

REVIEW



A Systematic Literature Review of Post-Positivism and Critical Realism as Epistemological Frameworks in Educational Research

Arthur William Fodouop Kouam^{1,*}

¹Saxo Fintech Business School, Sanya University, China

Abstract: This study conducts a systematic literature review to examine the potential of post-positivism and critical realism as epistemological frameworks for enhancing educational research. By employing a rigorous methodology that involves explicit inclusion and exclusion criteria, comprehensive data extraction, and thematic analysis, the study synthesizes existing literature to elucidate the theoretical foundations and methodological implications of these paradigms. The originality of this research lies in its focused exploration of how these frameworks can address the current limitations in educational inquiry, particularly regarding the need for a deeper understanding of causal mechanisms and contextual influences. The findings underscore the significance of clarifying epistemological assumptions, adopting methodological pluralism, and promoting reflexivity in educational research. Additionally, the study provides practical recommendations for researchers seeking to apply these frameworks in their work effectively. By bridging the existing knowledge gap, this research aims to inspire future investigations and foster deeper insights into the complexities of educational contexts.

Keywords: causal mechanisms, critical realism, epistemology, methodological pluralism, post-positivism, reflexivity, research paradigms

1. Introduction

The choice of research paradigms significantly shapes the theoretical assumptions, methodological approaches [1], and processes of knowledge construction [2] that underpin empirical inquiries in educational research. Paradigms such as positivism, interpretivism, and critical approaches have traditionally dominated research design, data collection, and analysis [3]. However, emerging paradigms like post-positivism and critical realism present alternative perspectives that challenge conventional dichotomies and offer nuanced insights into the complexities of educational phenomena. Sinaulan as well as Holtz and Odağ [4, 5] emphasize the limitations of traditional paradigms, with Sinaulan pointing specifically to post-positivism's development as a response to these constraints. Zhang [6] critiques critical realism for its potential overemphasis in research discourse, while Huang [7] highlights the depth ontology of critical realism and its capacity for fostering a more nuanced understanding of educational contexts.

Positivism, characterized by its focus on empirical observation, quantification, and verification [8], has historically dominated scientific research. However, mounting critiques of positivism's objectivist and reductionist stance [9] have led to the adoption of post-positivism and critical realism as viable frameworks in various fields, including education and policy science. This shift is driven by recognizing the limitations inherent in positivism, particularly its capacity to address the complexities of social reality [10]. As a potent iteration of post-positivism, critical

realism provides a robust framework for understanding the layered nature of educational environments [11], with its philosophical underpinnings offering potential reconciliation of the qualitative-quantitative divide in research [12].

Despite the increasing recognition of post-positivism and critical realism as important paradigms, there remains a significant knowledge gap concerning their epistemological foundations and practical implications for educational research. Much of the existing literature has predominantly focused on positivism, interpretivism, and constructivism, overlooking the vital contributions of post-positivism and critical realism to knowledge production and the dynamics of educational contexts. As a result, many educational researchers find themselves grappling with the complexities of these paradigms without clear guidance on effectively utilizing them to inform their methodologies. This study aims to bridge this gap and provide valuable insights, enhancing the rigor and sophistication of empirical educational research by investigating the theoretical foundations and methodological applications of post-positivism and critical realism. Expanding the understanding of these epistemological perspectives can have significant implications for various domains within educational inquiry.

This study's central research question is: *How can post-positivism and critical realism contribute to enhancing educational research methodologies and practices?* The study seeks to address this question through the following objectives:

- 1) To clarify the theoretical foundations and fundamental principles of post-positivism and critical realism as epistemological frameworks in the context of educational research.

*Corresponding author: Arthur William Fodouop Kouam, Saxo Fintech Business School, University of Sanya, China. Email: fodouop@sanyau.edu.cn

- 2) To systematically compare and contrast the epistemological assumptions and methodological approaches of post-positivism and critical realism to assess their implications for educational practices.
- 3) To evaluate the strengths and limitations of post-positivism and critical realism in advancing knowledge and enhancing methodological rigor within educational research.
- 4) To provide practical guidelines for educational researchers on effectively utilizing post-positivism and critical realism to enhance the rigor, validity, and applicability of their empirical studies.

The remainder of this paper is organized as follows: Section 2 presents the methodology employed in this systematic literature review, detailing the research design, inclusion and exclusion criteria, search strategy, data extraction, and analysis processes. Section 3 offers a comprehensive review of the literature on post-positivism and critical realism, emphasizing their theoretical foundations relevant to educational research. Section 4 provides a comparative analysis of these paradigms, focusing on their epistemological assumptions and methodological implications within educational contexts. Section 5 evaluates the strengths and limitations of post-positivism and critical realism in educational research. Finally, Section 6 outlines the practical implications for educational research, providing insights and recommendations for researchers seeking to apply these frameworks effectively. The concluding section discusses future research directions to explore the epistemological landscape in educational inquiry further.

2. Methodology

2.1. Research design

This study employs a systematic literature review (SLR) approach to synthesize existing literature on post-positivism and critical realism as epistemological frameworks in educational research. This methodology was chosen to ensure a thorough, transparent, and replicable process for identifying, evaluating, and synthesizing relevant studies. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram (Figure 1) visually represents the review process.

