refers to Creswell 's (2014) standards , which state that a literature review serves to document how a study adds to the existing body of literature and provides a framework for comparing research results.

This research refers to John W Creswell's protocol which includes : (1) Identification of keywords related to positivism and higher education ; (2) Selection of primary texts from Auguste Comte, Rudolf Carnap, and AJ Ayer; (3) Content analysis *to* build coherent scientific arguments without involving numerical data . This research relies on logical reasoning and conceptual integration as the basis for compiling scientific arguments in line with the characteristics of qualitative research (Creswell, 2014). [2]

RESULTS AND DISCUSSION

Classical Positivism : The Thoughts of Auguste Comte

Auguste Comte laid the foundation for the scientific study of the social sciences in higher education through the doctrine of the "Law of Three Stages" . In his Course of Positive Philosophy , Comte (1855), argued that every branch of human knowledge must pass through three theoretical stages : the theological (fictional), the metaphysical (abstract), and the scientific (positive) stage . In the positive stage, the human mind abandons the search for an absolute " first cause " and confines itself to the study of the laws of phenomena , namely " constant successive relations and resemblances ."

For universities , the implication of classical positivism was the birth of sociology as "Social Physics." The view of sociology as the pinnacle of the hierarchy of sciences must adopt the methods of observation , experimentation , and comparison that have been successfully applied in physics (Comte , 1855) . This encouraged higher education institutions to standardize scientific methods that reject all forms of speculation beyond the reach of the senses . Knowledge is considered true if it has the characteristics of being real (reel), useful (utile), certain (certain), and precise (precis). [3]

Logical Positivism : The Rigor of Rudolf Carnap and the Vienna Circle

Entering the 1920s, the dialectic shifted toward formal analysis through the Vienna Circle

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ISSN: 3064-1403
Yullian Rachmat Yudhi Sentausa *et al.*

movement. Rudolf Carnap, in his work The Logical Syntax of Language, introduced a method of formal analysis to understand the structure of scientific language. Carnap (1937) argued that the task of philosophy in higher education is no longer to construct a comprehensive system of the world, but to carry out the logical clarification of scientific concepts and propositions in order to eliminate metaphysical elements considered nonsensical.

Logical positivism also proposed the concept of Unified Science , which aims to unite all branches of science under one universal language of physicalism (Carnap, 1937). In universities , this triggered the dominance of the Logico - Empiricist approach , where truth is only recognized if it is an analytical truth (logical-mathematical) or synthetic truth (empirical - verifiable). This principle requires that every academic research has " protocol statements " as a direct record of basic intersubjective experience . Based on the perspective of positivism and logical positivism, they can be compared according to the following table :

Tabel 1: Comparative Table of Dialectics of Classical Positivism and Logical Positivism

Comparative Dimensions	**Positivism Classic (Auguste Comte)**	**Logical Positivism (Vienna Circle)**
Main Focus	Social and Historical Development	Formal Language and Logic Analysis
Knowledge Method	Observation , Experiment , Comparison	Empirical Verification and Syntactic Analysis
Metaphysical Status	The initial stage that must be abandoned	Statements without meaning (*nonsense*)
Scientific Objectives	Social Order and Progress	Unified *Science*
Main Instruments	Inductive Empiricism	Symbolic Logic and Mathematics
Nature of Language	Natural/Descriptive Language	Formal Language/ Physicalism

Methodological Dialectics in Higher Education : Quantitative Hegemony

This dialectic has resulted in a very strong standardization of methodology in higher education , which is manifested in the Hypothetico-Deductive model . As explained in the methodological literature , higher education research is directed at building hypotheses from theory , designing experiments through the operationalization of variables , and conducting statistical tests .

a. Objectivity : Researchers are positioned as external observers (*disinterested observers*) who must be neutral and separate from the object of their research .
b. Determinism : Humans and their activities are often seen as determined by external laws that can be measured statistically.
c. Value-Free Separation : There is a clear dichotomy between fact (*is*) and value (

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ought). Ethical and moral claims are considered outside the realm of scientific inquiry because they cannot be observed empirically.

In the legal field , this dialectic gave birth to Juridical Positivism , which views law as the command of a legitimate ruler (law *as it is written in the books*), separate from considerations of substantive justice or morality . This creates a legal curriculum that focuses on formal legality but often neglects socio-political dynamics (Nugraha et al., 2025).

Popper's Critical Rationalism Critique and Kuhn's Paradigm

The dominance of positivism in higher education faced a challenge from Karl Popper, who radically rejected the verification principle and replaced it with the Falsification Principle . Popper (2022) stated that *a theory in empirical science can never be proven, but it can be falsified* . For him, the criterion of a theory's scientificity is the extent to which the theory dares to face the risk of refutation through decisive experiments . Popper 's criticism was expanded by Thomas Kuhn in The Structure of Scientific Revolutions . This view emphasizes that science *develops* accumulatively by introducing the concept of Paradigm Shift , where science develops through a revolutionary phase when the old paradigm is no longer able to answer anomalies (Kuhn, 2002). *Kuhn* 's view made academics aware that science is not a value- free entity , but rather a social process influenced by the scientific community .

Implementation of the Philosophy of Science in Indonesia

In Indonesia, this dialectic has been critically interpreted by thinkers such as **Koento Wibisono Siswomihardjo** and **Jujun S. Suriasumantri** . Siswomihardjo (1996) emphasized that the philosophy of science must be a never - ending reflection (*no point of stop*) to achieve the truth. [8] He warned that research in Indonesia must be based on the values of Pancasila as an integrative whole to avoid reducing humans to mere mechanistic data (Siswomihardjo , 1996).

Jujun S. Suriasumantri popularized scientific logic as a means of thinking in higher education . However , he warned about the limitations of pluralistic and emotional language . [10] In this view , science is neutral as an instrument , but scientists have social and moral responsibilities in its use . " Without morals, scientists easily slip into intellectual prostitution " (Suriasumantri , 2010). This shows that dialectics in Indonesia is leading to a synthesis between positivistic rigor and ethical -spiritual depth .

CONCLUSION AND SUGGESTIONS

Based on a comprehensive literature review , it can be concluded that the dialectic between Auguste Comte's classical positivism and the logical acumen of the Vienna Circle and Rudolf Carnap has laid an unshakable methodological foundation for higher education , where empirical facts and objectivity become the main compass in the pursuit of scientific truth . This universal research standardization is not merely an administrative tool , but a giant leap for educational institutions to produce measurable and globally accountable innovations . Despite the risk of reductionism , the presence of constructive criticism from Karl Popper's falsification principle and Thomas Kuhn 's paradigm shift

actually enriches our intellectual landscape . This proves that higher education has extraordinary adaptability in combining scientific order with the complex dynamics of reality , creating space for continuously evolving methodologies for the advancement of science .

In Indonesia, optimism for the future of higher education is further strengthened through the harmonious integration of positivistic acumen with the noble values of Pancasila. This effort is transforming the face of national research into more than just numbers and data; it is becoming an intellectual movement with a soul and social justice . By upholding the moral responsibility of scientists , Indonesian universities have great potential to become centers of excellence that are not only globally competitive but also steadfast in their humanitarian mission . This synergy between technical excellence and local philosophical wisdom guarantees the birth of a progressive and inclusive education system , where science presents itself as a real solution for the nation 's welfare and human dignity .

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