

From recurring problems in scientific publications to a heuristic framework for quality control of the research and writing process

KONSTANTINOS LAVIDAS

Department of Educational Sciences and
Early Childhood Education
University of Patras
lavidas@upatras.gr

ABSTRACT

The quality of a scientific publication depends not only on the clarity of the writing but also on the soundness of the decisions made at all stages of the research process. This paper examines recurring methodological, writing, ethical, and publication-related issues reported in the relevant literature and investigates how these can be transformed into a practical framework for quality control of the research and writing process in educational research. The study was conducted as an integrative review employing a conceptual and methodological synthesis of 14 purposively selected publications. Their findings were organized and compared according to common categories related to stages of the research and writing process and types of errors. The synthesis highlighted recurring problems related to the formulation of the research question, research design, data collection and analysis, presentation and interpretation of results, bibliographic citations, language, ethics, and the publication process. Based on these findings, a framework comprising nine dimensions and 66 self-assessment and peer-review questions was developed. The framework is proposed as a heuristic and reflective tool rather than as a universal evaluation system, to support the early identification of potential weaknesses and enhance research transparency and quality.

KEYWORDS

Educational research, scientific writing, methodological errors, publishing, quality assurance, researcher education

RÉSUMÉ

La qualité d'une publication scientifique dépend non seulement de la clarté de la rédaction, mais aussi de la pertinence des décisions prises à toutes les étapes du processus de recherche. Cet article examine les problèmes récurrents d'ordre méthodologique, rédactionnel, éthique et éditoriaux recensés dans la littérature pertinente, et analyse la manière dont ils peuvent être transformés en un cadre pratique de contrôle de la qualité du processus de recherche et de rédaction en sciences de l'éducation. L'étude a été menée sous la forme d'une revue intégrative reposant sur une synthèse conceptuelle et méthodologique de 14 publications sélectionnées de manière raisonnée. Leurs résultats ont été organisés et comparés à partir de catégories communes relatives aux différentes étapes du processus de recherche et de rédaction ainsi qu'aux types d'erreurs recensés. La synthèse a mis en évidence des problèmes récurrents liés à la formulation de la question de recherche, à la conception de l'étude, à la collecte et à l'analyse des données, à la présentation et à l'interprétation des résultats, aux références bibliographiques, à la langue, à l'éthique et au processus de publication. À partir de ces constats, un cadre comprenant neuf dimensions et 66 questions destinées à l'autoévaluation et à l'évaluation par les pairs a été élaboré. Ce cadre est proposé comme un outil heuristique et

réflexif plutôt que comme un système universel d'évaluation, afin de favoriser l'identification précoce des faiblesses potentielles et de renforcer la transparence et la qualité de la recherche.

MOTS-CLÉS

Recherche en éducation, rédaction scientifique, erreurs méthodologiques, publication scientifique, assurance qualité, formation des chercheurs

INTRODUCTION

Scientific publication is a key mechanism for the dissemination and critical evaluation of knowledge. Research is not truly complete merely with the collection and analysis of data; it must be presented in a way that allows readers to understand what was studied, why it was studied, how the research was conducted, and what its findings mean. For this reason, clarity, accuracy, and a well-organized presentation are not merely secondary aesthetic requirements, but fundamental elements of scientific communication. (Gastel & Day, 2022)

Despite the large quantity of writing guidelines, including those provided by publishers, recurring problems continue to appear in submitted manuscripts. An analysis of 42 reviewer reports revealed weaknesses in at least 50% of the articles across all major sections, with particularly frequent problems in the description of methods, the discussion, the references, and general aspects of presentation (Ezeala et al., 2013). Similarly, Harris (2023), after examining approximately 350 manuscripts at the final editorial stage, recorded 921 errors across 21 categories related to scientific content, formatting, structure, and language. These errors affected various parts of the manuscript, including the title, abstract, paragraph coherence, and table presentation. However, some concerned the core of the research itself, such as unclear research questions, inappropriate or insufficiently justified research designs, incomplete descriptions of instruments, inadequate analysis, overinterpretation of results, and conclusions that exceeded what the research design could support. Therefore, improving a manuscript should not be limited to final language editing, as many weaknesses originate earlier, during the design and conduct of the research (Ezeala et al., 2013; Maiorana & Mayer, 2018; Watt, 2023).

Identifying errors is particularly important in educational research, a field characterized by considerable diversity in research questions, theoretical perspectives, methodological approaches, and types of data. Quantitative, qualitative, and mixed-methods studies are grounded in different assumptions and serve different purposes; consequently, they cannot be evaluated using uniform and universal criteria. Uncritically applying the requirements of one approach to another may lead to appropriate methodological choices being incorrectly identified as weaknesses or, conversely, to genuine problems being overlooked. For example, a small or non-random sample may be a limitation when population-level generalization is intended, but it may be entirely appropriate for an in-depth qualitative investigation. Likewise, the absence of a control group is problematic when causal claims are made, but not in descriptive or interpretive studies (Choy, 2014; Healey et al., 2019).

