

## Reconceptualizing The Validity of Cross-Paradigm Research Through a Critical Review of Reliability, Credibility, and Trustworthiness.

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### Abstract

This study aimed to reconceptualize the validity of cross-paradigm research through a critical examination of the evolution of the meaning and function of reliability, credibility, and trustworthiness in the methodological literature. This study departed from the problem of conceptual fragmentation and epistemological tension that arise due to the application of validity criteria a historically and procedurally in various research paradigms. The method used was a non-systematic literature review of conceptually relevant Scopus indexed journal articles, with a thematic-conceptual analysis approach and cross-paradigm critical synthesis. The results of the study showed that validity has shifted from technical-instrumental attributes to epistemic justification processes that are contextual, reflective, and paradigmatic. Reliability is no longer serves as a universal prerequisite for validity, but rather as a technical mechanism whose relevance depends on certain epistemological assumptions. Credibility developed as an interpretive justification mechanism in qualitative research, while trustworthiness served as a reflective evaluative framework that emphasizes transparency and accountability. This study also found epistemological tensions, conceptual inconsistencies, and theoretical limitations in the use of these three concepts across paradigms. In conclusion, the validity of research needs to be understood as a dynamic practice of epistemic justification and not reduced to a methodological checklist. This research contributed to the development of research methodology by offering

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a conceptual synthesis that goes beyond the classical dichotomy of validity-reliability and trustworthiness-credibility.

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## 1. Introduction

Research validity is a fundamental concept in scientific methodology that serves as the basis for legitimacy of knowledge claims, but its understanding has undergone a significant epistemological transformation as the research paradigm has developed. In the positivistic tradition, validity has historically been understood as a technical attribute related to the accuracy of measurement and the reliability of an instrument, so reliability is placed as the primary prerequisite for validity. This understanding places validity within a verifiable framework that emphasizes statistical consistency, replication, and generalization. However, contemporary methodological literature suggests that the reduction of validity to technical-instrumental issues is no longer adequate to explain the complexity of the process of justifying scientific knowledge, especially when research moves beyond the ontological assumptions of naïve realism. Validity is increasingly understood as an epistemic construct that depends on the theoretical context, research objectives, and interpretive practices of researchers. This shift marks a fundamental shift from validity as a property of a method to validity as an argumentative process. Thus, validity is no longer singular and universal, but plural and paradigmatic. (BADEMCI, 2022) (Gavora, 2013) (Caretta & Pérez, 2019).

This development became even more evident when the quantitative literature itself began to reflect on the limitations of the validation approach based on statistical indicators alone. Although the post-positivistic paradigm still maintains construct validity, internal validity, and external validity through techniques such as confirmatory factor analysis and goodness-of-fit indices, criticism of methodological formalism is gaining strength; Some researchers assert that the reliability and suitability of models do not guarantee epistemic validity if theoretical constructs are not defined coherently and reflectively. In this context, validity begins to be understood as a conceptual justification that precedes empirical justification. It even views trustworthiness as a spectrum of epistemic beliefs built through transparency, design quality, and honest inference, rather than as a binary result of statistical testing. These developments suggest that even in the quantitative tradition, the relationship between validity and reliability is no longer hierarchical, but rather functional and contextual. Thus, validity began to be positioned as a reflective epistemic practice, rather than just procedural compliance. (Baharum et al., 2023) (Shi et al., 2024) (Smith & Munnik, 2023) (Gorard, n.d.)

More radical changes occurred in qualitative and interpretive paradigms, which explicitly challenged the dominance of positivistic concepts of validity and reliability. In response to the crisis of epistemic legitimacy, the concept of trustworthiness was introduced as an alternative evaluative framework that reflected constructivist and non-realistic ontological assumptions; Credibility, transferability, dependability, and confirmability are positioned as justification mechanisms that emphasize interpretive coherence, researcher reflexivity, and process transparency, rather than replication or

generalization. However, the literature also shows that the adoption of trustworthiness is often ritualistic and loses its philosophical depth, especially when strategies such as triangulation and member checking are applied as methodological checklists; this condition creates a conceptual inconsistency between the epistemic goals of qualitative research and the methodological practices carried out. Thus, although trustworthiness is intended as an epistemic reconstruction, its non-reflective use reproduces the technical logic it seeks to criticize. (Morrow, 2005) (Moreira, n.d.) (Carcary, 2020) (Morse, 2015) (Riazi et al., 2023)

