Acta Pedagogia Asiana

Review
Volume 5(2), 2026, 175−199
https://doi.org/10.53623/apga.v5i2.1114

Empowering Educators Through Research: Methods, Critique, and Classroom Application

Mary Luz D. Eder

General Science Department, Surigao del Norte State University, Philippines

Correspondence: maryluz.eder@deped.gov.ph

SUBMITTED: 11 March 2026; REVISED: 15 May 2026; ACCEPTED: 17 May 2026

ABSTRACT: This narrative literature review examined how research competencies empowered educators through four interrelated domains: research methods literacy, research critique skills, classroom action research, and the application of research in teaching within international and Philippine contexts. The review synthesized literature published from 2010 to 2025 using sources from ERIC, Scopus, JSTOR, and Google Scholar. Through thematic analysis and narrative synthesis, the study compared global and Philippine perspectives on teacher research engagement, instructional improvement, and evidence-based practice. Findings revealed that international educational systems provided structured professional learning communities, mentoring programs, and collaborative inquiry models that strengthened teachers' research engagement and instructional decision-making. In the Philippine context, although research initiatives such as classroom action research were institutionally promoted through DepEd and CHED policies, challenges remained in research training, critique competencies, mentorship, and the practical application of research findings in classrooms. The review further showed that research activities were often compliance-driven rather than integrated into reflective teaching practice. The study proposed an Integrated Teacher Research Empowerment Model consisting of four key components: research methods literacy, research critique skills, classroom action research engagement, and research-informed instructional practice supported by institutional collaboration and mentorship. The findings underscored that strengthening teacher research competence enhanced reflective practice, evidence-based instruction, and student learning outcomes. The review recommended reinforcing research training, mentorship systems, and sustained professional development to promote meaningful teacher research engagement and instructional effectiveness.

KEYWORDS: Teacher research competencies; research methods literacy; research critique skills; classroom action research; evidence-based teaching; Philippine education.

1. Introduction

In recent decades, educational systems across the globe have increasingly recognized teachers not only as implementers of curriculum but also as active producers and users of research. The global movement toward teacher-led research emphasized that meaningful instructional improvement began within the classroom, where teachers systematically examined their own practices, assessed student learning outcomes, and made evidence-informed adjustments [1–

2]. Countries such as the United States, Australia, the United Kingdom, and Singapore institutionalized professional learning communities, lesson study approaches, mentoring systems, and classroom-based inquiry programs that supported teachers in conducting action research, engaging in reflective practice, and utilizing educational data for instructional improvement [3–4]. These initiatives reflected a broader paradigm in education that valued evidence-based teaching and positioned research literacy as a core professional competency rather than an optional scholarly activity. International literature consistently demonstrated that when teachers possessed strong knowledge of research methods and the ability to critically evaluate studies, they were better able to make informed pedagogical decisions, interpret data accurately, assess the validity and reliability of findings, and determine whether research outcomes were applicable to their classroom contexts [5–6]. Furthermore, teacher-led inquiry was associated with improved instructional strategies, stronger student engagement, and enhanced academic performance, reinforcing the importance of research engagement in teacher professionalism [7].

In the Philippine context, educational reforms likewise emphasized the importance of research in strengthening teaching quality and promoting evidence-based practice. The Department of Education (DepEd) institutionalized initiatives such as the Basic Education Research Agenda (BERA) and the Research Management Guidelines to encourage teachers and school leaders to conduct classroom action research addressing local educational challenges [8]. Similarly, the Commission on Higher Education (CHED) promoted the integration of research competencies into teacher education curricula to ensure that pre-service and in-service teachers developed foundational skills in educational inquiry and scholarly analysis [9]. These national initiatives demonstrated the country's commitment to fostering a culture of research within schools and higher education institutions. However, empirical studies in the Philippine setting revealed persistent limitations in teachers' research competencies. Several studies reported that many educators experienced difficulties in selecting appropriate research designs, analyzing quantitative and qualitative data, interpreting findings, and critically evaluating scholarly literature [10–11]. Although classroom action research was widely encouraged, its implementation was often compliance-driven rather than inquiry-oriented, with limited dissemination and practical utilization of findings beyond institutional requirements [12]. Moreover, research generated in academic settings was not consistently translated into classroom practice, creating a disconnect between research production and instructional application. Consequently, instructional decisions in many schools continued to rely more heavily on experience-based practices than on systematically examined evidence.

The contrast between international and Philippine contexts highlighted significant differences in the availability of structured support systems for teacher research engagement. In many foreign educational systems, teachers were provided with sustained professional development, collaborative inquiry cultures, mentorship programs, and institutional research support that enabled them to integrate research into everyday instructional practice [13]. In the Philippine setting, however, research initiatives were frequently constrained by limited time, insufficient resources, heavy teaching workloads, and varying levels of research preparation among educators [10]. These conditions suggested that while research was institutionally promoted, research competence and research utilization were not yet fully embedded in routine teaching practice. Existing studies explored aspects of research literacy, classroom action research, and evidence-based instruction separately; however, there remained limited synthesis

of how research methods knowledge, research critique skills, and classroom application collectively contributed to teacher empowerment and instructional effectiveness, particularly within the Philippine educational context. This gap underscored the originality and significance of the present review, as it integrated both foreign and Philippine literature to provide a more comprehensive understanding of how research engagement could strengthen teaching practice.