However, previous studies have neglected variables such as teaching subjects and their influence in determining their belief, concern, and practice of teachers toward SWMR. Therefore, this study which is the first of its kind in Bhutan with the in-service postgraduate teachers, thus attempts to fill the literature gap left by previous studies.

2.2. Research question

The central research question guiding this review is: How can post-positivism and critical realism contribute to enhancing educational research methodologies and practices?

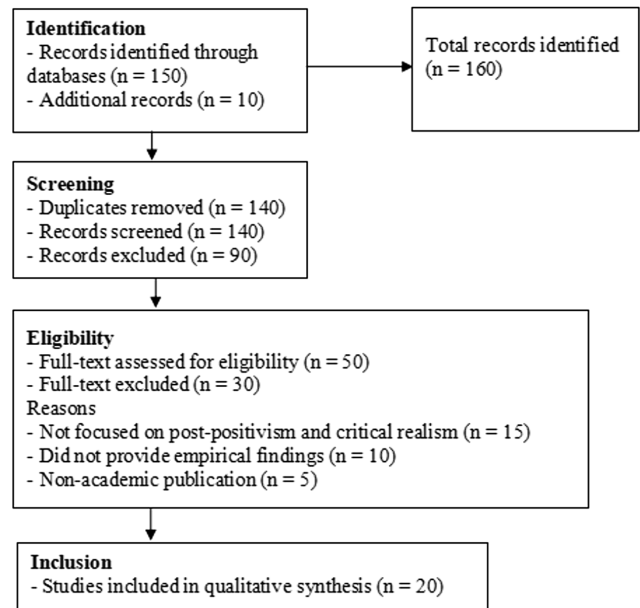
2.3. Inclusion and exclusion criteria

To ensure the relevance and quality of included studies, specific inclusion and exclusion criteria were established:

Inclusion criteria are given as follows.

- 1) Peer-reviewed articles published in academic journals.
- 2) Studies that explicitly focus on post-positivism and critical realism in educational research.
- 3) Articles published from 2002 to October 2025.
- 4) Studies available in English.

Figure 1
PRISMA flow diagram for the systematic literature review



The exclusion criteria are the following.

- 1) Non-academic publications such as blogs, opinion pieces, or conference abstracts.
- 2) Literature not focused on the application of post-positivism or critical realism in educational contexts.
- 3) Articles that do not provide empirical findings or theoretical insights.

2.4. Search strategy

A thorough literature search was performed utilizing various databases, including JSTOR, ERIC, and Google Scholar. The search strategy incorporated specific keywords and phrases associated with post-positivism, critical realism, and methodologies in educational research. Boolean operators (AND, OR, NOT) were employed to refine the search results.

Keywords used included:

- 1) "post-positivism in education"
- 2) "critical realism in educational research"
- 3) "educational research methodologies"
- 4) "epistemology in education"

2.5. Data extraction and analysis

The following steps were taken to extract and analyze data from the retrieved studies:

- 1) Screening and selection: Initial screening of titles and abstracts was performed to assess their relevance based on the inclusion and exclusion criteria. Full texts of selected articles were obtained for a detailed review.
- 2) Data extraction: Information was systematically extracted using a pre-defined data extraction form. Critical data included authorship, publication year, methodological approach, key findings, and implications for educational research practices.
- 3) Synthesis of findings: A thematic synthesis approach was employed to identify patterns and themes across the selected

studies. This involved coding the extracted data thematically, focusing on how post-positivism and critical realism were applied in educational research contexts and their contributions to methodology enhancement.

- 4) Quality assessment: The quality of the included studies was evaluated by the Critical Appraisal Skills Programme (CASP) checklist. This step helped to classify the robustness of findings and methodological rigor of the studies included.

2.6. Limitations

While systematic reviews provide a comprehensive overview of the literature, the following limitations were acknowledged:

- 1) The focus was restricted to English-language publications, which may exclude relevant studies in other languages.
- 2) The inclusion of studies only from a specified time frame could limit insights into historical perspectives or more recent developments.

2.7. Ethical considerations

Given the nature of this study, which involves the synthesis of existing literature rather than primary data collection, no ethical approval was required. Nonetheless, all studies included in the review were cited appropriately to ensure proper attribution of ideas and findings.

3. A Comprehensive Review of Post-Positivism and Critical Realism

Post-positivism and critical realism are prominent epistemological frameworks that have significantly influenced research inquiry across various disciplines. Post-positivism challenges the limitations of traditional positivism by emphasizing the fallibility of human knowledge and the importance of reflexivity and critical thinking. In contrast, critical realism seeks to uncover the underlying causal mechanisms and structures that shape social phenomena, emphasizing the importance of context, agency, and social structures. This section comprehensively reviews post-positivism and critical realism, exploring their fundamental principles, theoretical foundations, and contributions to research inquiry.