These epistemological tensions are further complex when the validity of research is understood in relation to the dimensions of ethics, power, and the politics of knowledge. The literature in a critical, participatory, and transformative paradigm affirms that validity cannot be separated from the power relations between researchers, participants, and scientific institutions; In this context, validity has to do not only with epistemic accuracy or coherence, but also with the ethical legitimacy and social impact of research. Validity is understood as a normative construct negotiated through dialogical and emancipatory practices. However, this approach has also faced criticism for potentially blurring the line between scientific claims and normative agendas. The tension between epistemic validity and ethical validity suggests that there is no single framework capable of explaining the quality of cross-paradigm research. Thus, validity becomes an arena of epistemological contestation that continues to develop. (Boser, 2007) (Balakrishnan & Claiborne, 2017) (Romm, 2015).

The development of technology, especially the use of artificial intelligence in research, further complicates the discourse on research validity. Cutting-edge literature shows that AI not only serves as an analytical tool, but also as an epistemic agent that contributes to the process of data interpretation; This conditions challenge traditional understandings of reliability, transparency, and accountability, as the analytical process becomes increasingly opaque and difficult to trace. The reliability of algorithmic outputs does not guarantee epistemic validity if the decision-making process cannot be explained reflectively. In this context, trustworthiness is extended to include socio-technical dimensions, such as algorithmic documentation, researcher reflexivity, and clarity of the role of technology. However, the existing literature still addresses this issue in a fragmented manner and has not systematically linked it to the historical evolution of the concept of cross-paradigm validity. This shows that there are conceptual needs that have not been met. (Costa et al., 2025) (Jones, 2025).

Based on the mapping of the literature, it can be identified that there is a significant research gap, namely the absence of an integrative framework that systematically traces the evolution of research validity across paradigms by placing reliability, credibility, and trustworthiness in one epistemological analysis horizon. The existing literature tends to be fragmented in the traditions of their respective paradigms, so that cross-paradigm dialogue is still partial and descriptive; Quantitative research rarely reflects the epistemological assumptions underlying the use of statistical reliability and validity, while qualitative research often adopts trustworthiness without in-depth philosophical evaluation; In addition, criticism of procedural uses such as member checking suggests

that validity cannot be reduced to methodological techniques; This gap suggests that validity is still understood as an attribute or checklist, rather than as a dynamic epistemic justification process. (Caretta & Pérez, 2019) (Melnikova & Khoroshilov, 2014) (Önerisi & Tutar, n.d.) (Morse, 2015) (Birt et al., n.d.) (Erdmann & Potthoff, 2023)

Therefore, this research was conducted with the aim of reconceptualizing the validity of cross-paradigm research through a critical examination of the evolution of the meaning and function of reliability, credibility, and trustworthiness in the methodological literature. Specifically, this study aims to map the conceptual changes of validity as a cross-paradigm epistemic justification mechanism (RQ1), identify epistemological tensions and conceptual inconsistencies in the use of the three concepts (RQ2), and formulate a conceptual synthesis that goes beyond the classical dichotomy between validity-reliability and trustworthiness-credibility (RQ3). Using a critical literature review approach, this study does not aim to test empirical hypotheses, but rather to build a reflective and integrative theoretical contribution. This research places validity as an epistemic construct that evolves along with changing paradigms, values, and technologies. Thus, this research is expected to provide a more coherent conceptual framework to understand the quality of cross-paradigm research in contemporary methodologies.