The importance of accurately identifying errors is further reinforced by the diversity of academic outputs produced in education, including empirical studies and theoretical works such as systematic literature reviews, each of which requires different evaluation criteria. Accordingly, the identification of errors requires consideration of the alignment among the research question, theoretical framework, methodology, data, and conclusions. Such an approach can help prevent inappropriate evaluations, strengthen methodological quality, and enhance the credibility of knowledge produced through educational research.

Identifying errors is particularly important when writing a master's thesis or a doctoral dissertation. Writing a thesis or an article involves uncertainty, fear of evaluation, doubts about the researcher's competence, and a need for systematic feedback. Systematic feedback and iterative cycles of writing and revision can be particularly supportive for novice researchers and transform the writing process into a learning experience (Carlino, 2012).

The existing literature provides a wide range of guidelines and standards to support the research and publication process. Some of these focus on the transparent and adequate reporting of different research approaches, such as JARS–Qual for qualitative research (Levitt et al., 2018) and JARS–Quant for quantitative research (Appelbaum et al., 2018), while others address more specific types of research designs, such as PRISMA for systematic reviews (Page et al., 2021). At the same time, the literature offers guidance on specific aspects of scientific work, such as the organization and structure of the text, linguistic clarity, avoiding common errors, adherence to the principles of ethics and research integrity, the selection of an appropriate scientific journal, and the authors' management of the peer-review process (Gastel & Day, 2022; Iskander et al., 2018).

These guidelines generally differ in purpose and scope, often focusing on distinct stages or specific dimensions of the research and publication process. A more comprehensive and preventive approach, however, remains underdeveloped, one that enables researchers to identify potential problems early in the research, analysis, writing, ethics, and publication processes, before they affect the quality and credibility of the study. Such an approach is particularly valuable because weaknesses in research design, data collection, analysis, or ethics may already have affected the study before the manuscript is written.

In this context, there is a need for a preventive and heuristic framework that complements specialized reporting standards and integrates research design, scientific writing, research integrity, and publication preparation. In educational research, such a framework should remain flexible and adaptable to the type, purpose, and context of each study (Iskander et al., 2018). This need is reinforced by evidence that peer review does not identify all manuscript problems; Schroter et al. (2008) found that reviewers detected fewer than one-third of errors. Some methodological, reporting, or interpretive weaknesses may therefore remain undetected, underscoring the value of preventive quality-control practices throughout the research and writing process (Van Noorden, 2023).

Accordingly, this study aims to integrate recurring methodological, reporting, ethical, and publication-related problems identified in the literature and translate them into a stage-based reflective framework for educational research. Rather than proposing a universal quality-assurance instrument, the study seeks to provide a practical heuristic checklist that can support researcher education, self-assessment, peer feedback, and pre-submission review. The study therefore addresses the following question: What recurring problems are reported in the literature, and how can they be transformed into a heuristic quality-control framework?

METHOD OF CONCEPTUAL SYNTHESIS

The present study was designed as an integrative review employing a conceptual methodological synthesis to identify and organize frequently reported errors that may affect the quality of scientific research and to subsequently transform these findings into a preventive quality assurance framework adapted to the needs of educational research. To this end, studies addressing errors in scientific publications were identified. The literature search was conducted in April 2026 using Google Scholar and English-language terms and combinations such as “common errors in scientific publications”, “common mistakes in scientific writing”,

“methodological errors in research”, “errors in research methodology”, “manuscript writing errors”, and “reasons for manuscript rejection”.

Fourteen studies were selected because they were highly relevant to the aim of the study and directly described recurring methodological, writing, analytical, ethical, or editorial problems. The inclusion criteria were: (a) direct relevance to errors or problems in the research and scientific writing process, (b) the identification of specific categories of errors or recommendations for their prevention, and (c) publication in a scientific source or recognized academic context. Studies with limited relevance to the research question, publications focusing exclusively on technical issues without broader applicability to the research process, and sources providing insufficient information to identify specific categories of errors were excluded.

Table 1 presents the main findings of the conceptual synthesis. The summary is based on a qualitative comparative synthesis of the selected studies using common analytical categories. Since the studies addressed recurring errors in the research and writing process with varying degrees of emphasis, their content was organized into two main analytical categories: (a) the section or stage of the research and writing process and (b) the category of error. The findings of the individual studies were then compared and synthesized to identify common patterns and recurring categories of errors.

TABLE 1
Studies included in conceptual methodological synthesis (N=14)

In-text citation	Sections/stages in which they are located	Categories of errors
(Dantas-Torres, 2022)	Journal selection, research problem formulation, research design, methods and data, ethics, paper presentation	Mismatch with the journal's subject matter, limited scholarly interest, lack of originality, inadequate design, incomplete data reporting, ethical omissions, poor presentation, plagiarism or self-plagiarism
(Darling, 2024)	Research planning, sampling, data collection and management, statistical analysis, interpretation and reporting of results	Type I–II errors, sampling and non-sampling errors, bias, encoding or data entry errors, incorrect statistical models, inappropriate handling of correlated observations, misinterpretations
(Dogra, 2011)	Research problem and hypothesis, design and methods, statistical analysis, discussion and conclusions, writing and formatting, submission process	Unclear or weak hypothesis, inadequate planning, statistical errors, exaggerated conclusions, plagiarism, rough writing, non-adherence to journal guidelines
(Ezeala et al., 2013)	Introduction, methods, results, discussion, bibliographic references	Inadequate or inappropriate design, incomplete description of methods, problematic statistical analysis, poor presentation of results, omission of constraints, citation inconsistencies, grammatical problems, ethical omissions
(Faber, 2017)	Introduction, methods, results, tables and graphs, discussion, conclusions	Long introduction, incomplete methods, repetition of results, inappropriate graphs, absence of constraints, conclusions that go beyond data or design

