The Impact of Fundamental Pedagogical Paradigms on the Development of Action Research

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Objectives: This study aims to clarify the epistemological status of action research within the context of evolving pedagogical paradigms, to describe the domains through which these paradigms influence its development, and to formulate scientific conclusions regarding the importance of valuing fundamental pedagogical paradigms in educational inquiry. **Prior Work**: The analysis builds on established definitions of paradigms as systems of fundamental beliefs guiding research, particularly those formulated by Guba and Lincoln (1994), who conceptualize paradigms as interpretive frameworks. It also extends the tridimensional model proposed by Pretorius (2024), which integrates ontological, epistemological, and axiological dimensions into a cohesive understanding of research orientations. **Approach**: A theoretical and comparative analysis was conducted to synthesize prevailing pedagogical paradigms and examine their influence on the conceptual and methodological structure of action research. Three dominant paradigmatic approaches were identified: the functional, the constructivist, and the transdisciplinary, each shaping how educational problems are framed and addressed. **Results**: The study provides a theoretical synthesis that elucidates how these paradigmatic orientations inform the structuring of action research. It demonstrates that each approach defines specific strategies for inquiry, interpretation, and knowledge production in pedagogical contexts. **Implications**: Findings underscore the necessity of aligning action research with clear epistemological, axiological, and methodological foundations. A systematic understanding of research paradigms enhances the coherence and scientific legitimacy of pedagogical inquiry. **Value**: The study offers a

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conceptual framework that serves as a gnoseological matrix, capable of guiding all stages of action research from problem definition to dissemination, thus contributing to the advancement of scientific knowledge in education.

Keywords: scientific knowledge; research paradigm; pedagogical paradigms; educational research paradigms, action research paradigm.

1. Introduction

Research paradigms represent sets of epistemological and ontological assumptions that shape how researchers conceptualize and interpret educational reality. Historically, they have evolved considerably and are now understood as dynamic frameworks characterized by cognitive flexibility rather than rigid dogmatism (Zaidi & Larsen, 2018). The term *paradigm*, introduced into epistemology through Kuhn's seminal work (1962), derives from the Greek *παράδειγμα*, meaning a theoretical model or conceptual prototype. Within educational research, a paradigm is regarded as a coherent system of axiological, theoretical, and methodological premises that underpins the investigative process (Kivunja & Kuyini, 2017). Guba and Lincoln (1994, as cited in Kivunja & Kuyini, 2017) define a paradigm as a basic set of beliefs or worldview that guides research action or an investigation. Similarly, Denzin and Lincoln (2000, as cited in Kivunja & Kuyini, 2017) define paradigms as human constructions, which deal with first principles or ultimates indicating where the researcher is coming from so as to construct meaning embedded in data. From this perspective, Cristea (2014) asserts that *a paradigm constitutes a widely recognized framework encompassing foundational knowledge, approaches to problem formulation, strategies of inquiry, and methods for addressing research problems.* Identifying the values of pedagogical action research (PedAR) within the fundamental paradigms of pedagogy represents a main focus of this study. Accordingly, *the aim of the research* is to examine scientific evidence concerning the influence of the fundamental pedagogical paradigms on the development of pedagogical action research.

Pretorius (2024) emphasizes that a research paradigm is structured around a fundamental three-dimensional triad:

- *Ontology (the nature of reality):* This dimension defines the status of reality, determining whether it is conceptualized as a subjective construct influenced by socio-cultural factors (relativist position).

- *Epistemology (the way knowledge is acquired):* This dimension defines the theoretical framework through which knowledge is generated, whether through systematic empirical observation (positivist epistemology), hermeneutic interpretation and contextualization (interpretivist epistemology), or synthesis oriented toward practical applicability (pragmatist epistemology).

- *Axiology (the role of values in research):* This dimension addresses the impact of the researcher's values, preconceptions, and personal orientations on the investigative process and the production of scientific knowledge.