## 2. Methods

This study uses a literature review design of non-systematic literature review (non-SLR) with a qualitative-critical approach, which aims to reconceptualize the validity of cross-paradigm research through the analysis of the conceptual evolution of reliability, credibility, and trustworthiness in the methodological literature. The non-SLR design was chosen because the purpose of this study is conceptual and epistemological synthesis, rather than quantitative mapping or empirical effectiveness evaluation, thus allowing for interpretive flexibility and depth of critical analysis of theoretical arguments as recommended in the study of reflective methodology; The research sample is in the form of Scopus indexed journal articles that have been used in previous research reviews and state of the art of this study, with inclusion criteria including: (1) articles that explicitly discuss validity, reliability, credibility, or trustworthiness; (2) articles that represent positivistic, post-positivistic, interpretive, critical, or transformative paradigms; and (3) articles that contribute to the epistemological, methodological, ethical, or socio-technical discourse of research validity; ; ; . (Morrow, 2005) (Caretta & Pérez, 2019) (BADEMCI, 2022) (Moreira, n.d.) (Boser, 2007) (Costa et al., 2025)

The research instruments in this study are conceptual analysis frameworks developed by researchers based on the main epistemological categories, including: ontological assumptions, epistemic justification mechanisms, reliability/credibility/trustworthiness functions, and forms of conceptual tension across paradigms; . The data collection procedure was carried out through close reading of the selected articles, accompanied by systematic recording of the definitions, main arguments, conceptual criticisms, and methodological implications presented by each author; Data analysis was carried out using (Melnikova & Khoroshilov, 2014) (Önerisi

& Tutar, n.d.) (Riazi et al., 2023) (Morse, 2015) thematical-conceptual analysis with a cross-paradigm comparative strategy, namely grouping literature findings based on the evolutionary pattern of validity meaning and its relationship with reliability, credibility, and trustworthiness; Furthermore, a critical synthesis is carried out to identify common points, epistemological tensions, and theoretical limitations, which form the basis for the formulation of a conceptual framework of cross-paradigm validity that goes beyond the classical dichotomy; This methodological design is structured in a transparent and reflective manner so that it can be replicated by other researchers who want to conduct similar conceptual studies in the research methodology. (Gorard, n.d.) (Smith & Munnik, 2023) (Romm, 2015) (Jones, 2025).

### 3. Result

#### 3.1. A Shift in the Definition of Validity from Technical Attributes to Epistemic Justification Processes

The results of the literature review show that the definition of research validity undergoes a consistent conceptual shift from technical-instrumental attributes to a contextual epistemic justification process. In the early literature with a positivistic paradigm, validity is positioned as a characteristic of research instruments and designs that can be statistically tested through measurement consistency and inference accuracy; However, contemporary literature confirms that validity is no longer attached to instruments, but rather to scientific arguments that connect data, theories, and contexts of use of research results. The articles analyzed explicitly rejected the use of the term "valid instrument" and replaced it with an understanding of validity as a quality of data use. These findings appear consistently in both quantitative and qualitative literature. Validity is understood as a construct that depends on the ontological and epistemological assumptions of the researcher. Thus, the literature data shows a fundamental change in the object of validation, from a measuring tool to a practice of scientific reasoning. This shift is found across paradigms and across disciplinary contexts. (Gavora, 2013) (Baharum et al., 2023) (BADEMCI, 2022) (Caretta & Pérez, 2019) *Validity Test*

From the results of the SPSS test, it can be seen that the Sig (2-tailed) value of the X variable and Y variable is less than  $< 0.05$ . Judging from the value of rcount and rtable that the value of rcount  $>$  rtable. The value of rtable is 0.3233 obtained from the value of  $N-2=25-2=23$ . The number 23 when viewed in the rtable through the significance value for one direction of 0.05 is 0.3365. So, the conclusion is that each indicator of the X and Y variables is valid so that the data can be used for t

#### 3.2. Redefinition of the Function of Reliability in the Contemporary Methodological Literature

The results of the synthesis show that reliability is no longer treated as a universal prerequisite of validity in the entire research paradigm. In the cutting-edge quantitative literature, reliability is still used as an indicator of measurement consistency, but its function is limited to specific contexts and is not positioned as a guarantee of epistemic validity; Some articles have shown that high internal reliability can still result in

conceptually invalid findings if theoretical constructs are not defined coherently. In the qualitative literature, reliability is explicitly rejected as an evaluative criterion because it is considered inconsistent with contextual and interpretive assumptions of reality. However, the literature also suggests that the concept of reliability often resurfaces implicitly through the practice of procedural stabilization and analytical documentation. Thus, the reliability function shifts from a universal epistemic standard to a paradigm-dependent technical mechanism. These findings are consistent in the cross-paradigm articles analyzed. The literature does not show a single consensus regarding the position of reliability in the validity of the study. (Smith & Munnik, 2023) (Shi et al., 2024) (Moreira, n.d.)