(Gjersvik et al., 2013)	Title	Unclear, excessively long, complex, linguistically problematic or overly inferential title, use of unfamiliar abbreviations
(Harris, 2023)	Title, summary, introduction, methods, conclusions, bibliographic references, figures	Problems with the use of acronyms, inconsistency of terminology, problems of organization, repetition and redundancy, problems of form and structure
(Kahlke, 2014)	Selection and justification of a qualitative methodological approach, research design, data collection and analysis, interpretation and reporting	Theoretical or methodological gap, unclear identity of the qualitative approach, insufficient connection with the relevant methodological literature, uncritical mixing of elements of different approaches
(Maiorana & Mayer, 2018)	Research design, sampling, statistical analysis, writing, references, ethics, formatting and journal selection	Inadequate design, small or biased samples, improper statistical analysis, overinterpretation of results, incomplete or outdated reports, ethical problems, failure to declare conflicts of interest, writing and formatting problems
(Makin & Orban de Xivry, 2019)	Research design, statistical analysis, interpretation of results	Inadequate control conditions or groups, statistical comparisons, incorrect unit of analysis, small samples, false correlations, cyclic analysis, problematic interpretation of correlations
(Onwuegbuzie & Daniel, 2003)	Research design, sampling, quantitative and qualitative data analysis, interpretation and reporting of results	Failure to check statistical assumptions, inadequate examination of strength and sample size, improper management of multivariate data, failure to check for Type I error, omission of reliability indicators and effect sizes, insufficient reliability and validity documentation, overgeneralization
(Oplatka, 2021)	Preparation and design of qualitative research, selection of participants, data collection and interviews, data analysis, presentation of findings, discussion and conclusions	Topic selection that enhances researcher bias, improper selection of participants, narrow or guiding questions, improper quantification of qualitative data, citation of fragmentary statements instead of thematic synthesis, repetition of findings in discussion, overgeneralization, and causal or objective claims from interpretative data
(Thompson, 1998)	Statistical analysis, interpretation and reporting of quantitative results	Inappropriate use of methods, incomplete interpretation of coefficients, incorrect interpretation of statistical significance and failure to report and interpret effect sizes
(Watt, 2023)	Design and conduct research, data collection and management, images, research team collaboration, writing, and final publication review	Hiding or not recognizing errors, pressure for desired results, inadequate communication and collaboration, data and image problems, incomplete control of the final text

RESULTS

Problems in scientific publications can occur at all stages of the research and writing process, from the formulation of the research problem and the design of the study to the analysis, presentation, and interpretation of the results. At the same time, issues related to language, bibliographic references, ethics, and the selection of the appropriate journal can significantly affect the quality and likelihood of a manuscript's publication. The following sections present the most common categories of errors per part of the manuscript that are usually identified.

Title, Abstract, Introduction and Research Problem

Common problems with titles include vagueness, excessive length, inappropriate language, the use of unfamiliar abbreviations and complex terms, as well as overly conclusive phrasing. Gjersvik et al. (2013) found, in an empirical study of submitted manuscripts, a significant correlation between low-quality titles and rejection.

Common errors in the abstract occur when it is too general, omits the objective or key results, includes information not supported in the main text, or uses undefined abbreviations. Another problem is the lack of logical correspondence between the abstract and the individual sections of the article, as well as the formulation of conclusions that are not sufficiently supported by the results (Dogra, 2011; Harris, 2023).

In the introduction, according to the selected sources, problems relate to the inability to transition from a broad scientific field to a clearly defined and sufficiently documented research problem (Kahlke, 2014). Ezeala et al. (2013) identify as key weaknesses an inadequate theoretical foundation, an incomplete or inappropriate literature review, and the absence of a clear formulation of the research problem or the study's objectives, while Faber (2017) notes that the introduction often turns into an overly extensive literature review, thereby weakening the focus on the main research issue. Furthermore, problems arise when the research question is ambiguous or inadequately formulated, when the study's scientific contribution is not clearly defined, when its originality is limited, or when the broader significance of the problem under examination is not sufficiently documented (Dogra, 2011; Oplatka, 2021). Limited originality, low scientific interest, and an unclear articulation of the study's contribution are, moreover, among the factors associated with the rejection of scientific manuscripts (Dantas-Torres, 2022; Dogra, 2011; Ezeala et al., 2013).