Anchored on Social Constructivism, Reflective Practice Theory, and Evidence-Based Practice Theory, this literature review argued that educators became more empowered when they actively constructed professional knowledge through systematic inquiry, critical reflection, and evidence-informed decision-making. Social Constructivism, advanced by Lev Vygotsky and revisited in contemporary teacher professional development literature, emphasized that knowledge was constructed through collaboration, contextual engagement, and reflective interaction [14]. Within this perspective, teacher-led inquiry and classroom action research became mechanisms for generating professional knowledge rather than merely consuming external findings. Reflective Practice Theory, introduced by Donald Schön, further explained that educators improved professional practice through "reflection-in-action" and "reflection-on-action," where they critically examined instructional decisions to refine teaching strategies and improve learning outcomes [15]. In this context, research critique skills enabled teachers to assess the validity, reliability, and applicability of educational studies, thereby strengthening reflective and analytical decision-making. Complementing these perspectives, Evidence-Based Practice Theory emphasized that professional practice should integrate research evidence, practitioner expertise, and contextual realities in making instructional decisions [16]. Applied to education, this framework supported the argument that teacher empowerment required not only understanding research methodologies but also the ability to critically evaluate and translate research findings into effective classroom practices.

Guided by these theoretical foundations, the present literature review aimed to examine and synthesize foreign and Philippine studies on educational research methods, teachers' research literacy, research critique competencies, classroom action research, and the practical application of research in teaching. Specifically, the review sought to analyze how research engagement contributed to teacher empowerment and instructional effectiveness, identify recurring themes and gaps in existing literature, and determine the challenges affecting the integration of research into classroom practice. Through this synthesis, the study intended to provide a clearer understanding of how teachers could be better supported in developing meaningful research competence that enhanced evidence-based instruction and ultimately improved student learning outcomes.

Figure 1 illustrates a conceptual framework showing how educators were empowered through engagement in research. It presented research methods literacy, research critique skills, and classroom action research as interconnected competencies that led to the effective application of research in classroom practice. These processes collectively contributed to evidence-based instructional decision-making, reflective teaching, and improved student learning outcomes. The framework emphasized that teacher empowerment was achieved through a continuous cycle of inquiry, reflection, and instructional refinement supported by research engagement.

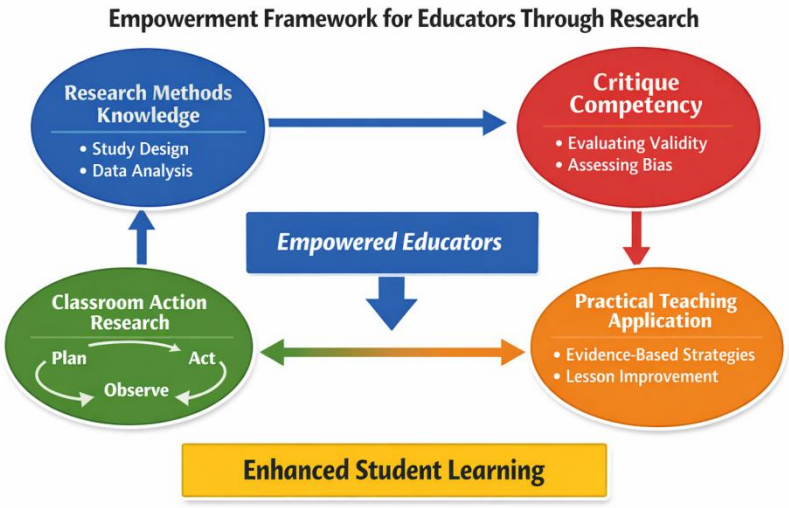

Figure 1. Empowerment framework for educators through research.

2. Materials and Methods

2.1. Review Design.

This study employed a narrative literature review design to synthesize and compare foreign and Philippine studies related to teacher research engagement. A narrative synthesis approach was selected because the reviewed literature consisted of diverse methodologies, theoretical perspectives, educational settings, and contextual experiences that could not be adequately integrated through statistical synthesis alone. Unlike systematic reviews, which typically focus on narrowly defined questions and measurable outcomes, or scoping reviews, which primarily map the breadth of available literature, the narrative review design was considered more appropriate for examining the conceptual, contextual, and thematic relationships among teacher research competencies, reflective practice, and instructional application. This approach enabled the study to provide an interpretive and integrative discussion of how research engagement contributes to teacher empowerment and instructional improvement across different educational contexts.

The review focused on four major domains: (1) research methods literacy, (2) research critique skills, (3) classroom action research practices, and (4) classroom application of research findings. These domains were selected because they collectively represent the core dimensions of teacher research competence identified in both international and Philippine literature. Research methods literacy refers to teachers' understanding of research designs, data collection procedures, and analytical approaches. Research critique skills involve the ability to evaluate the validity, reliability, relevance, and applicability of scholarly studies. Classroom action research practices pertain to teachers' engagement in systematic inquiry to address instructional problems within their classrooms, while classroom application emphasizes the translation of research evidence into instructional decision-making and pedagogical improvement.