### **3.3. The Emergence of Credibility as a Mechanism for Interpretive Justification Redefinition of the Function of Reliability in the Contemporary Methodological Literature**

The literature analyzed suggests that credibility is developing as a key justification mechanism in qualitative and interpretive research. Credibility is positioned as a quality of coherence between empirical data, researcher interpretation, and the social context of the research; Qualitative articles consistently substitute internal validity for credibility for assessing the accuracy of meaning, not measurement accuracy. Credibility is associated with the practice of reflexivity, researcher engagement, and transparency of the analysis process. However, the results of the review also show significant variations in the definition and operationalization of credibility between studies. Some articles use credibility conceptually, while others attribute it to procedural techniques such as member checking and triangulation. No consistent single operational definition was found across the literature. Thus, credibility emerges as a central yet heterogeneous concept in research practice. (Morrow, 2005) (Moreira, n.d.) (Carcary, 2020) (Riazi et al., 2023)

### **3.4. Trustworthiness as a Fragmented Alternative Evaluative Framework**

The results of the study show that trustworthiness is positioned as an alternative evaluative framework to classical validity and reliability, especially in qualitative research. Trustworthiness includes credibility, transferability, dependability, and confirmability as epistemic justification mechanisms oriented towards transparency and reflexivity; The literature shows that these four components are widely used in interpretive and naturalistic research. However, the findings also point to a fragmentation of trustworthiness use, where many studies adopt terminology without adequate philosophical explanation; Some articles use trustworthiness as a mere terminological substitution, while others emphasize it as a whole epistemic framework. The literature does not show agreement on the relationship between trustworthiness and quantitative validity. Thus, trustworthiness serves as a broad conceptual umbrella but has not been consistently integrated across paradigms. This fragmentation is the dominant finding in the literature analyzed. (Morrow, 2005) (Moreira, n.d.) (Morse, 2015) (Riazi et al., 2023)

### **3.5. Epistemological Tension Patterns in the Use of Validity Criteria**

The synthesis of the literature shows the presence of recurring epistemological tensions in the use of reliability, credibility, and trustworthiness. The first tension arises when quantitative criteria are applied in qualitative research without reflection on epistemological assumptions. The second tension arises from the use of methodological procedures as an automatic guarantee of validity, such as triangulation and member checking. A third tension arises in quantitative research when statistical indicators are treated as conceptual validation without theoretical clarification. The literature also shows a conflict between methodological validity and ethical validity in participatory research; These tensions arise across contexts and disciplines. No literature has been found that completely resolves the conflict. Thus, epistemological tension is a consistent pattern in the discourse of research validity. (Önerisi & Tutar, n.d.) (Birt et al., n.d.) (Erdmann & Potthoff, 2023) (Smith & Munnik, 2023) (Boser, 2007) (Balakrishnan & Claiborne, 2017)

### **3.6. Expansion of the Dimension of Validity to the Realm of Ethics, Power, and Axiology**

The results of the study show that the cutting-edge literature explicitly extends the concept of validity to the ethical and political dimensions of knowledge. In critical and transformative paradigms, validity is associated with social legitimacy, participation, and the emancipatory impact of research; Validity is no longer judged only by the quality of inference, but also by the suitability between research objectives, power relations, and social consequences. The literature shows that institutional evaluation criteria often conflict with the epistemic principles of participatory research. Some articles place validity as a normative construct that is negotiated, rather than technically determined. No single evaluative standard for ethical validity was found. Thus, validity is positioned as a contextual axiological concept. This expansion appears consistently in the critical literature analyzed. (Boser, 2007) (Romm, 2015)