Research Design, Methods, and Ethical Considerations

The most serious methodological errors are often those that are built into the research design before the writing process begins (Dantas-Torres, 2022; Dogra, 2011; Ezeala et al., 2013; Maiorana & Mayer, 2018). The sources mention the following as problems: inappropriate or inadequately justified design, small or biased samples, the absence of appropriate control groups or randomization where required, and the selection of methods that cannot adequately address the research question or hypothesis (Dantas-Torres, 2022; Dogra, 2011; Ezeala et al., 2013; Kahlke, 2014; Maiorana & Mayer, 2018). These weaknesses are particularly serious, as they often cannot be fully corrected retrospectively through improvements in writing alone and may limit the validity of the results and the scope of the conclusions that can be supported.

In the methods section, recurring problems in the selected sources concern the inadequate or vague description of how the research was conducted. Ezeala et al. (2013) identified incomplete methodological details, vague descriptions, and problems in the presentation of measurement tools, while similar omissions are also noted by Dantas-Torres (2022) and Faber (2017). Problematic data collection tools are also cited, where psychometric properties are not checked (Onwuegbuzie & Daniel, 2003; Thompson, 1998), as well as inappropriate question wording in qualitative approaches (Oplatka, 2021). When key

methodological aspects (such as research context, participants or data sources, selection criteria, research instruments, procedures for assessing validity and reliability, data collection methods, and analysis strategies) are not adequately described, readers may find it difficult to evaluate the overall quality, rigor, and reliability of the research (Faber, 2017; Harris, 2023).

Significant problems arise when ethics is treated as a mere formality that is considered only during the drafting stage. The most common omissions involve the absence of references to ethical approval, informed consent, or the required procedures for participant protection. Ezeala et al. (2013) identified such omissions in some of the manuscripts they reviewed, while Dantas-Torres (2022) and Maiorana and Mayer (2018) treat them as substantive ethical issues that can even affect a study's eligibility for publication.

Data Analysis

The most commonly cited errors in data analysis primarily concern the inappropriate selection or application of statistical methods and models, as well as problematic statistical analysis strategies in general (Dogra, 2011; Ezeala et al., 2013; Maiorana & Mayer, 2018; Thompson, 1998). Other significant problems include insufficient consideration of statistical power and required sample size, inadequate handling of Type I and Type II errors, failure to check statistical assumptions, and inappropriate handling of multivariate data (Darling, 2024; Makin & Orban de Xivry, 2019; Onwuegbuzie & Daniel, 2003). Darling (2024) also points out errors in data coding or entry, incorrect selection of statistical models, and inappropriate handling of correlated observations. At the same time, Makin and Orban de Xivry (2019) cite the following as common problems: incorrect unit of analysis, inappropriate statistical comparisons, spurious correlations, circular analysis, and problematic interpretation of correlations. Errors are also found in the interpretation of results, such as the misinterpretation of statistical coefficients and statistical significance, the failure to report or interpret effect sizes, and the general overinterpretation of findings (Darling, 2024; Maiorana & Mayer, 2018; Onwuegbuzie & Daniel, 2003; Thompson, 1998). In qualitative analysis, respectively, the problems cited relate to the inappropriate quantification of qualitative data or the failure to apply thematic analysis, thereby limiting the interpretive depth and coherence of the findings (Kahlke, 2014; Oplatka, 2021).

Results, Tables, Figures

The recurring problems in the Results section concern the lack of clear distinction between the presentation of findings and their interpretation. The explanation of causes, comparison with previous studies, and evaluation of the significance of the findings do not belong in the results section but in the discussion. Furthermore, problems arise when results are presented without a clear logical sequence, do not correspond to the research questions or the methods that preceded them, or raise doubts regarding their reliability (Ezeala et al., 2013; Harris, 2023).

Tables, figures, and images often exhibit problems such as poor technical quality, inappropriate formatting, illegible presentation, and inadequate explanation (Watt, 2023). Ezeala et al. (2013) documented quality issues in tables and figures, while Dantas-Torres (2022) and Harris (2023) note that poor presentation of visual material can hinder the evaluation of a manuscript. Other problems include unclear captions, inconsistent use of terms and units, and the choice of a visualization method that does not accurately represent the data. Another common error is the unnecessary repetition of the same information, for example, when all the numerical data from a table are reproduced verbatim in the main text (Faber, 2017; Harris, 2023). Finally, regarding the presentation of qualitative analysis results, the problem most commonly identified involves the inclusion of fragmented statements rather than a comprehensive thematic synthesis of the qualitative data (Oplatka, 2021).

Discussion, Limitations, and Conclusions

In the discussion section, a common mistake is to turn the section into a second literature review, in which previous studies are listed one after another without a clear connection to the findings of the present study. At the same time, overinterpretation of the results is also problematic, such as when a correlation is presented as a causal relationship or when findings from a limited sample are overly generalized; in some cases, there is also excessive generalization of the findings (Onwuegbuzie & Daniel, 2003). Furthermore, unjustified causal or objective claims are often made, particularly based on interpretive or qualitative data, as well as choices that reinforce the researcher's bias (Oplatka, 2021). Dogra (2011), Ezeala et al. (2013), and Makin and Orban de Xivry (2019) point out that such interpretations undermine the validity of the research. Another common weakness is the failure to acknowledge the study's limitations. Ezeala et al. (2013) and Faber (2017) emphasize that failing to acknowledge limitations can create an overly confident impression regarding the validity and generalizability of the findings.