In pedagogy, paradigms consist of „families of common theories and practices" that *provide conceptual frameworks to address educational challenges* (Cristea, 2014). Țvircun and Callo (2017) further clarify that a paradigm *should function as a model, remain sufficiently concise to attract followers, and be capable of generating relevant research questions*. Kivunja and Kuyini (2017) emphasize that understanding research paradigms is essential for developing research projects that are both rigorous and theoretically grounded. Paradigms in educational research reflect a plurality of epistemological perspectives on the nature of educational reality. The selection of a research paradigm is both a methodological and deeply philosophical decision, serving as a distinctive conceptual framework that shapes the formulation of research problems, guides the choice of data collection methods and methodological strategies, and informs the analysis and interpretation of empirical findings. Figure 1 illustrates the conceptual structure of research paradigms, anchored in three fundamental dimensions: *ontology, epistemology, and axiology.* These dimensions represent core philosophical assumptions that guide the research process.
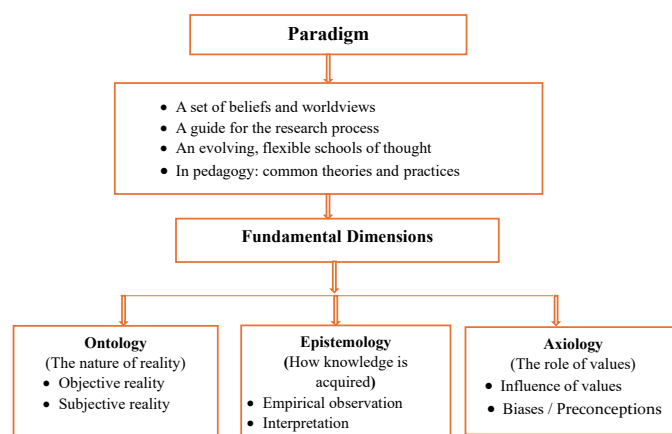

Figure 1. Fundamental Dimensions of Paradigms in Educational Research

A systematic analysis of educational research paradigms necessitates a thorough understanding of their structural and philosophical-methodological foundations. This involves deconstructing the core components that define a scientific paradigm and examining how these elements are embedded within research practice. Figure 2 illustrates how pedagogical paradigms influence the research process, from the conceptualization of research problems and the selection and application of methods to the interpretation of findings.
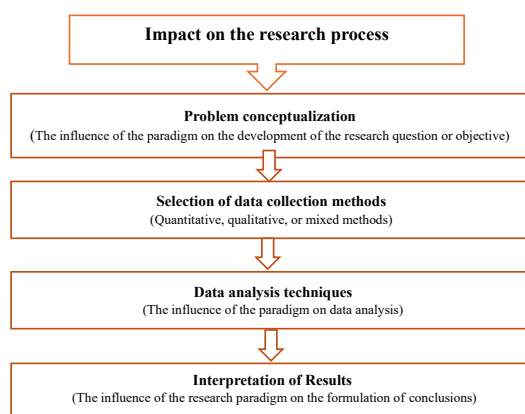

Figure 2. The Impact of Fundamental Pedagogical Paradigms on the Research Process

In this context, it is important to recognize that the main epistemological paradigms in educational research function as fundamental frames of reference that shape our understanding of educational reality. These paradigms provide distinct conceptual frameworks, define investigable problems, establish permissible methodological boundaries, and guide the selection of interpretive approaches. The choice of a paradigm is not merely a methodological decision but a philosophical commitment that epistemologically informs the entire research process. It reflects an underlying ontological stance that influences how pedagogical knowledge is constructed. This conceptual framework operates as a gnoseological matrix, recursively structuring the stages of research, from initial conceptualization to the final dissemination of findings.

2. Epistemological Paradigms in Educational Research: Foundations, Methodological Orientations, and Implications for Pedagogical Action

The analysis of epistemological paradigms in educational research draws on three principal frameworks: *the empirical-scientific paradigm, interpretivism (particularly in its*

constructivist form), and pragmatism. These paradigms do not claim to represent the full range of possible orientations, but they provide a coherent conceptual structure that corresponds to the dominant methodological approaches in the field: quantitative, qualitative, and mixed methods. Within this framework, each paradigm plays an instrumental role in shaping how the research process is understood, particularly in relation to its internal logic and its application to educational practice. The focus on the pragmatic paradigm is especially relevant in the context of pedagogical action research, which is distinguished by its emphasis on practical engagement, collaboration, and a commitment to contextually grounded, observable change.