To strengthen the theoretical clarity of the review, the study proposes a conceptual relationship between teacher research competence and instructional improvement. The framework assumes that teachers who possess strong research methods literacy and research

critique skills are more capable of conducting meaningful classroom action research and applying research findings effectively in teaching practice. These competencies collectively contribute to evidence-based instruction, reflective teaching, professional growth, and improved student learning outcomes. The conceptual model further recognizes that institutional support systems, professional development opportunities, and collaborative inquiry cultures influence the extent to which teachers can engage meaningfully in research activities.

In addition, a thematic framework diagram is recommended to visually illustrate the interrelationship among the four major domains examined in this review. The proposed thematic framework highlights how research methods literacy serves as the foundational competency that supports teachers' ability to critique educational studies. These critique skills, in turn, strengthen the quality and relevance of classroom action research practices. Findings generated from action research subsequently inform classroom application and instructional decision-making, creating a continuous cycle of reflective and evidence-informed teaching practice. Through this interconnected process, teacher research engagement becomes a mechanism for professional empowerment and instructional improvement This study employed a narrative literature review design to synthesize and compare foreign and Philippine studies related to teacher research engagement. A narrative synthesis approach was selected because the reviewed literature consisted of diverse methodologies, theoretical perspectives, educational settings, and contextual experiences that could not be adequately integrated through statistical synthesis alone. Unlike systematic reviews, which typically focus on narrowly defined questions and measurable outcomes, or scoping reviews, which primarily map the breadth of available literature, the narrative review design was considered more appropriate for examining the conceptual, contextual, and thematic relationships among teacher research competencies, reflective practice, and instructional application. This approach enabled the study to provide an interpretive and integrative discussion of how research engagement contributed to teacher empowerment and instructional improvement across different educational contexts.

The review focused on four major domains: (1) research methods literacy, (2) research critique skills, (3) classroom action research practices, and (4) classroom application of research findings. These domains were selected because they collectively represented the core dimensions of teacher research competence identified in both international and Philippine literature. Research methods literacy referred to teachers' understanding of research designs, data collection procedures, and analytical approaches. Research critique skills involved the ability to evaluate the validity, reliability, relevance, and applicability of scholarly studies. Classroom action research practices pertained to teachers' engagement in systematic inquiry to address instructional problems within their classrooms, while classroom application emphasized the translation of research evidence into instructional decision-making and pedagogical improvement.

To strengthen the theoretical clarity of the review, the study proposed a conceptual relationship between teacher research competence and instructional improvement. The framework assumed that teachers who possessed strong research methods literacy and research critique skills were more capable of conducting meaningful classroom action research and applying research findings effectively in teaching practice. These competencies collectively contributed to evidence-based instruction, reflective teaching, professional growth, and

improved student learning outcomes. The conceptual model further recognized that institutional support systems, professional development opportunities, and collaborative inquiry cultures influenced the extent to which teachers could engage meaningfully in research activities.

In addition, a thematic framework diagram was recommended to visually illustrate the interrelationship among the four major domains examined in this review. The proposed thematic framework highlighted how research methods literacy served as the foundational competency that supported teachers' ability to critique educational studies. These critique skills, in turn, strengthened the quality and relevance of classroom action research practices. Findings generated from action research subsequently informed classroom application and instructional decision-making, creating a continuous cycle of reflective and evidence-informed teaching practice. Through this interconnected process, teacher research engagement became a mechanism for professional empowerment and instructional improvement.

Figure 2 presented a thematic framework illustrating the progressive and interconnected relationship among key domains of teacher research engagement. In subfigure (a), research methods literacy was shown as the foundational competency that enabled teachers to understand research designs, data collection, and analysis. Subfigure (b) highlighted research critique skills, where teachers evaluated the validity, reliability, bias, and applicability of educational studies. Subfigure (c) illustrated classroom action research, where teachers applied systematic inquiry to address instructional problems within their own practice. Subfigure (d) showed classroom application of research, emphasizing the integration of evidence into instructional planning, teaching strategies, and decision-making. Finally, subfigure (e) synthesized these elements into a continuous cycle leading to instructional improvement and teacher professional growth, highlighting that teacher research engagement was iterative, reflective, and practice-oriented. By examining both international and Philippine literature, the review aimed to identify similarities, contextual differences, and existing gaps in how research competence contributes to teacher empowerment and instructional improvement. The narrative review approach therefore provided a flexible yet rigorous means of integrating findings across varied educational settings while emphasizing the practical and theoretical significance of teacher research engagement in contemporary education.