In the conclusions section, common problems include failing to address all of the initial objectives or research questions, introducing new findings, and making claims that go beyond what the research design allows (Dogra, 2011; Faber, 2017). Harris (2023) points out that the research questions posed in the introduction must be clearly answered by the end of the paper, while Faber (2017) cites concluding statements that are not sufficiently supported by the data as a common weakness.

Bibliographic References and the Academic use of sources

Common problems with bibliographic references include unsubstantiated claims, an unclear connection between a citation and the statement it supports, inconsistencies between in-text citations and the reference list, and the use of secondary sources instead of primary ones (Maiorana & Mayer, 2018). Harris (2023) identified citation problems as a common category of issues in scientific content, while Ezeala et al. (2013) documented inconsistencies in the citation system. Furthermore, the use of outdated or irrelevant literature and the mere accumulation of references without a clear purpose were identified, which can weaken the study's connection to its scientific field (Dogra, 2011; Ezeala et al., 2013; Harris, 2023).

Language, Sentences, Paragraphs, and Coherence

In academic writing, problems often concern the organization, structure, and formatting of the text, as well as repetition, redundancy, and the presence of unnecessary information—elements that weaken the coherence and logical flow of the manuscript (Harris, 2023; Maiorana & Mayer, 2018). Harris (2023) also points out that the inconsistent use of scientific terminology, symbols, and acronyms, as well as the excessive use of abbreviations, hinder comprehension of the text, while similar problems arising from ambiguous or unfamiliar abbreviations are also reported by Gjersvik et al. (2013). At the same time, grammatical, syntactic, and general linguistic problems, as well as sloppy or inadequately edited writing, such as paragraphs lacking a topic sentence or the use of overly long sentences, can negatively affect both the readability and the evaluation of a manuscript (Dantas-Torres, 2022; Dogra, 2011; Ezeala et al., 2013; Maiorana & Mayer, 2018).

Publication Ethics and Journal Selection

In publication ethics, serious problems include plagiarism, self-plagiarism, inadequate acknowledgment of the source of ideas or phrasing, and the submission of overlapping or similar content without the necessary disclosure. Dantas-Torres (2022), Dogra (2011), and Bhende et al. (2024) view plagiarism and high text similarity as significant problems that can negatively impact the peer review of a manuscript. Problems may also arise from an inadequate

division of responsibility among authors and insufficient final review of the manuscript. Watt (2023) further points out that the pressure to produce desired results and the reluctance to acknowledge errors can hinder their timely identification and correction.

When selecting a journal, a key problem is the mismatch between the manuscript and the journal's academic focus, the target audience, or the publication format accepted by the journal—a fact that can lead to rejection as early as the initial stage, before external peer review (Bhende et al., 2024; Dantas-Torres, 2022). Furthermore, failure to follow submission guidelines regarding structure, references, tables, figures, and required statements may delay the process or result in the manuscript being returned for revisions (Dogra, 2011; Harris, 2023; Maiorana & Mayer, 2018). Another significant weakness is submitting a paper without prior peer review by other researchers, as this may leave problems related to content, structure, clarity, and coherence undetected. Dogra (2011) emphasizes the value of feedback from experienced colleagues, while Carlino (2012) highlights the importance of repeated cycles of writing, receiving feedback, and revising, particularly for early-career researchers. At the same time, inadequate training in research design and scientific writing can exacerbate these weaknesses (Carlino, 2012; Ezeala et al., 2013; Maiorana & Mayer, 2018). Finally, during peer review, problems arise when authors disregard substantive comments, respond incompletely, or resubmit the manuscript without substantial revision (Bhende et al., 2024; Dogra, 2011; Harris, 2023).

FRAMEWORK FOR QUALITY CONTROL OF THE RESEARCH AND WRITING PROCESS

Building on the literature synthesis, the proposed Framework for Quality Control of the Research and Writing Process was developed by consolidating the recurring problems and corresponding preventive recommendations identified across the selected studies. These recommendations were then reorganized into operational dimensions according to their function within the research, writing, and publication process and subsequently reformulated as self-assessment and peer-review questions. The framework dimensions do not correspond one-to-one with the thematic sections used to present the synthesis findings. Whereas those sections were structured primarily to describe recurring problems reported in the literature, the framework was organized for preventive and practical use. Closely related categories were combined when they served a similar quality-control function, while broader categories were separated when their components involved distinct decisions, responsibilities, or temporal priorities. For example, research design, data collection and analysis, and ethics were treated as separate operational dimensions because they involve different types of decisions and different points of intervention in the research process. Conversely, bibliographic practices, language, and coherence were grouped because they represent closely related aspects of manuscript-level review.