2.1. The Empirical-Scientific Paradigm in Pedagogical Research

The empirical-scientific paradigm, deeply rooted in positivist philosophy, has exerted a significant influence on pedagogical research, shaping both methodologies and interpretations of educational phenomena. It is grounded in the belief that reality is singular, stable, and can be objectively observed and quantified (Pretorius, 2024). Positivism promotes the application of methodologies from the natural sciences to the study of the social sciences and humanities, asserting that phenomena in these domains are amenable to measurement and empirical analysis (Maksimović & Evtimov, 2023). This paradigm is underpinned by specific epistemological assumptions, including methodological reductionism, which posits that complex human experiences, such as emotions, creativity, and cultural values, can be objectified, operationalized, and subjected to empirical scrutiny. The pursuit of standardized knowledge within this model often necessitates the use of quantitative tools, such as structured questionnaires and statistical procedures, even in disciplines traditionally aligned with qualitative inquiry, including literature and the arts. This approach emphasizes the identification of causal relationships and the verification of existing theories through rigorous testing and experimentation (Maksimović & Evtimov, 2023; Park et al., 2019). Positivism utilizes the hypothetico-deductive model, which involves formulating hypotheses based on existing theories, designing experiments to test these hypotheses, and analyzing the data to either support or refute the initial hypotheses (Park et al., 2019). The foundational principle of the positivist paradigm rests upon the conviction that authentic knowledge stems from sensory experiences and logical inferences, thereby assigning paramount importance to empirical substantiation acquired through meticulous observation and controlled experimentation (Park et al., 2019).

The *empirical-scientific paradigm is grounded in a realist ontology*, which holds that reality exists independently of the observer, and is aligned with *a positivist epistemology*, asserting that knowledge is derived from empirical observation and rigorous measurement (Maksimović & Evtimov, 2023). From this perspective, the researcher is assumed to have objective access to reality (Scotland, 2012). This paradigm is characterized by four key dimensions: *ontological* (reality is singular and independent); *epistemological* (knowledge is obtained through systematic observation and measurement); *methodological* (emphasis on

quantification, neutrality, and reproducibility); and *axiological* (researcher subjectivity is minimized, and transparency is maintained) (Pretorius, 2024).

Classical positivism is grounded in the ontological premise that reality can be objectively known through systematic observation and standardized measurement, with the assumption that universal truths can be established through rigorous causal analysis (Pretorius, 2024). In contrast, post-positivism adopts a more nuanced epistemological stance, acknowledging that scientific knowledge is probabilistic, truth is always approximate, and the validity of theories is contingent, holding until more robust explanatory paradigms or new empirical evidence emerge (Zaidi & Larsen, 2018).

From a methodological standpoint, the empirical-scientific paradigm holds particular relevance for pedagogical action research. It is defined by the predominance of quantitative approaches, such as controlled experimentation, systematic statistical analysis, and the use of data-driven techniques to collect and interpret numerical information on educational phenomena (Castrillo, 2024). Within this paradigm, the experiment is regarded as the preferred method, as it enables the manipulation of the independent variable and the precise observation of its effects on the dependent variable, thereby maximizing internal validity through the control of extraneous factors (Bhinder, 2023).

The paradigmatic influence of positivism on pedagogical action research was manifested through the institutionalization of the hypothetico-deductive model, a methodological framework in which theoretical constructs are operationalized as testable hypotheses subject to empirical validation through experimental protocols and statistical analyses (Park, Konge, & Artino, 2020). Experimental and quasi-experimental designs have represented prevalent approaches in investigating direct causal relationships among instructional variables, teaching strategies, pedagogical methodologies, and indicators of academic performance. The implementation of this paradigm has led to the development of a standardized methodological repertoire, including batteries of psychometric tests and questionnaire-based screening tools, designed to systematically assess acquired competencies and the effectiveness of educational interventions. This orientation reflects the fundamental epistemological premise that educational phenomena are amenable to objective investigation (Maksimović & Evtimov, 2023; Pretorius, 2024).