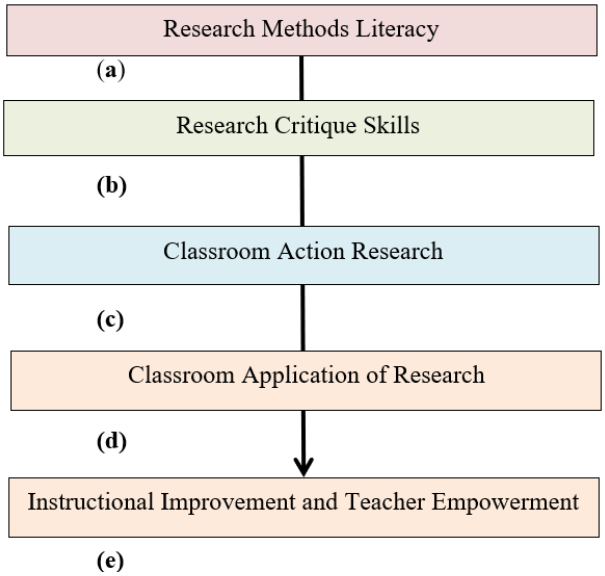

Figure 2. Thematic framework of teacher research engagement.

Figure 3 presents a conceptual model illustrating the relationship between teacher research competence and instructional improvement. Subfigure (a) shows teacher research competence, which encompasses research methods literacy, research critique skills, and engagement in classroom action research. Subfigure (b) highlights the process of translating this competence into evidence-based instructional practices. Subfigure (c) demonstrates how these practices contribute to reflective teaching and continuous professional growth. Finally, subfigure (d) represents the outcome of the model, which is improved student learning outcomes. The figure emphasizes a linear and cyclical relationship in which strengthened research competence leads to more effective instruction and sustained educational improvement. By examining both international and Philippine literature, the review aimed to identify similarities, contextual differences, and existing gaps in how research competence contributes to teacher empowerment and instructional improvement. The narrative review approach therefore provided a flexible yet rigorous means of integrating findings across varied educational settings while emphasizing the practical and theoretical significance of teacher research engagement in contemporary education.

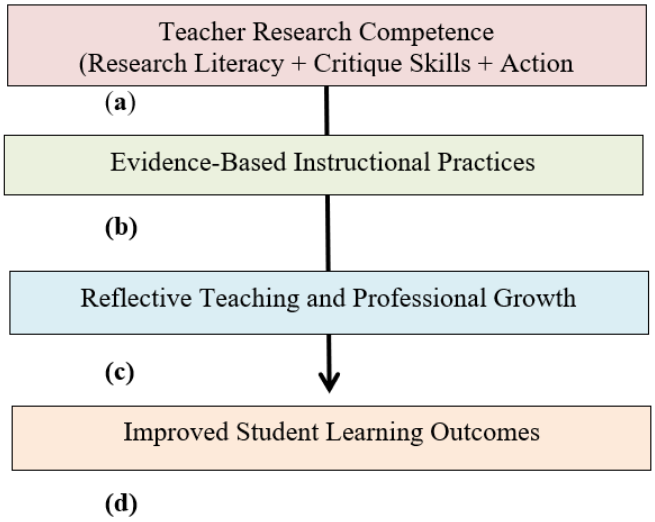

Figure 3. Conceptual model of teacher research competence and instructional improvement.

2.2. Search strategy.

Relevant literature was identified through systematic searches in established academic databases, including ERIC, JSTOR, Scopus, and Google Scholar. These databases were selected to ensure access to peer-reviewed international and local publications in the field of education and teacher professional development. The search process used combinations of keywords and descriptors such as “teacher research skills,” “research literacy,” “classroom action research Philippines,” “educational research methods,” “research critique skills,” “evidence-based teaching,” and “teacher inquiry.” Boolean operators such as AND and OR were applied to refine search results and improve the relevance of retrieved studies. Examples of search combinations included “teacher research skills AND instructional improvement,” “classroom action research AND Philippines,” and “research critique skills OR research literacy.”

The initial database search yielded approximately 320 records across all databases. After the removal of duplicate entries, 268 unique studies remained for preliminary screening. Duplicate studies were identified and managed through manual comparison of titles, authors, publication years, and journal sources to ensure that repeated records appearing across multiple databases were excluded. The remaining studies were then screened based on relevance to the study objectives, focusing on literature related to teacher research competencies, classroom action research, research critique abilities, and the practical application of research in educational settings. To further strengthen the comprehensiveness of the review, the reference lists of selected articles and related review studies were manually examined to identify additional relevant sources that may not have appeared in the initial database search. This supplementary search process allowed the inclusion of important foreign and Philippine studies closely aligned with the objectives of the review. The systematic organization of the search process enhanced the transparency, consistency, and reproducibility of the literature selection procedure.

2.3. Selection Criteria.

The review included studies published within the last 10 to 15 years, specifically from 2010 to 2025, to ensure that the synthesis reflects current trends, policies, and developments in teacher research engagement, research literacy, and evidence-based instructional practices. The selected timeframe was considered appropriate because educational reforms, digital research tools, professional learning frameworks, and teacher inquiry practices have significantly evolved during this period. In addition, major policy initiatives related to teacher research engagement in the Philippine educational system, such as the implementation of the Department of Education's Basic Education Research Agenda (BERA) and expanded research integration in teacher education programs, were introduced and strengthened within this timeframe. While earlier foundational studies and classical theories remain important in establishing the conceptual foundations of the review, the study prioritized recent literature to capture contemporary perspectives, emerging challenges, and current applications of teacher research competence in educational practice.