The synthesis was organized into nine operational dimensions: (a) title, abstract, research problem, and objective; (b) methodological alignment and research design; (c) data collection and analysis strategy; (d) ethics and research integrity; (e) results, tables, and figures; (f) discussion, limitations, and conclusions; (g) bibliographic references, language, and coherence; (h) authorship and collective quality control; and (i) journal selection, submission, and peer review. This structure represents a functional organization of the synthesized findings for preventive and reflective use rather than an exclusive or universally fixed taxonomy of research quality. In its current form, the framework comprises 66 questions distributed across these nine dimensions (see Annex A). The questions were derived by transforming the preventive recommendations identified in the synthesis into questions for systematic reflection,

self-assessment, peer feedback, and pre-submission review. The framework also incorporates contemporary considerations relevant to research and publication practice, including the responsible use and disclosure of generative artificial intelligence where applicable (COPE, n.d.; Dimitriadou et al., 2026). Table 2 summarizes the relationship between the principal risks identified in the synthesis, the corresponding preventive recommendations, and the framework questions.

TABLE 2
Relationship between identified risks, preventive recommendations, and framework dimensions

Dimensions	Main risks	Recommendation derived from the synthesis	Questions
A. Title, abstract, research problem and objective	Unclear title, incomplete abstract, poorly defined problem or research gap	Ensure that the title accurately reflects the study, the abstract faithfully summarizes its key elements, and the introduction clearly establishes the problem, research gap, purpose, and research questions or hypotheses (Dogra, 2011; Ezeala et al., 2013; Faber, 2017; Gjersvik et al., 2013; Harris, 2023).	1–8
B. Methodological alignment and research design	Misalignment of questions, design, and sampling	Align the methodological approach, research design, and sampling strategy with the research problem, and objectives (Dantas-Torres, 2022; Dogra, 2011; Ezeala et al., 2013; Maiorana & Mayer, 2018).	9–12
C. Data collection and analysis strategy	Inadequate data collection or inappropriate analysis	Use appropriate and transparently described data-collection and analytical procedures, considering relevant assumptions, data quality, units of analysis, and interpretation criteria according to the methodological approach (Darling, 2024; Makin & Orban de Xivry, 2019; Onwuegbuzie & Daniel, 2003; Oplatka, 2021; Thompson, 1998).	13–22
D. Ethics and research integrity	Ethical omissions and research-integrity problems	Address ethical requirements from the design stage, document participant-protection procedures transparently, and ensure appropriate acknowledgment of sources and responsible research practices (Dantas-Torres, 2022; Dogra, 2011; Ezeala et al., 2013; Maiorana & Mayer, 2018).	23–27

E. Results, tables and figures	Unclear, inaccurate, or repetitive presentation of findings	Present findings logically and separately from interpretation, while ensuring that tables and figures are accurate, legible, consistent, and non-redundant (Dantas-Torres, 2022; Ezeala et al., 2013; Faber, 2017; Harris, 2023; Oplatka, 2021; Watt, 2023).	28–34
F. Discussion, limitations and conclusions	Overinterpretation, overgeneralization, and unsupported conclusions	Interpret findings within the limits of the design and data, acknowledge relevant limitations, and ensure that conclusions directly address the research questions without introducing unsupported claims (Dogra, 2011; Ezeala et al., 2013; Faber, 2017; Harris, 2023; Makin & Orban de Xivry, 2019; Onwuegbuzie & Daniel, 2003; Oplatka, 2021).	35–43
G. Bibliographic references, language and coherence	Unsupported claims, citation inconsistencies, and unclear writing	Use relevant sources with accurate citation correspondence and maintain clear, precise, coherent, and terminologically consistent academic writing (Ezeala et al., 2013; Harris, 2023; Maiorana & Mayer, 2018).	44–52
H. Authorship and collective quality control	Unclear responsibilities and insufficient internal review	Treat quality control as a shared responsibility by clarifying contributions, verifying relevant manuscript components, and using collegial feedback and iterative revision before submission (Dogra, 2011; Watt, 2023).	53–58
I. Journal selection, submission, and peer review	Poor journal fit, non-compliance, and inadequate response to review	Select an appropriate journal, comply with submission requirements, and address reviewer comments through substantive revisions or scientifically justified responses (Dantas-Torres, 2022; Dogra, 2011; Harris, 2023; Maiorana & Mayer, 2018).	59–66

The framework is intended to be preventive, reflective, and formative in nature and is not proposed as a standardized or universal instrument for assessing research quality. Each question can be considered using the response options Yes, Partially, No, and Not Applicable (N/A). “Partially” and “No” indicate areas requiring further consideration, while “Not Applicable” should be used when a criterion is not relevant to the methodological approach, study purpose, or research context. The questions should therefore be interpreted in relation to the type, purpose, and context of each study rather than applied mechanically. This flexibility is particularly important in educational and social research, where quantitative, qualitative, and mixed-methods approaches differ in their purposes, assumptions, forms of evidence, and quality criteria and should therefore not be evaluated using identical requirements (Choy, 2014).