In this regard, Given (2008) states that causal knowledge of the social world can be obtained objectively through observation and experimentation. This scientific positioning is also supported by Mouly39 (1978), as presented in the work of Cohen, Manion, and Morrison (2007). The authors outline Mouly's model of the scientific process by describing its fundamental stages: (a) sensory experience as the basis of knowledge, (b) classification and organisation of data, (c) precise quantification of phenomena, (d) identification of causal relationships, and (e) approximation to the truth.

With the aim of highlighting the impact of paradigms on pedagogical action research, Cohen, Manion, and Morrison (2007) outline two fundamental methodological paradigms within the epistemology of scientific research: (a) Kerlinger's definition (1970), which conceptualizes scientific research as a "systematic, controlled, empirical and critical investigation of hypothetical propositions about presumed relationships among natural phenomena," operating within a four-dimensional framework comprising methodological systematicity, experimental rigor, empirical validation, and scientific skepticism; and (b) the eight-phase procedural model of Hitchcock and Hughes (1995), which delineates the architecture of scientific research from hypothesis operationalization through to the generation of normative theories. These methodological frameworks function as conceptual matrices for constructing and validating pedagogical theories, integrating scientific evidence into educational practice, and optimizing knowledge transfer in applied contexts.

Although the empirical-scientific paradigm provides a systematic and reproducible framework for investigating educational phenomena, it has been widely criticized for its limited ability to capture the complexity and multidimensionality of educational realities. Cohen, Manion, and Morrison (2007) offer a critical examination of positivism, highlighting key conceptual objections raised by prominent theorists. Horkheimer (1972), Habermas (1972), and Wittgenstein (1974) argue that this epistemological orientation reduces human behavior to a mechanistic system of stimuli and responses, overlooking the subjective, axiological, creative, and aesthetic dimensions of human existence. From their perspective, science risks becoming an ideological construct that marginalizes other legitimate forms of knowledge. In addition, Cohen and colleagues note critiques from Giddens (1976) and Chomsky (1959), who emphasize that positivism cannot adequately account for defining aspects of the human condition, including *intentionality, autonomous decision-making, and the symbolic dimension of action*. These critiques reveal the deterministic tendencies embedded in positivist approaches when examining human behavior.

Although the empirical-scientific paradigm remains central to educational research by providing an objective and systematic methodological framework, its exclusive use presents both strengths and limitations (Table 1).

Table 1. Strengths and Limitations of the Empirical-Scientific Paradigm in Pedagogical Action Research

Strengths	Limitations
Provides a rigorous, well-defined, and systematic framework for research.	Neglects the subjective and experiential dimensions of educational phenomena.
Produces objective, verifiable, and reproducible findings.	Oversimplifies complex educational processes and disregards contextual variation.
Emphasizes causal relationships and supports the development of predictive models.	Relies on reductionist methodologies that constrain interpretive depth.

Grounds educational interventions in both theory and empirical evidence.	Fails to capture the moral, cultural, and symbolic aspects of education.
Employs standardized quantitative methods that enhance comparability and generalizability.	Privileges objectivity and standardization at the expense of personal meaning and creative interpretation.
Facilitates evidence-based decision-making through statistical analysis.	Gives limited attention to socio-cultural factors and individual values in shaping educational experience.

2.2. The Interpretive Paradigm in Pedagogical Research

The interpretive (constructivist) paradigm (Omodan, 2024) serves as a key theoretical framework in contemporarye pedagogical research. It embodies a transdisciplinary perspective that brings together methodological contributions from philosophy, epistemology, psychology, neuroscience, sociology, linguistics, cybernetics, and psychotherapy. The complexity inherent in this paradigm reflects its openness to reality and enables a holistic approach to the study of human knowledge (Țvircun & Callo, 2017).

According to Costantino (2008), theoretical roots of constructivism can be traced back to the 19th-century German antipositivist movement. This movement advocated for the development of a distinct science capable of investigating the complexities of social reality. Building on this foundation, key contributions from major 20th-century educational theorists helped shape the constructivist paradigm. John Dewey, for instance, emphasized that knowledge is constructed through social interaction and that learners must be active participants in the learning process, rather than passive recipients. Jean Piaget contributed a theory of cognitive development that viewed learning as a progressive self-construction of reality through activity and interaction with the environment. Lev Vygotsky, whose sociocultural theory of learning became highly influential, underscored the central role of social interaction, cultural and historical context, and language in the development of higher mental functions and the construction of knowledge. The convergence of these perspectives laid the foundation for a learner-centered and contextually grounded educational vision.