3.1. Post-Positivism: Fundamental principles and theoretical foundations

Post-positivism, a philosophy of science, is characterized by several fundamental principles. Anderson [12] outlines these as the problem of confirmation, the underdetermination of theory by logic and experience, the Quine-Duhem thesis, the theory-ladenness of experience, and the incommensurability of theories. While potentially leading to relativism, these principles can be mitigated through epistemological conservatism and good sense. Dong and Dong [13] further elaborate on post-positivism's ontological and epistemological assumptions, emphasizing the belief in a stable and knowable social reality. Knoblauch and Pfadenhauer [14] discuss the development of postpositivist International Relations theory, highlighting the broad critical tradition it has produced. Lastly, Benbrahim et al. [15] explore the influence of post-positivism on neoconstitutionalism, particularly in its reinsertion of moral values into the legal system.

Post-positivism emerged as a response to the limitations of traditional positivism, seeking to reconcile the objectives of

scientific inquiry with the inherent subjectivity and complexity of social phenomena. One of the critical principles of post-positivism is the acknowledgment of the fallibility of human knowledge and the impossibility of achieving absolute certainty in research. Postpositivists emphasize the importance of reflexivity, critical thinking, and openness to alternative perspectives in understanding the world. Drawing on the philosophy of Kant and Popper, post-positivism rejects the idea of direct correspondence between theory and reality and instead advocates for a critical evaluation of theories through empirical testing and modification [16–18]. The theoretical foundations of post-positivism also encompass a methodological pluralism that allows for the integration of quantitative and qualitative research approaches. Postpositivists recognize the value of both deductive and inductive reasoning in generating knowledge and emphasize the importance of triangulation and multiple methods in enhancing the validity and reliability of research findings [19].

3.2. Critical realism: Fundamental principles and theoretical foundations

Critical realism, on the other hand, represents a distinct epistemological stance that seeks to uncover the underlying causal mechanisms and structures that shape social phenomena. Rooted in the philosophy of Bhaskar and Archer, critical realism posits that reality is stratified into three ontological layers: the empirical, the actual, and the real [20]. The empirical layer represents observable phenomena, while the actual layer comprises the underlying mechanisms and processes that generate these phenomena. Conversely, the actual layer encompasses the deep structures and generative mechanisms that produce social phenomena.

One of the fundamental principles of critical realism is the concept of “retroduction”, which involves moving beyond empirical observations to infer the underlying causal mechanisms that give rise to these observations. Mukumbang [21] emphasizes its role in economic research. Iannacci et al. [22] extend this discussion to the field of Information Systems, suggesting that retroduction can be used to conjecture hypothetical mechanisms in a counterfactual manner. However, Saliya [10] raises concerns about the robustness of claims grounded in retroduction, particularly in the social realm, highlighting the need to apply this principle in research practice carefully. Critical realists argue that researchers can better understand the underlying structures that shape social reality by uncovering generative mechanisms. Critical realism also emphasizes the importance of causal explanations, highlighting the need to go beyond mere description to uncover the causal relationships that underpin social phenomena. The theoretical foundations of critical realism further emphasize the importance of context, agency, and social structures in shaping human behavior and social outcomes. Critical realists contend that social phenomena are influenced by both individual agency and larger structural forces, and therefore, research inquiry should aim to uncover the complex interplay between these levels of analysis.

Benbrahim et al. [15] critique the Kantian transcendental arguments used by some critical realists, arguing for a naturalistic method of argumentation. Saliya [10] highlights the potential of critical realism in integrative Computer Assisted Language Learning (CALL) research, particularly in addressing the interaction between structure and agency. Palermo et al. [11] provide methodological principles for conducting critical realist case study research in information systems, emphasizing the need to identify the interaction between structural entities and

contextual conditions. In management studies, critical realism offers a way to integrate macro and micro perspectives and trace surface-level events to deeper mechanisms [23].

In conclusion, post-positivism and critical realism offer valuable insights and perspectives for researchers seeking to navigate the complex epistemological landscape of social inquiry. While post-positivism advocates for methodological pluralism and critical evaluation of theories, critical realism emphasizes the importance of uncovering generative mechanisms and causal relationships in understanding social phenomena.

4. Comparative Analysis of Post-Positivism and Critical Realism

This section delves into a comparative analysis of post-positivism and critical realism, examining their foundational principles, epistemological assumptions, methodological implications, and contributions to research inquiry. Post-positivism and critical realism offer distinct perspectives on understanding social phenomena. Post-positivism emphasizes reflexivity and critical evaluation of theories. In contrast, critical realism focuses on uncovering causal mechanisms and contextual influences.

At a foundational level, the epistemological assumptions underlying post-positivism and critical realism inform the approach taken in research. Post-positivism acknowledges the fallibility of scientific theories and the subjective nature of human knowledge, emphasizing reflexivity, critical thinking, and openness to alternative perspectives. In contrast, critical realism posits a stratified reality consisting of empirical, actual, and real layers, aiming to uncover the underlying causal mechanisms and structures that shape social phenomena. The rejection of a direct correspondence between theory and reality in post-positivism and the focus on retrodiction and generative mechanisms in critical realism highlights each paradigm's nuanced perspectives.

Palermo et al. and Gorski [11, 24] argue for critical realism's strengths over other postpositivist approaches, particularly in its emphasis on developing knowledge and its non-positivist focus on causal processes and social structure. Archer [25] further supports this by suggesting that critical realism can help overcome the limitations of both positivism and post-positivism in international relations theory. However, Benbrahim et al. [15] critique social constructionism, a postpositivist approach, for its relativist rejection of truth and its undermining of positive truth claims.