Only peer-reviewed international and Philippine journal articles, scholarly books, conference papers, and graduate theses were considered in the review. Studies were included if they explicitly addressed at least one of the following areas: teacher research competence, research methods literacy, research critique skills, classroom action research, or the application of research in teaching and instructional decision-making. The review also considered studies examining teacher professional development, evidence-based practice, and reflective teaching when these were directly connected to research engagement. Articles and documents were excluded if they lacked clear methodological descriptions, were not directly related to educational practice, or focused on unrelated professional fields outside education. Non-scholarly sources, opinion articles, unpublished manuscripts without academic review, and studies with insufficient empirical or theoretical grounding were likewise excluded to maintain the credibility, rigor, and reliability of the literature synthesis.

2.4 Data extraction and synthesis.

Data from the selected studies were carefully examined, coded, and organized according to recurring concepts and thematic patterns related to teacher research engagement. The data extraction process involved reviewing each study's objectives, methodology, participants, key findings, and implications for educational practice. To ensure consistency in analysis, the extracted information was categorized into major thematic domains aligned with the objectives of the review. The primary themes identified included research methods literacy, critical appraisal competency, classroom action research implementation, and research-informed teaching practices. Additional subthemes such as teacher confidence, institutional support, professional development, reflective practice, and barriers to research utilization also emerged during the analysis process.

Thematic coding was conducted through repeated reading and comparative examination of the selected literature. Similar concepts and findings were grouped together to identify patterns across international and Philippine studies. Foreign and local literature were compared to determine similarities, contextual differences, strengths, and areas requiring further development in teacher research competence and instructional application. This comparative analysis enabled the review to identify how varying educational systems support or constrain teacher engagement in research activities. To strengthen the transparency and organization of the synthesis process, Table 1 presents the thematic coding framework used in categorizing the reviewed studies.

Table 1. Thematic coding framework for data extraction and analysis.

Major Theme	Description	Sample Indicators from Literature
Research Methods Literacy	Teachers' understanding of research designs, methodologies, and data analysis procedures	Knowledge of quantitative and qualitative methods, data interpretation skills, research design selection
Critical Appraisal Competency	Ability to evaluate the credibility, validity, reliability, and applicability of research findings	Critiquing journal articles, assessing methodological rigor, evaluating evidence quality
Classroom Action Research	Teacher engagement in systematic inquiry to address classroom problems and improve instruction	Conducting action research, reflective inquiry, intervention implementation
Research-Informed Teaching Practices	Application of research findings in instructional planning and decision-making	Evidence-based teaching, data-driven instruction, instructional improvement
Institutional and Professional Support	Organizational structures and professional development opportunities supporting teacher research engagement	Mentorship, professional learning communities, research training programs
Barriers to Research Engagement	Challenges limiting teachers' participation in research activities	Time constraints, insufficient training, limited resources, heavy workload

Table 1 presents the thematic coding framework used in the systematic organization and analysis of literature included in the review. It outlines six major themes that guided data extraction: research methods literacy, critical appraisal competency, classroom action research, research-informed teaching practices, institutional and professional support, and barriers to research engagement. Each theme is defined in terms of its conceptual focus and supported by sample indicators derived from the reviewed studies. The framework provides a structured basis for identifying patterns across international and Philippine literature and ensures consistency in comparing how teacher research engagement is conceptualized and implemented across different educational contexts.

Table 2 presents a synthesized overview of the reviewed studies organized by author, context, focus, methodology, key findings, and implications. The studies span international settings (e.g., USA, Australia, and broader global contexts) and the Philippine educational system, allowing for comparative analysis of teacher research engagement across different environments. The table highlights key themes such as classroom action research, teacher inquiry, research competence, evidence-based instruction, and professional learning communities.

Table 2: Summary of reviewed studies by context.

Author(s)	Country/Context	Focus	Methodology	Key Findings	Implications
[17]	Australia	Classroom Action Research	Qualitative	CAR improves teacher reflection and practice	Support structured teacher research programs
[18]	Philippines	Teachers' research competence	Mixed methods	Many teachers lack research confidence and skills	Strengthen research capacity-building initiatives
[1]	USA	Teacher inquiry and professional learning communities	Qualitative	PLCs enhance research-informed teaching and professional growth	Promote collaborative research culture and ongoing professional learning
[2]	International	Evidence-based instructional strategies	Meta-analysis	Research-informed strategies lead to higher student engagement and achievement	Integrate evidence-based practices into teacher training
[10]	Philippines	Classroom research by teachers	Mixed methods	Teachers face challenges in methodology, critique, and dissemination	Provide mentorship and training for applied classroom research
[19]	Philippines	Action research in public schools	Qualitative	Inconsistent CAR implementation and limited research dissemination	Develop structured CAR programs with institutional support
[20]	Australia/USA	Teacher professional learning via CAR	Mixed methods	CAR fosters reflective practice, data-driven decision-making, and instructional improvement	Encourage integration of CAR into continuous professional development
[21]	International	Data literacy for teachers	Qualitative	Teachers' ability to interpret and apply data improves instruction	Include data interpretation and analysis skills in teacher education
[22]	Philippines	Action research on reading interventions	Qualitative	CAR projects led to improved reading scores	Encourage localized research applications to address student needs
[23]	International	Differentiated instruction informed by research	Literature review	Evidence-based differentiation enhances learning outcomes	Embed research-based differentiation strategies in teacher training programs
[17]	Australia	CAR and student outcomes	Case study	Teachers reported improved student engagement through iterative CAR cycles	Emphasize reflective, iterative approaches to teaching improvement
[18]	International	Evidence-based literacy strategies	Meta-analysis	Evidence-informed instruction improves reading comprehension	Promote research-informed literacy programs in schools