Focusing on the interpretation of data within authentic educational contexts, researchers move beyond critical observation to formulate their own interpretations, cognitive schemes, and conceptual networks aimed at extending prior experience. In this perspective, research does not produce a direct or objective reproduction of educational reality but instead provides frameworks for knowing, understanding, and interpreting it, thereby highlighting that scientific knowledge reflects ways of organizing and making sense of social reality (Țvircun & Callo, 2017, p. 137). Emphasis is placed on the researcher's active role in constructing meaning, situating educational inquiry within interpretive/constructivist paradigms.

Ontologically, the interpretive paradigm rejects the premise of a single, objective reality that exists independently of subjective experience; instead, it assumes multiple, socially

constructed realities. *Epistemologically*, understanding is context-dependent, knowledge is co-constructed within social, cultural, and personal contexts through interaction between researchers and participants. In contrast to the positivist claim of a mind-independent reality, constructivism holds that the knower builds knowledge through social interaction and symbolic mediation. Accordingly, educational reality is best treated as contextual and emergent from researcher–participant engagement, shaped by temporal, spatial, and individual contingencies (Zaidi & Larsen, 2018).

In this context, the interpretive paradigm marks a fundamental epistemological shift away from the emphasis on causal explanation (Erklärung), characteristic of the natural sciences, toward a deeper understanding of meaning (Verstehen), which is considered more appropriate for studying human and social phenomena. This transition, known as the *interpretive turn*, signals a move toward relativist and subjectivist conceptions of knowledge, where reality is understood as being socially and contextually constructed. Within this framework, knowledge is not viewed as an objective truth to be discovered, but rather as something co-constructed through processes of dialogue, interpretation, and interaction between the researcher and participants. Interpretive inquiry, therefore, privileges meaning-making, contextual sensitivity, and hermeneutic engagement, wherein understanding emerges iteratively through the ongoing relationship between the inquirer and the social world under study (Costantino, 2008).

Following Dilthey's foundational distinction between the natural and human sciences, Edmund Husserl developed phenomenology as a reflective approach to consciousness, emphasizing that intentionality, the directedness of consciousness toward phenomena, is essential to understanding experience. Husserl's work highlighted that meaning is constituted not in isolation, but within historical, social, and cognitive contexts, and emerges through reflective engagement. On this foundation, Max Weber advanced the interpretive paradigm from a sociological perspective by asserting that only actions imbued with subjective meaning are amenable to interpretive understanding. For Weber, the task of social science is to grasp the meanings individuals assign to their actions by linking causal explanations with actors' motivations, beliefs, and values. This interpretive orientation aimed to reconcile explanation with understanding by foregrounding the subjective dimension of social action. Over the course of the twentieth century, the interpretive paradigm evolved into diverse strands, most notably, *social constructivism and psychological constructivism.* These approaches differ in emphasis but share the core assumption that knowledge is not passively discovered but actively constructed through social processes. In both traditions, the role of intersubjective interaction is central to the production of scientific knowledge, further reinforcing the constructivist view that understanding is situated, negotiated, and context-dependent (Costantino, 2008).

From a methodological standpoint, Guba and Lincoln critically examined the positivist paradigm, emphasizing the multiplicity of social realities and their inherently constructed and relative nature. They argued that cognition is not a process of objective discovery, but an

emergent creation shaped through hermeneutic interaction between researchers and participants. These insights have profoundly influenced the development of qualitative research approaches in educational studies, which employ methods such as in-depth and semi-structured interviews, participant observation, narrative and discourse analysis, and case studies (Zaidi & Larsen, 2018; Costantino, 2008).

Building on this foundation, the interpretive paradigm places particular emphasis on understanding the social and contextual meanings through which individuals navigate their lives (Adil et al., 2022, as cited in Omodan, 2024). A central feature of this paradigm is critical reflexivity, which requires researchers to examine their epistemological assumptions, biases, and axiological orientations. Its primary aim is to analyze the social construction of meaning by exploring individuals' goals, intentions, and values within educational, social science, and communication research contexts (Croucher & Cronn-Mills, 2014).