When considering methodological implications, both post-positivism and critical realism advocate for the integration of quantitative and qualitative research methods to enhance the validity and robustness of empirical studies. Post-positivism emphasizes methodological pluralism, promoting a combination of research approaches to accommodate the complexity of social phenomena and enhance research findings' reliability. On the other hand, critical realism encourages using mixed methods research designs to uncover causal explanations and contextual factors that influence social outcomes. The emphasis on context, agency, and social structures in critical realism aligns with the paradigm's focus on going beyond mere description to identify underlying mechanisms.

Dong and Dong [13] argue for adopting critical realism in political science, highlighting its potential to enhance research possibilities. Gorski [24] further supports this, proposing a foundation for comparative-historical sociology based on critical realism. However, Manzano and Williams [26] present a counterargument, suggesting that post-positivism, including critical realism, lacks a transparent methodology, which may limit its ability to challenge positivism.

Comparing the two paradigms reveals a complementary relationship in terms of challenging traditional positivist methodologies and offering alternative perspectives in research. While post-positivism prioritizes critical reflection, methodological pluralism, and empirical testing to enhance the validity and reliability of research findings, critical realism focuses on uncovering causal mechanisms and contextual influences in social phenomena. Both paradigms advocate for flexibility and adaptability in research design, promoting a holistic understanding of social reality that considers the complexities and nuances present in empirical studies.

The relationship between post-positivism and critical realism is complex and multifaceted. Kaul [27] suggests that a dialogue between the two perspectives can lead to new questions and a non-universalist approach to knowledge. Palermo et al. [11] argue that while Critical Realism is concerned with developing knowledge with positivism, it also seeks to defend knowledge from relativist and skeptical challenges. Groff [28] defends Critical Realism, particularly its emphasis on causality, but rejects certain aspects of its theory of truth.

Through a comparative analysis of post-positivism and critical realism, we have highlighted the distinct yet complementary perspectives these epistemological frameworks offer in research inquiry. While post-positivism emphasizes methodological pluralism and critical reflection to enhance the validity of research findings, critical realism focuses on uncovering causal mechanisms and contextual influences in social phenomena.

5. Strengths and Limitations of Post-Positivism and Critical Realism in Research

In this section, we explore the strengths and limitations of post-positivism and critical realism in research inquiry, shedding light on these epistemological frameworks' diverse perspectives and approaches. Post-positivism's emphasis on reflexivity, methodological pluralism, and empirical testing enables researchers to navigate the complexities of social phenomena. At the same time, critical realism's focus on uncovering causal mechanisms and contextual influences provides a deeper understanding of social realities.

5.1. Strengths and limitations of post-positivism in research

Post-positivism offers a pluralistic and critical multiplistic approach, allowing for a more holistic and flexible view of objectivity [14, 29]. In the context of quantitative research, post-positivism overcomes the limitations of positivism, providing a more intuitive and flexible approach [29]. Despite criticism, positivism prevails in information systems research [30–33]. One of post-positivism's key strengths is its acknowledgment of the subjective nature of human knowledge and the fallibility of scientific theories. This reflexivity allows researchers to critically reflect on their assumptions and biases, leading to a more nuanced understanding of social phenomena.

Additionally, post-positivism promotes methodological pluralism, enabling researchers to utilize various research methods and approaches to capture social reality's complexity better. This flexibility in methodology enhances the robustness and validity of research findings. Furthermore, post-positivism's emphasis on empirical testing and modification of theories ensures that research is grounded in evidence and constantly evolving to better align with empirical reality.

On the other hand, the limitations of post-positivism in research are a topic of ongoing debate. Maksimović and Evtimov as well as Gefen [29, 34] highlight this paradigm's weaknesses, including the potential for subjective interpretation and a more holistic approach.

While recognized as a strength, the subjective nature of human knowledge can also introduce biases and uncertainties in research outcomes. Anderson [12] challenges the notion that positivism is inherently conservative, suggesting that it can be used to promote evidence-based practice. Andreassen and Doney [35] propose a shift towards post-positivism in the philosophy of science, drawing parallels between the principles of quantum physics and the need to question traditional notions of objectivity and truth. Moreover, post-positivism's rejection of the direct correspondence between theory and reality can lead to challenges in establishing causal relationships and generalizing findings. The emphasis on methodological pluralism poses practical difficulties regarding data collection, analysis, and interpretation.

5.2. Strengths and limitations of critical realism in research

Critical realism offers a robust framework for understanding the underlying causes of real-world problems [36–38]. It recognizes the existence of objective and subjective realities, allowing for exploring perceived realities and causal mechanisms [39]. This approach is precious in Information and Communication Technologies for Development (ICT4D) research, as it can expose context, reflect real-world experiences, and support theoretical frames [40–43]. Furthermore, critical realism's focus on uncovering the underlying causal mechanisms and structures that generate social phenomena provides valuable insights into the complexities of social reality. Critical realism enables researchers to move beyond descriptive accounts to offer more explanatory and predictive analyses by emphasizing retroduction and the identification of generative mechanisms. Considering the context, agency, and social structures also enriches research by highlighting the multifaceted influences shaping human behavior and social outcomes.