### **3.7. Socio-Technical Challenges to Validity in the Age of Artificial Intelligence**

The synthesis of results shows that the use of artificial intelligence in research introduces new challenges to validity, reliability, and trustworthiness. The literature shows that the reliability of algorithmic outputs does not guarantee epistemic validity if the analysis process is opaque; . Validity in the AI era is associated with algorithmic transparency, process documentation, and human accountability. Trustworthiness is extended to include socio-technical dimensions involving non-human actors. The articles analyzed show that traditional validity standards are not fully able to explain the quality of AI-based research. There is no unified conceptual framework that integrates AI into the evolution of cross-paradigm validity. Thus, the literature shows that there is a conceptual vacuum in understanding validity in the context of cutting-edge technology. These findings are consistent across articles discussing AI. (Costa et al., 2025) (Jones, 2025)

## 4. Discussion

### 4.1 Research Question 1 (RQ1) Discussion: The Conceptual Evolution of Validity as a Cross-Paradigm Epistemic Justification Mechanism

The findings of this study show that the conceptual evolution of research validity in the cross-paradigm methodological literature cannot be understood as a mere terminological change, but rather as a fundamental transformation in the logic of epistemic justification. In the early literature with a positivistic paradigm, validity was positioned as a technical property inherent in the research instrument and design, with reliability serving as the main prerequisite that guarantees the consistency and objectivity of the measurements; However, the results of the synthesis suggest that this understanding is systematically criticized in the contemporary literature for failing to explain how meaning and inference are constructed from data. explicitly shows that validity is not inherent in the instrument, but rather in the use and interpretation of data in a particular theoretical context. Thus, validity shifts from a technical nature to an argumentative quality. This evolution marks a shift in focus from "whether instruments work consistently" to "whether claims of knowledge are epistemically justifiable". (Gavora, 2013) (Baharum et al., 2023) (BADEMCI, 2022)

These changes are also reflected in the cutting-edge quantitative literature that has begun to question the dominance of statistical indicators as the sole basis for validity. shows that internal reliability and goodness-of-fit have no epistemic significance if the theoretical construct is not defined coherently. These findings are in line with those who view validity as an epistemic belief spectrum, rather than a binary condition. Thus, even in the post-positivistic paradigm, validity is no longer understood as a mechanical result of statistical procedure, but rather as the result of transparent scientific reasoning practices. This evolution shows that reliability loses its status as the universal foundation of validity and is repositioned as a technical mechanism whose relevance depends on certain epistemological assumptions. The findings of this study confirm that the change in the meaning of validity is cross-paradigm, although it occurs with different intensities and forms. (Smith & Munnik, 2023) (Gorard, n.d.)

In the qualitative and interpretive paradigm, the conceptual evolution of validity takes place more radically through the development of the concept of trustworthiness. The literature shows that trustworthiness is not simply a replacement of the terms validity and reliability, but rather an epistemic reconstruction that reflects non-realistic and constructivist ontological assumptions; Credibility, dependability, confirmability, and transferability serve as a justification mechanism that emphasizes the coherence of meaning, the reflectivity of the researcher, and the transparency of the process, rather than replication or generalization. The findings of this study show that the change in the meaning of validity in the qualitative paradigm is rooted in a change in the way of understanding reality and knowledge. Validity is understood as interpretive conformity, not measurement accuracy. Thus, the evolution of validity reflects a shift in the logic of justification from correspondence to coherence and meaning. (Morrow, 2005) (Moreira, n.d.)

However, the study also found that such conceptual evolution was not always followed by consistent changes in methodological practices. and shows that trustworthiness is often used ritualistically as a procedural checklist without adequate epistemological reflection. These findings indicate that although the concept of validity has evolved theoretically, the practice of epistemic justification is often still trapped in technical logic. Thus, RQ1 is answered by showing that the conceptual evolution of validity is a complex process that involves changing epistemological assumptions, but its implementation still faces resistance and inconsistencies in research practice. (Morse, 2015) (Riazi et al., 2023)

#### **4.2 Discussion Research Question 2 (RQ2): Epistemological Tensions and Conceptual Inconsistencies in Validity Criteria**

The findings of this study show that the methodological literature consistently identifies epistemological tensions arising from the use of reliability, credibility, and trustworthiness as criteria for cross-paradigm validity. The first tension arises from the attempt to maintain universal evaluation standards in the context of a plurality of epistemic paradigms. Affirms that there is no single definition of validity that can apply across paradigms, as each paradigm carries different ontological and epistemological assumptions. The findings of this study suggest that such tensions often arise when the concept of reliability is imposed in qualitative research without adequate philosophical reflection. This practice creates inconsistencies between the epistemic objectives of the research and the evaluation criteria used. (Caretta & Pérez, 2019) (Önerisi & Tutar, n.d.)