Further extending the interpretive perspective, this paradigm draws on several foundational approaches, including *hermeneutics*, which involves the systematic interpretation of cultural expressions; *phenomenology*, which investigates the structures of conscious experience; and *symbolic interactionism*, which examines how symbols operate within social interactions (Croucher & Cronn-Mills, 2014), providing a nuanced and comprehensive understanding of social phenomena and reinforcing the interpretive paradigm's central focus on meaning-making.

The relevance of the interpretive paradigm in pedagogical action research is indisputable, as it provides robust conceptual and methodological frameworks for examining the complexity of educational processes. This paradigm plays an essential role in rethinking how learning, teaching, and interaction are conceptualized within educational contexts. By privileging qualitative methods, the interpretive approach enables the exploration of the meanings attached to learning and relationships within school communities, avoiding reductionist or mechanistic explanations that overlook the dynamic nature of human phenomena in education.

Moreover, incorporating the interpretive paradigm into pedagogical inquiry fosters critical reflexivity on educational practices and supports the development of adaptive, learner-centered teaching strategies that are responsive to students' socio-cultural contexts. As such, the interpretive approach constitutes a foundational orientation in pedagogical research, producing knowledge that is both contextually relevant and practically applicable, with transformative potential for the field of education.

Table 2 further illustrates the strengths and limitations of the interpretive paradigm, highlighting how it enables nuanced, contextually grounded inquiry and reflective practice, while also acknowledging challenges related to generalizability, researcher subjectivity, and methodological constraints.

Table 2. Advantages and Limitations of the Interpretive Paradigm in Pedagogical Action Research

Advantages	Limitations
Enables a nuanced and contextually grounded understanding of students' and teachers' experiences	Findings are often difficult to generalize beyond the specific context
Supports the exploration of social interactions that shape learning	Interpretations may be influenced by the researcher's subjectivity
Provides methodological flexibility through qualitative approaches tailored to educational realities	Absence of standardized procedures can affect external validity
Promotes reflection and reflexivity among practitioners engaged in research and pedagogical practice	Data collection and analysis can be time-consuming and resource-intensive
Facilitates the design of personalized teaching strategies responsive to context and student needs	Emphasis on interpretation may limit the identification of causal relationships and reduce predictability
Encourages collaborative knowledge construction between researchers and participants	May be perceived as less objective when compared with traditional scientific paradigms

2.3. The Pragmatic Paradigm in Pedagogical Research

Pragmatism represents a distinct paradigm in scientific inquiry, characterized by a flexible epistemological stance toward the nature of reality. As Pretorius (2024) observes, this paradigm is grounded in four interrelated dimensions: ontological, epistemological, methodological, and axiological. *Ontologically*, reality is viewed as fluid and context-dependent. *Epistemologically*, knowledge is considered provisional, contingent, and instrumental, with a focus on addressing practical problems. *Methodologically*, pragmatism embraces pluralism, supporting qualitative, quantitative, and mixed-method approaches. *Axiologically*, research is oriented toward generating outcomes that are practically beneficial, extending beyond purely theoretical concerns.

Anchored in the philosophical foundations of pragmatism, this paradigm foregrounds utility and contextual relevance as central dimensions of the research process, guiding scholars to examine educational issues with the aim of generating actionable knowledge and practically valuable solutions (Kelly & Cordeiro, 2020). Pragmatism promotes a teleological approach to inquiry, whereby the validity of theories and ideas is evaluated in terms of their effectiveness in addressing concrete problems and enhancing educational practice (Zaidi & Larsen, 2018). This perspective is further supported by Allemang et al. (2021), who contend that pragmatism grants privileged epistemic status to a particular type of knowledge or methodology while critically examining the extent to which methodological choices serve specific interests within particular contexts (p. 39). Accordingly, educational action research guided by the pragmatic paradigm legitimizes methodological pluralism and values diverse

modes of knowledge production oriented toward practical improvement and contextual relevance.