However, while gaining traction in various fields, critical realism faces several. Dzogovic and Bajrami [44] state that its presentation and use in nursing research studies must be strengthened. Dobson [45] highlights the need for practical guidance for methodological development and the role of technology within its complex arguments. It is further emphasized by Kemp [46], who argues that philosophical argument should not dictate research and that realist ontological claims in the social sciences lack an empirical basis. Critical realism's stratified view of reality and emphasis on uncovering causal mechanisms may result in complex and abstract theoretical frameworks that are challenging to operationalize in empirical research. The requirement for researchers to identify and infer generative mechanisms can be demanding in terms of data collection and analysis. Additionally, critical realism's focus on context and social structures may overlook individual agency and the diversity of human experiences, potentially limiting the scope of research findings.

The in-depth analysis of the strengths and limitations of post-positivism and critical realism reveals the rich tapestry of perspectives and possibilities offered by these epistemological frameworks in research inquiry. Post-positivism's flexibility, methodological pluralism, and emphasis on empirical testing provide researchers with valuable tools to navigate the subjective nature of knowledge and enhance the validity of research findings. On the other hand, critical realism's focus on causal mechanisms, context, and social structures offers a nuanced understanding of the underlying forces shaping social phenomena [47–50]. However, both paradigms face challenges, such as potential biases in interpretation, difficulties in operationalizing

complex theoretical frameworks, and limitations in addressing individual agency and diverse human experiences.

6. Practical Implications for Educational Research

Incorporating post-positivism and critical realism into educational research offers valuable insights that can enhance the understanding and practice of education in a constantly evolving context. This section discusses how these epistemological frameworks can inform research methodologies, improve educational practices, shape policy decisions, and contribute to developing more inclusive and effective educational environments.

6.1. Enhancing methodological rigor

Post-positivism acknowledges the complexities of social phenomena, advocating for a methodological pluralism that can enrich educational research. This perspective encourages researchers to employ diverse quantitative and qualitative methods to capture the multifaceted nature of educational experiences. For instance, using mixed methods approaches allows for data triangulation, strengthening the validity of findings. By applying postpositivist principles, researchers can better analyze educational interventions, evaluating outcomes and the processes and conditions that lead to those outcomes.

6.2. Understanding contextual influences in education

Critical realism emphasizes the significance of context and the underlying mechanisms that shape educational phenomena. This approach encourages researchers to consider how socio-cultural, economic, and political factors influence educational practices and learner outcomes. For example, when studying the achievement gap in diverse classrooms, critical realism prompts researchers to investigate individual behaviors and systemic issues, such as resource allocation, teacher biases, and institutional policies. By understanding these contextual layers, educators and policymakers can craft more effective and responsive strategies that address the root causes of educational challenges.

6.3. Informing curriculum development

Curriculum development can significantly benefit from insights grounded in these epistemological frameworks. Educators adopting a postpositivist approach can systematically assess student learning outcomes to refine and adapt curricula based on evidence. Critical realism further enriches this process by compelling educators to consider the cultural and institutional contexts in which learning occurs, ensuring that curricula are academically rigorous, socially relevant, and inclusive. This dual approach fosters a curriculum that reflects diverse student experiences and promotes equity in learning opportunities.

6.4. Fostering reflective practice

The engagement of educators in reflective practice is vital for professional development. Critical realism encourages teachers to reflect on their pedagogical approaches by considering the broader social dynamics that affect their classrooms. This reflective process can lead to meaningful changes in teaching practices as educators become more aware of how their beliefs, assumptions, and context shape student learning. For instance, through

Table 1
Key insights into post-positivism and critical realism as epistemological frameworks in education

Aspect	Post-positivism	Critical realism
Definition	Recognizes the fallibility of human knowledge and the importance of reflexivity in research.	Focuses on uncovering the causal mechanisms and structures that influence social phenomena.
Epistemological assumptions	Knowledge is provisional, and scientific theories are testable but not absolute.	Reality is stratified into empirical, actual, and real layers and seeks to understand relationships between them.
Methodological approach	Advocates for methodological pluralism; prefers mixed methods to enhance validity.	Encourages retroduction to explore deep structures and generative mechanisms.
Strengths	<ul style="list-style-type: none"> - Flexibility in research design - Emphasizes reflexivity and critical thinking - Allows for triangulation of findings 	<ul style="list-style-type: none"> - Provides a deeper understanding of social contexts - Highlights the importance of causal explanations - Acknowledges the complexity of social phenomena.
Limitations	<ul style="list-style-type: none"> - Subjective interpretations can introduce bias - Challenges in establishing generalizable findings 	<ul style="list-style-type: none"> - Complex theoretical frameworks can be difficult to operationalize - The emphasis on context may overlook individual agency.
Practical implications	<ul style="list-style-type: none"> - Enhances methodological rigor through mixed methods - Informs curriculum development through systematic assessment 	<ul style="list-style-type: none"> - Informs policy development by considering socio-cultural influences - Enhances reflective practice by encouraging consideration of broader social dynamics.
Overall contribution	Balances theoretical perspectives with empirical evidence, fostering a nuanced understanding of education.	Offers insights into how contextual influences and causal mechanisms shape educational outcomes.

reflective journals or peer discussions, teachers can explore the implications of their instructional choices, fostering a culture of continuous improvement.