The framework questions also differ in their temporal priority. Decisions concerning research design, ethical approval, sampling, and data collection need to be addressed before or during the conduct of the study because weaknesses at these stages may not be fully correctable later. By contrast, issues related to the presentation and interpretation of findings, bibliographic citations, language, and manuscript coherence can generally be revised to a greater extent before submission. The framework can therefore be used not only according to its operational dimensions but also in relation to the stage of the research process at which particular decisions can still be examined or modified. For this reason, the framework is intended to be applied iteratively rather than solely as a final pre-submission checklist. During research design, it can support reflection on the alignment among the research problem, objectives, research questions, and methodological choices. During data collection and analysis, it can guide consideration of procedural transparency and the appropriateness of analytical decisions. During manuscript preparation, it can support assessment of coherence across sections and of the correspondence among methods, findings, interpretations, and conclusions. Before submission, it can be applied more comprehensively by authors and colleagues as a structured pre-submission review.

CONCLUSION

This integrative review indicates that weaknesses affecting scientific publications may originate at different points in the research, writing, and publication process and are therefore not always remediable through final-stage language or editorial revision. In particular, decisions related to research design, sampling, data collection, analysis, and research integrity require attention early in the research process, whereas other aspects, including reporting, interpretation, referencing, and linguistic coherence, remain more amenable to revision during manuscript preparation. This distinction supports a preventive approach to research quality in which potential weaknesses are considered throughout the development of a study rather than only immediately before submission.

Based on the synthesis, the identified problems and their corresponding preventive recommendations were reorganized into nine operational dimensions and translated into 66 reflective questions. The main contribution of the proposed framework lies not in introducing entirely new quality criteria, but in integrating dispersed methodological, reporting, ethical, writing, and publication-related recommendations into a coherent operational structure. By linking these recommendations to practical questions for self-assessment and collaborative review, the framework provides a structured means of supporting earlier risk identification, systematic reflection, and iterative revision across the research and writing process.

The framework is intended primarily as a heuristic and educational resource rather than as a standardized or universal measure of research quality. Its questions are designed to support researcher education, supervision, peer feedback, and pre-submission review, while allowing individual criteria to be interpreted according to the methodological approach, purpose, and context of a particular study. In this respect, its potential value lies in encouraging researchers to treat quality control as an ongoing and, where appropriate, collective process rather than as a final corrective exercise. This orientation is also consistent with approaches emphasizing iterative cycles of writing, feedback, and revision in researcher development (Carlino, 2012; Watt, 2023).

Several limitations should nevertheless be recognized. The literature included in the review was not identified through a systematic search and therefore cannot be considered exhaustive. In addition, a substantial proportion of the selected sources originated in biomedical and predominantly quantitative research contexts, which limits the direct transfer of some recommendations to the methodological and epistemological diversity of educational research

(Choy, 2014). Most importantly, the proposed framework has not yet undergone empirical validation. Its present contribution is therefore conceptual and organizational rather than evaluative: the review establishes its structure and rationale, but does not demonstrate its effectiveness in improving research quality or publication outcomes. Future research should examine its content validity, usability, and applicability across different methodological traditions and research contexts, including its use in master's and doctoral research, supervision, writing groups, and pre-publication review. Such evaluation would provide the evidence required to refine the framework and determine the extent to which it can function as a reliable support for research and writing quality in educational research.

DECLARATION OF GENERATIVE AI USE

Generative AI was used for language editing and improving clarity.

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ANNEX A. FRAMEWORK FOR QUALITY CONTROL OF THE RESEARCH AND WRITING PROCESS

The framework is intended as a reflective and formative tool for self-assessment, peer feedback, supervision, and pre-submission review. It is not intended to generate a numerical quality score or to function as a standardized assessment instrument. Each question may be considered using the response options Yes, Partially, No, and Not Applicable (N/A). Responses of Partially or No indicate areas that may require further consideration, justification, clarification, or revision. Not Applicable should be selected when a criterion is not relevant to the methodological approach, study purpose, research context, or stage of the research process.

The questions should be interpreted in relation to the methodological tradition and purpose of each study rather than applied mechanically. Where relevant, established methodological, ethical, reporting, and journal-specific guidelines should also be consulted.

A. Title, Abstract, Research Problem, and Objective

1. Does the title accurately reflect the focus and content of the study?
2. Is the title clear and concise, avoiding unnecessary abbreviations, overly complex terminology, and unsupported claims?
3. Does the abstract accurately summarize the study's objective, methodological approach, and main findings?
4. Is all substantive information presented in the abstract supported by the main text?
5. Does the introduction clearly define the educational or scientific problem addressed by the study?
6. Does the introduction distinguish what is already known from what remains insufficiently understood or explored?
7. Does the introduction clearly justify the significance and intended contribution of the study?
8. Are the study objectives and research questions and/or hypotheses sufficiently specific and answerable through the proposed research design?

B. Methodological Alignment and Research Design

9. Is there clear alignment among the research problem, study objectives, research questions, and methodological approach?
10. Is the selected methodological approach adequately justified in relation to the study's aim and research questions?
11. Is the research design appropriate for the type of question or problem the study seeks to address?
12. Are the sample, participants, cases, or data sources appropriate and adequately justified in relation to the study's aim?