The methodological principles outlined by Kelly and Cordeiro (2020) position pragmatic research around three defining orientations:

- *Production of actionable knowledge*, whereby inquiry outcomes are designed to be transferable and directly applicable to educational practice;

- *Interrelation of experience, knowledge, and action*, framing the investigative process as a set of operational practices responsive to contextual variables and positioning learning as a situated and adaptive phenomenon;

- *Research as an experiential and iterative process*, conceptualized as a continuous cycle of inquiry, reflection, and refinement, emphasizing dynamic collaboration between researchers and practitioners to ensure the authentic integration of theoretical insights into educational practice.

Within pedagogical action research, the pragmatic paradigm manifests in its focus on applied interventions, formative evaluation, and case study inquiry, all aimed at optimizing learning processes, renewing instructional strategies, and advancing educational outcomes (Pretorius, 2024).

The pragmatic paradigm is grounded in collaboration as a process of co-construction, encompassing all stages of inquiry, from identifying the research problem to implementing proposed solutions. At the same time, recognizing the strengths of the pragmatic paradigm requires an awareness of its methodological limitations. Zaidi and Larsen (2018) caution against the risks of oversimplification and the uncritical adoption of methods from divergent paradigms without careful consideration of their underlying epistemological assumptions. Moreover, solutions developed within specific contextual frameworks may have limited transferability across educational settings, raising questions about the broader applicability and relevance of such findings.

From the perspective of pedagogical action research, the long-term significance of the pragmatic paradigm in education is indisputable. As Clark et al. (2021) note, research provides a broad landscape of scientific knowledge for improving educational decision-making (p. 7), and the pragmatic framework ensures that such decisions remain responsive to the needs of educational stakeholders. By emphasizing practical applicability and inter-institutional collaboration, pragmatism establishes itself as a foundational epistemological orientation for researchers who aim not only to understand educational realities but also to implement transformative interventions within pedagogical contexts.

The pragmatic paradigm offers a flexible framework for inquiry oriented toward practical outcomes, capable of generating knowledge that directly impacts educational processes. By coherently integrating qualitative and quantitative methods, it enables a contextualized

understanding of the complexity of educational phenomena and supports the development of solutions tailored to specific socio-cultural contexts. In pedagogical action research, collaboration, active participation, and sustained engagement are essential for ensuring both the sustainability of interventions and the social validity of research outcomes. At the same time, adopting a pragmatic stance requires careful negotiation of the epistemological tensions inherent in action-oriented inquiry, as well as reflexive consideration of its limitations in enhancing educational practices (see Table 3).

Table 3. Advantages and Limitations of the Pragmatic Paradigm in Pedagogical Action Research

Advantages	Limitations
Methodological flexibility: enables the integration of qualitative and quantitative approaches	Risk of oversimplification through the uncritical combination of divergent paradigms without reconciling epistemological assumptions
Orientation toward practical solutions and applicability in educational settings	Challenges in generalizing findings beyond specific contexts
Emphasis on collaboration and stakeholder involvement (educators, students, families)	Requires additional effort to manage diverse relationships and interests
Generation of actionable knowledge with direct impact on educational practice	Risk that theoretical dimensions may be undervalued in favor of immediate applicability
Facilitates inclusion through contextualized and participatory approaches	Increased complexity of the research process, demanding more time and resources
Allows continuous adaptation and learning through iterative research cycles	Requires diverse competencies from researchers, including management and communication skills

3. Ontological, Epistemological, and Axiological Dimensions of Pedagogical Action Research

Understanding the values that guide pedagogical action research requires examining how different pedagogical paradigms shape the principles, priorities, and practices of inquiry. These values emerge from the ontological, epistemological, and axiological assumptions of each paradigm, influencing not only methodological choices but also how knowledge is generated, applied, and evaluated within educational contexts. By linking these foundational assumptions to the practical aims of pedagogical action research, it becomes possible to identify core values, such as collaboration, applicability, reflexivity, and social relevance, that underpin the design, implementation, and assessment of interventions aimed at enhancing learning and teaching processes.

Table 2 synthesizes the main ontological, epistemological, and axiological dimensions of these paradigms, highlighting their preferred methodological approaches, theoretical underpinnings, and applied relevance within educational settings. This comparative presentation clearly illustrates how paradigms conceptualize the nature of reality, the processes of knowledge generation, and the role of values in both investigative practices and pedagogical action research.