6.5. Shaping educational policy

Incorporating postpositivist and critical realist perspectives into policy development can lead to more informed and effective educational policies. Policymakers committed to these frameworks are more likely to consider a wide range of data—including qualitative feedback from educators and students—when making decisions. This holistic understanding facilitates policies that recognize the complexities of educational systems and the necessity for flexibility in addressing diverse needs. Moreover, involving stakeholders in policy-making ensures that various perspectives are considered, leading to more equitable and just educational systems.

6.6. Addressing ethical considerations

Both post-positivism and critical realism highlight the ethical dimensions of educational research. Researchers must remain mindful of power dynamics and strive for ethical rigor by ensuring participants’ voices are respected and represented. It includes obtaining informed consent, prioritizing participant confidentiality, and acknowledging the socio-political implications of their findings. By foregrounding ethical considerations, researchers can foster trust and collaboration with educational communities, enhancing the applicability and impact of their research outcomes.

In summary, integrating post-positivism and critical realism into educational research provides a robust framework that enriches both understanding and practice. By fostering methodological rigor, contextual awareness, reflective practice, and ethical considerations, these epistemological paradigms can lead to transformative changes in educational research and outcomes.

The following chart summarizes key findings from the comparative analysis to facilitate a clearer understanding of the distinctions and interconnections between post-positivism and critical realism as epistemological frameworks in educational research. This visual representation (Table 1) highlights the

foundational principles, strengths, limitations, and practical implications of each framework, as discussed in the previous sections.

7. Conclusion

This study has investigated the contributions of post-positivism and critical realism to the enhancement of educational research methodologies and practices. Through a thorough review and comparative analysis, we have illuminated the distinct yet complementary insights that these epistemological frameworks provide for educational researchers. By clarifying the theoretical foundations, methodological pluralism, and the importance of reflexivity, this study emphasizes the need for a comprehensive understanding of how these paradigms can inform educational inquiry.

The findings advocate for a balanced approach that incorporates causal mechanisms and contextual influences, allowing educators and researchers to navigate the complexities of educational phenomena effectively. By integrating diverse theoretical perspectives with empirical evidence, post-positivism, and critical realism together foster a more nuanced understanding of educational environments.

Moreover, this research highlights the practical implications of applying these frameworks, encouraging more rigorous methodologies, greater awareness of socio-cultural contexts, and ethical considerations in educational research. By foregrounding the perspectives of various stakeholders and advocating for reflective practices, this study underscores the potential for transformative changes in educational outcomes.

While contributions have been made, the study acknowledges certain limitations, particularly concerning the focus on theoretical frameworks over specific applications across diverse educational contexts. Future research could explore the nuanced application of post-positivism and critical realism across various disciplines within education, including their intersections with other paradigms. Such explorations could yield innovative approaches to addressing complex educational challenges and advancing knowledge production in the field.

Ethical Statement

This study does not contain any studies with human or animal subjects performed by the author.

Conflicts of Interest

The author declares that he has no conflicts of interest to this work.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Author Contribution Statement

Arthur William Fodouop Kouam: Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Writing – review & editing, Visualization, Supervision, Project administration.