Across the reviewed literature, international studies consistently emphasized structured systems such as professional learning communities, data literacy training, and sustained teacher inquiry models that enhanced instructional effectiveness and student outcomes. In contrast, Philippine studies commonly highlighted challenges in research competence, limited methodological training, and inconsistent implementation of classroom action research, despite its potential benefits for improving teaching practice and learner performance. The table demonstrated that while teacher research engagement was widely recognized as beneficial across contexts, the level of institutional support, research capacity, and sustainability of implementation varied significantly between international and Philippine settings. This

comparative synthesis provided the basis for identifying gaps and informing the proposed framework for strengthening teacher research competence and evidence-based instructional practice.

3. Results and Discussion

3.1. Education research methods.

3.1.1 Foreign literature.

Educational research in international contexts strongly emphasized the importance of research literacy among teachers, particularly in understanding diverse methodologies such as quantitative, qualitative, and mixed-methods approaches. In many developed educational systems, teachers were trained not only to consume research but also to design and conduct systematic inquiries that informed instructional improvement. Mixed-methods literacy, in particular, gained prominence because it allowed educators to triangulate numerical data with contextual insights, thereby producing more comprehensive interpretations of classroom realities [6]. Scholars argued that proficiency in multiple research paradigms equipped teachers with flexible tools for examining complex educational problems.

Darling-Hammond et al. [4] emphasized that effective teacher preparation programs in high-performing countries integrated research-method training as a core component of professional development. Their review highlighted that teachers who understood experimental design, survey construction, and qualitative observation techniques were more capable of evaluating instructional interventions and adjusting teaching strategies based on evidence. Similarly, Slavin [24] stressed that research-method competence strengthened teachers' ability to engage in evidence-based decision-making, reducing reliance on intuition alone.

International studies also demonstrated that structured training in research methodology enhanced teachers' instructional judgment. Brown and Zhang [25] found that teachers who received formal research training were more likely to interpret data critically and apply findings appropriately within their classrooms. In Australia and the United Kingdom, teacher education programs emphasized practitioner inquiry models that required pre-service teachers to conduct small-scale mixed-methods research projects before graduation [26]. This exposure cultivated both analytical thinking and data interpretation skills.

Moreover, international literature highlighted the growing demand for data literacy, which included the ability to analyze student performance metrics, interpret statistical results, and draw actionable conclusions [27]. Teachers trained in advanced methodologies were better positioned to differentiate instruction, evaluate learning outcomes, and contribute meaningfully to professional learning communities. Collectively, foreign studies suggested that strong grounding in research methods was directly associated with improved instructional planning, assessment practices, and student achievement.

3.1.2 Philippine context.

In the Philippine educational landscape, research competence was increasingly recognized as a professional expectation for teachers, particularly with policies encouraging classroom action research. However, empirical studies revealed uneven levels of methodological literacy among educators. While research was incorporated into teacher education curricula, exposure to

advanced methodologies such as experimental design, inferential statistics, and mixed-methods integration remained limited in many programs [28].

Several Philippine studies indicated that teachers tended to favor descriptive research designs over analytical or experimental approaches. This tendency may have stemmed from limited statistical training and insufficient mentoring in complex research procedures. For instance, Morales [11] observed that many in-service teachers conducting action research focused primarily on descriptive surveys and basic frequency counts rather than deeper inferential analysis. Although descriptive studies provided valuable baseline data, they might not have fully captured causal relationships or instructional effectiveness.

Furthermore, Alonzo and Luna [18] reported that Filipino teachers often lacked confidence in selecting appropriate research designs and interpreting statistical outputs. Their findings suggested that research activities were sometimes undertaken to comply with institutional requirements rather than to address authentic classroom concerns through rigorous methodology. Similarly, Ulla et al. [10] found that while teachers expressed positive attitudes toward research, they identified insufficient training and limited institutional support as barriers to developing advanced methodological competence.

Despite these challenges, emerging efforts sought to strengthen research capacity in the Philippines. Professional development programs and DepEd research initiatives aimed to enhance teachers' skills in data analysis and evidence-based practice. However, compared to international standards, Philippine teacher education still faced the need to deepen methodological training, particularly in mixed-methods design and advanced data interpretation. The literature thus revealed a clear contextual gap between the strong methodological emphasis observed in foreign settings and the more descriptive-oriented practices common in many local schools.