Conceptual inconsistencies are also evident in the use of trustworthiness which is often treated as a direct equivalent of validity and reliability. It shows that many studies use the term trustworthiness without a clear conceptual definition, thus creating epistemic ambiguity. It even criticizes that trustworthiness has lost its critical power because it is reduced to a methodological procedure. The findings of this study reinforce this criticism by showing that many studies adopt strategies such as triangulation and member checking as an automatic guarantee of validity. However, the literature suggests that such strategies are fraught with epistemic and ethical dilemmas, and are not always able to verify theoretical interpretations; Thus, conceptual inconsistencies arise when methodological techniques are separated from the underlying epistemological assumptions. (Riazi et al., 2023) (Morse, 2015) (Birt et al., n.d.) (Erdmann & Potthoff, 2023)

Epistemological tensions are also found in quantitative research, especially related to the dominance of statistical indicators as the basis for validity. And shows that validation practices often ignore conceptual clarification, resulting in the illusion of validity. Reliability and goodness-of-fit are treated as evidence of epistemic validity, even though the constructed measured has no strong theoretical basis. These findings suggest that procedural reductionism is not only a problem in qualitative research, but also in the quantitative tradition. Thus, this study emphasizes that epistemological tensions are

cross-paradigm and cannot be solved by simply changing terms or techniques. (Gavora, 2013) (Smith & Munnik, 2023)

Other theoretical limitations arise in the context of ethics and the politics of knowledge. and show that methodological validity often conflicts with ethical validity in participatory research. The findings of this study suggest that trustworthiness has not been fully able to bridge these tensions, as it still operates within the framework of institutional evaluation rooted in positivistic assumptions. Thus, RQ2 is answered by showing that the literature identifies a wide range of unresolved epistemological tensions and conceptual inconsistencies, as well as the limitations of the existing validity framework in explaining the complexity of cross-paradigm epistemic justification. (Boser, 2007) (Balakrishnan & Claiborne, 2017)

#### **4.3 Research Question 3 (RQ3) Discussion: Critical Synthesis and Formulation of Cross-Paradigm Validity Framework**

Based on a critical synthesis of the literature, this study shows that the formulation of a conceptual framework of cross-paradigm validity is only possible by going beyond the classical dichotomy between validity-reliability and trustworthiness-credibility. The findings of this study show that the dichotomy is historical and paradigmatic, not ontological. In the literature, reliability, credibility, and trustworthiness do not stand as substitute concepts, but rather as expressions of different epistemic justification logics. By placing validity as a dynamic process of epistemic justification, this study synthesizes various methodological traditions within a single evolutionary framework.

This synthesis is supported by a literature that views validity as an argumentative and reflective construct; In this framework, reliability is understood as a relevant technical mechanism in the context of a particular measurement, credibility as an interpretive mechanism that assesses the coherence of meaning, and trustworthiness as a reflective framework that integrates transparency, reflexivity, and accountability. The findings of this study show that the three concepts are not hierarchical, but functional and contextual. Thus, critical synthesis allows the formulation of a validity framework that does not prioritize one paradigm over another, but assesses the quality of research based on its internal epistemic suitability. (BADEMCI, 2022) (Gorard, n.d.)