C. Data Collection and Analysis Strategy

13. Are the research context and relevant participants, cases, or data sources, including their selection criteria, adequately described?
14. Are the data-collection methods, instruments, and procedures described with sufficient clarity?
15. Are issues related to the validity and reliability of data collection tools clearly described?
16. Is sufficient methodological information provided to make the research process transparent and, where appropriate, reproducible or traceable?
17. Is the analysis strategy appropriate for the research questions and the type and structure of the data?

18. Is the unit or level of analysis clearly identified?
19. Have the assumptions underlying the statistical or other methods been verified?
20. Have the coding, entry, processing, and consistency of the data been verified?
21. Does the interpretation of the results take into account factors more than statistical significance?
22. Have significant deviations from the original research design been documented and justified?

D. Ethics and Research Integrity

23. Where required, was appropriate ethical approval or institutional authorization obtained before the relevant research activities began?
24. Where applicable, were appropriate procedures for informed consent, confidentiality, privacy, and participant protection implemented?
25. Are the ethical procedures relevant to the study accurately and transparently reported in the manuscript?
26. Does the manuscript appropriately acknowledge the sources of ideas, text, data, and other intellectual contributions and avoid plagiarism, self-plagiarism, or misleading attribution?
27. Where generative artificial intelligence has been used, has its use been disclosed where required, and have the authors verified and taken responsibility for the accuracy and integrity of the affected content?

E. Results, Tables, and Figures

28. Do the findings presented correspond clearly to the study objectives and research questions?
29. Are the results presented in a logical order and without early interpretation?
30. Is unnecessary duplication of the same information across the text, tables, and figures avoided?
31. Does the narrative emphasize the most important findings without unnecessarily reproducing detailed information already presented in tables or figures?
32. Are tables and figures accurate, legible, internally consistent, and faithful to the information they represent?
33. Do titles, captions, labels, units, and terminology provide sufficient information to understand each table or figure?
34. Have tables, figures, images, and other visual materials been checked against the underlying data or source material, where applicable?

F. Discussion, Limitations, and Conclusions

35. Is each major interpretation clearly grounded in one or more findings of the study?
36. Is prior literature used to contextualize, compare, and interpret the findings rather than merely repeated as an additional literature review?
37. Are causal claims avoided unless they are supported by the research design and available evidence?
38. Are claims about generalizability, transferability, or applicability kept within the population, context, evidence, and limitations of the study?
39. Where practical or policy implications are proposed, are they clearly grounded in the study's findings and limitations?
40. Are the most consequential limitations of the study clearly acknowledged?
41. Is the likely influence of the identified limitations on the interpretation, credibility, generalizability, transferability, or applicability of the findings considered?
42. Do the conclusions directly address the study objectives and research questions?

43. Do the conclusions avoid introducing new empirical findings or claims that are not supported by the study?

G. Bibliographic References, Language, and Coherence

44. Are substantive claims supported by appropriate scholarly sources where evidence is required?
45. Is the relationship between each citation and the statement or idea it supports clear?
46. Are primary or original sources used for key ideas, concepts, definitions, and findings wherever reasonably possible?
47. Do all in-text citations correspond accurately to entries in the reference list, and vice versa?
48. Is the language clear, precise, concise, and free from unnecessary repetition or redundancy?
49. Does each paragraph have a clear central purpose and a coherent internal progression of ideas?
50. Are transitions between paragraphs and sections sufficiently clear to maintain the logical progression of the manuscript?
51. Are technical terms, symbols, abbreviations, and acronyms defined where necessary and used consistently throughout the manuscript?
52. Are claims appropriately qualified and free from unnecessarily vague, absolute, or exaggerated wording?

H. Authorship and Collective Quality Control

53. Do all listed authors meet the applicable criteria for authorship, and have individuals who do not meet these criteria been appropriately acknowledged instead?
54. Are the individual contributions of the authors transparently described where required or appropriate?
55. Have all authors reviewed and approved the final version of the manuscript?
56. Have the relevant authors verified the accuracy of the data, analyses, tables, figures, references, and other materials for which they are responsible?
57. Has the research team conducted an explicit internal review aimed at identifying potential errors, inconsistencies, unsupported claims, or methodological weaknesses before submission?
58. Where feasible, has the manuscript received critical feedback from at least one qualified colleague who was not directly involved in its preparation?

I. Journal Selection, Submission, and Peer Review

59. Does the manuscript fit the scope, disciplinary focus, and intended readership of the selected journal?
60. Is the manuscript appropriate for an article type accepted by the selected journal?
61. Has the current version of the journal's instructions for authors been consulted before submission?
62. Has compliance with the journal's specific requirements for structure, abstract, references, tables, figures, supplementary materials, and required declarations been verified, including the use of an established reporting guideline where applicable?
63. Have author information, affiliations, funding information, conflicts-of-interest statements, and other required declarations been verified before submission?
64. Following peer review, has every substantive comment from reviewers and editors been addressed individually in the response and/or revised manuscript?
65. Where reviewer or editor comments require substantive changes, have corresponding revisions been made rather than being limited to superficial textual changes?

66. Where a reviewer or editor recommendation has not been adopted, is the decision explained through a clear and scientifically justified response?