Figure 4 presents a comparative visualization of research method competencies between foreign and Philippine contexts across four dimensions: exposure to mixed-methods design, advanced statistical analysis skills, data interpretation and evidence-based decision-making, and prevalence of descriptive research approaches. The chart shows that foreign contexts consistently demonstrate higher levels of exposure to mixed-methods research, stronger statistical analysis skills, and more advanced use of data for evidence-based decision-making.

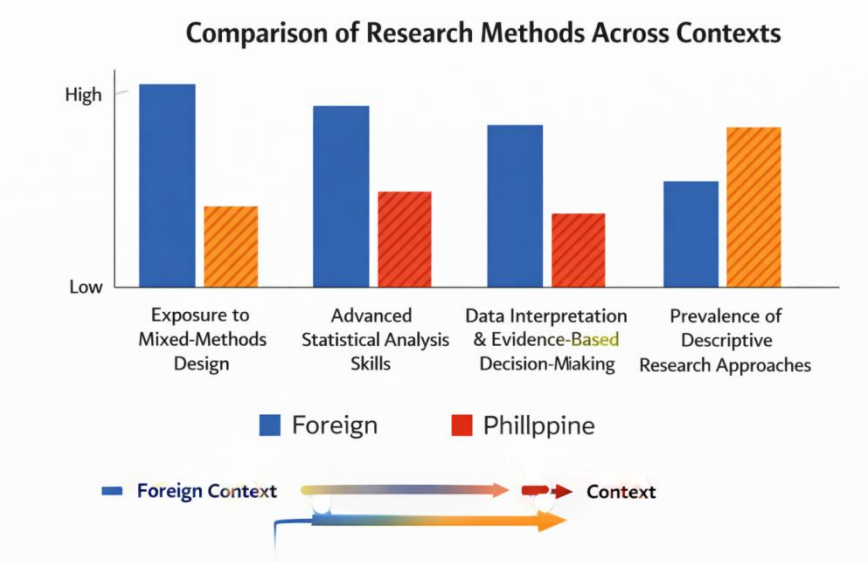

Figure 4. Comparison of research methods across contexts.

In contrast, the Philippine context shows comparatively lower levels in these areas, with a stronger tendency toward descriptive research approaches. Overall, the figure highlights a clear disparity in research methodological sophistication, suggesting the need to strengthen advanced research training and data-driven decision-making competencies among educators in the Philippine setting.

3.2 Critique research skills.

Research critique skills are increasingly recognized as a cornerstone of teacher research competence. Beyond merely understanding research methods, educators must be able to evaluate the quality, credibility, and applicability of research findings before integrating them into classroom practice. International literature consistently emphasizes that critical appraisal is not an optional academic skill but a professional necessity in an era of evidence-based education. Teachers who lack the ability to scrutinize research risk misinterpreting findings, adopting ineffective interventions, or overlooking contextual limitations that may affect implementation.

Foreign studies strongly highlight the use of structured frameworks for evaluating research quality. Tools such as the Critical Appraisal Skills Programme (CASP), the Joanna Briggs Institute appraisal tools, and evidence hierarchies in educational research provide systematic approaches for assessing validity, reliability, bias, and relevance [30, 31]. These frameworks guide educators in asking essential questions: Are the research questions clearly defined? Is the methodology appropriate? Are the conclusions supported by data? By engaging with such criteria, teachers develop analytical thinking skills that strengthen instructional decision-making.

Several international studies demonstrate that training teachers in research critique significantly enhances evidence-based practice. For instance, Brown and Zhang [25] found that professional development programs focused on research literacy improved teachers' confidence in evaluating journal articles and applying findings to curriculum planning. Similarly, Levin and Datnow [32] argue that the effective use of research in schools depends not only on access to studies but also on educators' ability to interpret methodological rigor and contextual fit. Without critique skills, research dissemination alone has limited impact.

Foreign literature also connects critique competency to reflective practice. Hattie [2] emphasizes that teachers who critically engage with research are more likely to question assumptions, analyze student data carefully, and adjust instruction accordingly. In this sense, critique skills are intertwined with professional judgment. They allow teachers to move beyond surface-level acceptance of "what works" claims and instead consider effect sizes, study design, and contextual differences.

Moreover, recent scholarship underscores the importance of identifying bias and threats to validity in educational research. Gorard [33] explains that poorly designed studies can lead to exaggerated claims about instructional strategies. Teachers trained in research appraisal are better equipped to detect sampling bias, confounding variables, and weak measurement instruments. Such skills protect schools from investing time and resources in unsubstantiated practices.

In contrast, Philippine literature reveals significant challenges in developing teachers' research critique skills. While many educators are required to conduct research for professional advancement, training often focuses more on completing research projects than on critically

evaluating existing studies. Alonzo and Luna [18] report that Filipino teachers frequently express uncertainty about interpreting statistical results and assessing methodological rigor. This indicates a gap between research production and research appraisal competence.