This research also shows that cross-paradigm frameworks must be able to accommodate the ethical and technological dimensions that are increasingly prominent in the discourse of validity. The literature on participatory and transformative research confirms that validity is inseparable from the power relations and social impact of research; Meanwhile, the literature on AI suggests that validity in the digital age demands algorithmic transparency and socio-technical accountability; By integrating these dimensions, this research contributes to the formulation of a validity framework that is more comprehensive and relevant to the context of contemporary methodology. (Romm, 2015) (Boser, 2007) (Costa et al., 2025) (Jones, 2025)

#### **4.4 Significance and Scientific Contribution of Research**

The main significance of this research lies in its theoretical-conceptual contribution in reconceptualizing the validity of research as a process of cross-paradigm epistemic justification. This research is important because it answers the crisis of methodological legitimacy that arises due to the fragmentation of validity criteria in various research paradigms. By showing that reliability, credibility, and trustworthiness are justification mechanisms operating within different epistemic horizons, this study helps avoid using criteria in an ahistorical and non-reflective way. This contribution is relevant to the fields of research methodology, philosophy of science, and applied epistemology studies.

In addition, this research contributes by providing a synthesis framework that allows for cross-paradigm dialogue without reducing epistemological differences. In contrast to the normative approach that establishes one criterion of validity as superior, this study places validity as a contextual construct that must be assessed based on internal epistemic coherence. This contribution is important for the development of more reflective and inclusive research methodologies, especially in interdisciplinary and transdisciplinary contexts.

#### 4.5 Research Implications

The theoretical implication of this research is the need for a paradigm shift in understanding research quality, from a checklist approach to a reflective and argumentative approach. The methodological implication is the importance of the researcher's epistemological awareness in selecting and applying validity criteria. Researchers are expected to no longer use reliability, credibility, or trustworthiness automatically, but rather as part of explicit and transparent justification practices. The practical implications include the development of research evaluation guidelines that are more sensitive to paradigms and contexts. The pedagogical implication is the need to update the research methodology curriculum so that students understand validity as an epistemic concept, not just a technical procedure.

#### 4.6 Research Limitations

This research has several limitations. First, as a non-SLR literature review, this study does not aim to map all existing literature, but rather synthesize key literature that is conceptually relevant. Second, the focus of this research is theoretical-conceptual, so it does not test the proposed framework empirically. Third, although it covers various paradigms, this research still relies on the researcher's interpretation of the literature, so it is reflective and open to criticism. Fourth, the integration of technology and AI dimensions is still conceptual and requires further development through empirical studies. These limitations open up opportunities for further research to test, expand, and operationalize the proposed cross-paradigm validity framework.

### 5. Conclusion

Provide This study concludes that the validity of cross-paradigm research has undergone a significant conceptual evolution, from technical-instrumental understanding to meaning as a dynamic, contextual, and reflective epistemic justification

process. The main findings suggest that reliability, credibility, and trustworthiness cannot be understood as linearly superfluous criteria, but rather as justification mechanisms operating within different epistemological horizons. Reliability loses its position as a universal prerequisite of validity and is redefined as a technical mechanism whose relevance is paradigm-dependent. Credibility emerged as an interpretive justification mechanism that assesses the coherence of meaning and reflexivity, while trustworthiness developed as an evaluative framework that emphasizes transparency, accountability, and argumentative consistency. This study also found epistemological tensions, conceptual inconsistencies, and theoretical limitations in the use of these three concepts, especially when applied procedurally without philosophical reflection. The main contribution of this research to the scientific field of research methodology lies in the provision of a cross-paradigm conceptual synthesis that places validity as an epistemic practice, rather than merely a methodological attribute, thus allowing for a more reflective, non-reductionist, and relevant methodological dialogue to the complexities of contemporary research.

Based on these findings, future research is suggested to develop and empirically test the conceptual framework of cross-paradigm validity proposed in this study. Further research can explore how researchers from different disciplines and paradigms concretely understand and practice validity in their research design, analysis, and reporting. In addition, a study is needed that examines how academic institutions, journal reviewers, and research evaluation bodies operationalize validity criteria, as well as the extent to which these practices align or contradict the epistemological assumptions of different paradigms. Future research can also expand the analysis of the dimensions of ethics and power in validity, particularly in the context of participatory, decolonial, and transformative research. As the use of artificial intelligence in research increases, further studies are needed to formulate standards of validity and trustworthiness that are able to accommodate non-human actors in the knowledge production process. Finally, comparative research across cultural and disciplinary contexts can enrich the understanding of validity as an epistemic construct that is not only paradigmatic, but also historical and social, thereby further strengthening the relevance and methodological contribution of this cross-paradigm study.

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