References

- [1] Chowdhury, R. (2019). Embarking on research in the social sciences: Understanding the foundational concepts. *VNU Journal of Science: Foreign Studies*, 35(1), 99–113. <https://doi.org/10.25073/2525-2445/vnufs.4340>
- [2] Semigina, T. (2020). Do numbers always matter: Review of research paradigms in social work. *Path of Science*, 6(7), 3001–3011. <https://doi.org/10.22178/pos.60-2>
- [3] Rahman, M. M. (2023). Navigating the landscape of research paradigms: An overview and critique. *International Journal of Educational Studies*, 6(1), 1–18.
- [4] Sinaulan, R. L. (2022). Qualitative research paradigm in education. *The Journal of Inventions Pedagogical and Practices*, 1(3), 77–82. <https://doi.org/10.58977/jipp.v1i3.12>
- [5] Holtz, P., & Odağ, Ö. (2020). Popper was not a positivist: Why critical rationalism could be an epistemology for qualitative as well as quantitative social scientific research. *Qualitative Research in Psychology*, 17(4), 541–564. <https://doi.org/10.1080/14780887.2018.1447622>
- [6] Zhang, T. (2023). Critical realism: A critical evaluation. *Social Epistemology*, 37(1), 15–29. <https://doi.org/10.1080/02691728.2022.2080127>
- [7] Huang, H. (2022). Reflections from research practice: Realism and its reality, coming to know this, and working out its mechanisms of socio-material change. *Exchanges: The Interdisciplinary Research Journal*, 10(1), 57–93. <https://doi.org/10.31273/eirj.v10i1.815>
- [8] William, F. K. A. (2024). Delving into the principles and application of positivism in research: A guide for scholars. *International Journal of Research Publications*, 146(1), 7–13. <https://doi.org/10.47119/IJRP1001461420246237>
- [9] William, F. K. A. (2024). Interpretivism or constructivism: Navigating research paradigms in social science research. *International Journal of Research Publications*, 143(1), 134–138. <https://doi.org/10.47119/IJRP1001431220246122>
- [10] Saliya, C. A. (2023). Research philosophy: Paradigms, world views, perspectives, and theories. In C. A. Saliya (Ed.), *Social research methodology and publishing results: A guide to non-native English speakers* (pp. 35–51). IGI Global. <https://doi.org/10.4018/978-1-6684-6859-3.ch004>
- [11] Palermo, C., Redvers, N., Brandand, G., & Gordon, L. J. (2023). Introducing critical approaches in health professions education research. In C. Rees, L. Monrouxe, B. O'Brien, L. Gordon & C. Palermo (Eds.), *Foundations of health professions education research: Principles, perspectives and practices* (pp. 145–163). Wiley-Blackwell. <https://doi.org/10.1002/9781394322213.ch8>
- [12] Anderson, K. G. (2023). *The case for Bayesian SEM in critical realist studies*. Doctoral Dissertation, Gonzaga University.
- [13] Dong, D., & Dong, M. Y. (2024). Exploring the evolution of applied linguistics: A bibliometric survey of major research paradigms. In H. Meihami & R. Esfandiari (Eds.), *A scientometrics research perspective in applied linguistics* (pp. 11–43). Springer Nature. https://doi.org/10.1007/978-3-031-51726-6_2
- [14] Knoblauch, H., & Pfadenhauer, M. (2023). Construction versus realism? The unrealized potential of communicative constructivism. *Sociologica*, 17(1), 119–136. <https://doi.org/10.6092/issn.1971-8853/16725>
- [15] Benbrahim, F. Z., Frichi, Y., Benabdelhadi, A., & Jawab, F. (2024). The qualitative exploratory study: A necessary prerequisite to the quantitative study. In B. Bentalha & L. Alla (Eds.), *Data collection and analysis in scientific qualitative research* (pp. 57–86). IGI Global. <https://doi.org/10.4018/979-8-3693-8689-7.ch003>
- [16] King, D., & Wanigarathna, N. (2024). A critical review to establish an ontological and epistemological framework for evaluating variables in the sustainable construction of hyperscale data centres. In R. E. Khoury (Ed.), *Anticipating future business trends: Navigating artificial intelligence innovations: Volume 2* (pp. 107–117). Springer. https://doi.org/10.1007/978-3-031-63402-4_9
- [17] Mercier, J., Sanders, J., & Munford, R. (2023). Fine companions: Critical realism and framework analysis. *International Journal of Qualitative Methods*, 22, 16094069231220129. <https://doi.org/10.1177/16094069231220129>
- [18] Fryer, T., & Navarrete, C. (2024). *A short guide to ontology and epistemology: Why everyone should be a realist*. Retrieved from: https://tfryer.com/wp-content/uploads/2024/08/cr_sho_rtguidе_thirded_240820_minsize.pdf
- [19] William, F. K. A. (2024). Mastering validity and reliability in academic research: Meaning and significance. *International Journal of Research Publications*, 144(1), 287–292. <https://doi.org/10.47119/IJRP1001441320246160>
- [20] Archer, M., Bhaskar, R., Collier, A., Lawson, T., & Norrie, A. (2013). *Critical realism: Essential readings*. USA: Routledge.
- [21] Mukumbang, F. C. (2023). Retroductive theorizing: A contribution of critical realism to mixed methods research. *Journal of Mixed Methods Research*, 17(1), 93–114. <https://doi.org/10.1177/15586898211049847>
- [22] Iannacci, F., Fearon, C., Kawalek, P., & Simeonova, B. (2023). Aligning the qualitative comparative analysis (QCA) counterfactual approach with the practice of retrodution: Some preliminary insights. *Information Systems Journal*, 33(3), 467–485. <https://doi.org/10.1111/isj.12409>
- [23] Marobela, M. (2006). Critical realism in management studies. *Botswana Journal of Business*, 2(1), 68–88.
- [24] Gorski, P. S. (2018). After positivism: Critical realism and historical sociology. In T. Rutzou & G. Steinmetz (Eds.), *Critical realism, history, and philosophy in the social sciences* (pp. 23–45). Emerald Publishing Limited. <https://doi.org/10.1108/S0198-87192018000034002>
- [25] Archer, R. (2024). Retiring popper: Critical realism, falsificationism, and the crisis of replication. *Theory & Psychology*, 34(5), 561–584. <https://doi.org/10.1177/09593543241250079>
- [26] Manzano, A., & Williams, E. (2025). Introduction: The context of realist data collection. In A. Manzano & E. Williams (Eds.), *Realist evaluation* (pp. 1–10). Routledge.