Table 4. Values of Pedagogical Action Research Derived from Research Paradigms

Aspect	Empirical-Scientific Paradigm (Positivist/Post-Positivist)	Interpretive Paradigm (Constructivist)	Pragmatic Paradigm (Mixed Methods)	Core Values in Pedagogical Action Research
Ontology (Nature of Reality)	Reality is objective, stable, and independent of the observer; post-positivism acknowledges measurement is fallible and truth is approximate; universal laws govern phenomena (Kuhn, 1962; Pretorius, 2024; Zaidi & Larsen, 2018; Maksimović & Evtimov, 2023)	Reality is subjective and context-dependent; multiple realities coexist, shaped by individual experiences; phenomena and interpretations are interdependent (Zaidi & Larsen, 2018; Ţvircun & Callo, 2017; Costantino, 2008)	Reality is dynamic, contextually situated, and problem-oriented; knowledge is actionable rather than purely theoretical (Pretorius, 2024; Kelly & Cordeiro, 2020; Allemang et al., 2021)	Independence Dynamism Context-sensitive interpretation
Epistemology (How Knowledge is Generated)	Knowledge is derived through empirical observation and experimentation (Park et al., 2020). Hypothetico-deductive reasoning: testing hypotheses via quantitative methods (Maksimović & Evtimov, 2023). Scientific neutrality is prioritized (Pretorius, 2024).	Knowledge is co-constructed through interaction between researchers and participants; hermeneutic and phenomenological approaches; interpretation is central (Given, 2008; Dilthey; Husserl; Zaidi & Larsen, 2018)	Knowledge is oriented toward practical problem-solving; methodological pluralism integrates qualitative and quantitative approaches; utility and relevance emphasized (Pretorius, 2024; Kelly & Cordeiro, 2020; Zaidi & Larsen, 2018)	Collaboration Practice-orientation Stakeholder engagement Utility Applicability Reflexivity
Axiology (Role of Values)	Researcher values minimized to maintain objectivity; goal is neutral description of phenomena (Pretorius, 2024; Cohen et al., 2007)	Researcher and participant values influence outcomes; reflexivity is essential (Given, 2008; Zaidi & Larsen, 2018)	Practical and ethical values (e.g., efficiency, equity) guide research; social and educational impact prioritized (Pretorius, 2024;	Objectivity Precision Clarity Social responsibility

			Allemang et al., 2021)	
Preferred	Experiments, longitudinal studies, statistical analyses; standardized instruments (tests, questionnaires) (Bhinder, 2023; Maksimović & Evtimov, 2023)	Qualitative interviews, participant observation, case studies; narrative and hermeneutic analysis (Costantino, 2008; Zaidi & Larsen, 2018)	Mixed methods (quantitative and qualitative); action research; formative evaluation (Kelly & Cordeiro, 2020; Pretorius, 2024)	Participatory approaches Formative assessment Reflective practice

4. Conclusion

In essence, pedagogical paradigms profoundly shape pedagogical action research by integrating epistemological choices, methodological strategies, and ethical practices into a coherent framework. Researchers must critically reflect on the historical and philosophical foundations of scientific knowledge, extend inquiry beyond dominant frameworks, and anage power dynamics through reflexive practices, particularly in qualitative approaches where participants contribute to the co-construction of meaning. Transparency regarding researcher values and ethical responsibility in representation are essential, ensuring that interpretations respect participants' perspectives and that research practices are socially responsible (Pretorius, 2024).

A comparative examination of the empirical-scientific (positivist/post-positivist), interpretive (constructivist), and pragmatic paradigms illustrates how paradigmatic understanding pushes pedagogical research toward action-oriented approaches, emphasizing collaboration, contextual sensitivity, and solution-focused inquiry. The pragmatic paradigm, in particular, supports this shift by privileging practical problem-solving, methodological flexibility, and stakeholder collaboration, enabling the integration of theory and practice, the generation of actionable knowledge, and the promotion of sustainable improvements in educational settings. Consequently, pedagogical action research informed by robust paradigms is both reflexive and transformative, producing outcomes that are contextually relevant, ethically grounded, and capable of addressing the complex challenges of contemporary education.

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