- [27] Kaul, N. (2002). A critical 'post' to critical realism. *Cambridge Journal of Economics*, 26(6), 709–726. <https://doi.org/10.1093/cje/26.6.709>
- [28] Groff, R. (2004). *Critical realism, post-positivism and the possibility of knowledge*. UK: Routledge.
- [29] Maksimović, J., & Evtimov, J. (2023). Positivism and post-positivism as the basis of quantitative research in pedagogy. *Research in Pedagogy*, 13(1), 208–218.
- [30] Manian, A., Jamporazmey, M., & Sherkat, M. H. (2014). Positivism in information systems: Investigating paradox between theory and practice in IS researches. *International Journal of Business Information Systems*, 16(1), 72–88. <https://doi.org/10.1504/IJBIS.2014.060837>
- [31] Belharar, O., Laamrani, B., & Chakor, A. (2023). Epistemological paradigms in the social sciences: A guide for researchers. *International Journal of Global Community*, 6(2), 229–244.
- [32] Boonmavichit, T. (2023). *Exploring the potential of critical realism in futures studies*. Doctoral Dissertation, Chiang Mai University.
- [33] Shrestha, B. K., & Sharma, L. R. (2024). Discerning the distinctive characteristics of key research paradigms and their constituents. *Nepal Journal of Multidisciplinary Research*, 7(2), 30–44. <https://doi.org/10.3126/njmr.v7i2.68191>
- [34] Gefen, D. (2019). The philosopher's corner: A post-positivist answering back. Part 1: Good for you, Karl Popper! *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*, 50(2), 9–17. <https://doi.org/10.1145/3330472.3330475>
- [35] Andreassen, Ø. S., & Doney, J. (2024). Tensions between inclusion and change in worldview education: Can Joe F. Kincheloe's bricolage help teachers navigate them? *British Journal of Religious Education*, 46(2), 122–136. <https://doi.org/10.1080/01416200.2023.2298311>
- [36] Ryan, G. S. (2024). Postpositivist critical realism: Philosophy, methodology and method for nursing research. *Nurse Researcher*, 27(3), 20–26. <https://doi.org/10.7748/nr.2019.e1598>
- [37] Bourne, P. A. (2024). Epistemology and education. *International Journal of Transformation in English & Education*, 9(1), 1–10.
- [38] Tripathi, K. P., Giri, S., & Tripathi, N. (2024). Post-positivism research paradigm and philosophical assumption of sport tourism. *AWADHARANA*, 8(1), 113–127. <https://doi.org/10.3126/awadharana.v8i01.70098>
- [39] Peter, S., & Soon-Chean Park, L. (2018). Changing research methodology: Two case studies of critical realism informing social work doctoral research. *Aotearoa New Zealand Social Work Review*, 30(1), 65–70.
- [40] Heeks, R., & Wall, P. J. (2018). Critical realism and ICT4D research. *The Electronic Journal of Information Systems in Developing Countries*, 84(6), e12051. <https://doi.org/10.1002/isd2.12051>
- [41] Khatri, D. K. (2023). Research paradigms in English education: A brief overview. *Surkhet Journal*, 2(1), 21–29.
- [42] Imran, H. (2024). Pragmatic critical realism and mixed methods in inter-disciplinary research—Management and information systems. *Valley International Journal Digital Library*, 5953–5962. <https://doi.org/10.18535/ijdrm/v12i03.em01>
- [43] Paudel, P. (2024). Examining paradigmatic shifts: Unveiling the philosophical foundations shaping social research methodologies. *Journal of the University of Ruhuna*, 12(1), 45–58. <https://doi.org/10.4038/jur.v12i1.8033>
- [44] Dzogovic, S. A., & Bajrami, V. (2023). Qualitative research methods in science and higher education. *Journal Human Research in Rehabilitation*, 13(1), 156–166. <https://doi.org/10.21554/hrr.042318>
- [45] Dobson, P. J. (2012). Critical realism and IS research: Some methodological implications. In M. Mora-Tavarez, O. Gelman-Muravchik, A. L. Steenkamp & M. S. Raisinghani (Eds.), *Research methodologies, innovations and philosophies in software systems engineering and information systems* (pp. 63–81). IGI Global. <https://doi.org/10.4018/978-1-4666-0179-6.ch004>
- [46] Kemp, S. (2005). Critical realism and the limits of philosophy. *European Journal of Social Theory*, 8(2), 171–191. <https://doi.org/10.1177/1368431005051762>
- [47] Moore, A. R., & Kelly, D. M. (2024). Getting real about critical realist interviewing: Five principles to guide practice. *International Journal of Qualitative Methods*, 23, 16094069241299311. <https://doi.org/10.1177/16094069241299311>
- [48] Rees, C. E., Crampton, P. E., Nguyenand, V. N., & Monrouxe, L. V. (2023). Introducing realist approaches in health professions education research. In C. Rees, L. Monrouxe, B. O'Brien, L. Gordon & C. Palermo (Eds.), *Foundations of health professions education research: Principles, perspectives and practices* (pp. 102–121). Wiley-Blackwell. <https://doi.org/10.1002/9781394322213.ch6>
- [49] Willis, M. E. (2023). Critical realism and qualitative research in psychology. *Qualitative Research in Psychology*, 20(2), 265–288. <https://doi.org/10.1080/14780887.2022.2157782>
- [50] Tsafe, A. K. (2024). Nexus between research paradigm and mathematics education: An expository analysis. *Educational Point*, 1(1), e104.

How to Cite: Fodouop Kouam, A. W. (2025). A Systematic Literature Review of Post-Positivism and Critical Realism as Epistemological Frameworks in Educational Research. *International Journal of Changes in Education*. <https://doi.org/10.47852/bonviewIJCE52024338>