Philippine studies also suggest that teachers struggle with understanding concepts such as internal validity, reliability coefficients, and research bias. Oracion [12] notes that while teachers can identify research components such as objectives and methodology, fewer demonstrate the ability to question the appropriateness of design or the strength of evidence. This partial understanding limits their capacity to use research findings confidently in classroom decision-making.

Another concern in the Philippine context is the limited systematic use of appraisal frameworks. Unlike foreign educational systems that integrate structured critique tools into teacher professional development, local programs often emphasize compliance with research requirements rather than deep critical engagement. As a result, issues such as publication bias, sampling limitations, and generalizability are sometimes overlooked in practice.

Despite these challenges, recent initiatives in the Philippines show emerging attention to evidence-informed teaching. Department of Education programs promoting action research encourage teachers to analyze findings more critically. However, scholars argue that without explicit training in research appraisal criteria, the integration of findings into classroom practice may remain superficial [34]. Strengthening critique skills is therefore essential for transforming research from a compliance task into a meaningful professional tool.

The literature reveals a clear contrast. Foreign studies present research critique as a structured, systematic, and practice-linked competency supported by established frameworks. Philippine studies highlight growing awareness but limited depth in appraisal training, particularly regarding validity, reliability, and bias identification. This gap underscores the need for strengthened professional development programs that explicitly cultivate critical evaluation skills among Filipino educators. Table 3 compares how key research appraisal criteria, validity, reliability, bias, and usefulness, are addressed in foreign and Philippine studies, supported by cited literature. In foreign studies, validity is widely discussed and systematically assessed using structured appraisal tools, while in Philippine studies it is only partially addressed with more limited depth [10, 11, 5, 24]. Similarly, reliability is a central focus in international literature, particularly through statistical measures used to evaluate educational interventions and instructional outcomes, whereas it receives limited and often superficial treatment in Philippine classroom-based research [2, 7, 10].

Table 3. Research appraisal criteria in reviewed studies.

Criterion	Foreign Studies	Philippine Studies	References
Validity	Widely discussed and systematically assessed using structured appraisal tools	Partially addressed; basic understanding present but limited depth	[5, 10, 11, 24]
Reliability	Core focus; statistical reliability measures emphasized in evaluating educational interventions and instructional outcomes	Limited emphasis; often mentioned but not deeply analyzed in classroom-based studies	[2, 7, 10]
Bias	Addressed systematically, including sampling, methodological, and researcher bias considerations	Often overlooked or only superficially discussed in teacher action research reports	[1, 4, 12]
Usefulness	Explicitly linked to classroom application, instructional improvement, and policy decisions	Emerging focus; increasing attention to classroom application but not yet consistently integrated into practice	[10, 11, 13, 24]

The table further shows that bias is systematically considered in foreign studies, including sampling, methodological, and researcher bias, while in Philippine studies it is often overlooked or only briefly mentioned in action research reports [1, 4, 12]. In terms of usefulness, international literature explicitly links research findings to classroom application, instructional improvement, and policy development, whereas Philippine studies show an emerging but still inconsistent integration of research findings into actual teaching practice [10, 11, 13, 24]. Overall, the comparison highlights differences in the depth and rigor of research appraisal practices across contexts, underscoring the need to strengthen critical research evaluation skills in the Philippine educational setting.

3.3. Classroom action research.

Classroom Action Research (CAR) has been widely recognized internationally as a cornerstone of teacher professional learning and instructional improvement. Foreign studies consistently highlight CAR as a cyclical, reflective process that enables teachers to systematically investigate their own practices, implement interventions, and evaluate the impact on student learning outcomes. In countries such as the United States, Australia, and the United Kingdom, CAR is embedded within professional learning communities, fostering collaboration, peer feedback, and continuous improvement. Research demonstrates that when teachers engage in CAR, they develop critical reflective skills, adapt instruction to meet learners' needs, and achieve measurable gains in student engagement and achievement [26, 35].

International evidence emphasizes that CAR contributes not only to instructional refinement but also to broader teacher professional growth. For instance, Cochran-Smith and Lytle [1] highlighted that teacher-researchers participating in CAR projects reported increased confidence in decision-making, stronger analytical skills, and enhanced classroom management strategies. Similarly, Australian studies show that CAR encourages evidence-informed teaching by promoting systematic observation, iterative experimentation, and data-driven decision-making, resulting in improved lesson planning and student outcomes [36]. These findings indicate that CAR operates as both a method of inquiry and a vehicle for professional development.

In the Philippine context, CAR has been formally integrated into teacher education curricula and professional development programs mandated by DepEd and CHED. Philippine studies confirm that CAR provides a structured framework for teachers to examine instructional challenges, test interventions, and reflect on outcomes [37, 38]. CAR is widely used to address practical classroom problems, such as improving literacy, enhancing mathematics instruction, or developing innovative teaching strategies. In this sense, CAR aligns with international practice by linking research directly to actionable classroom improvements.

Despite these benefits, Philippine literature points to several challenges in CAR implementation. Many teachers face inconsistent guidance and lack mentorship in conducting rigorous action research. Studies by Malapo [19] and Morales [11] note that teachers often treat CAR as a compliance requirement rather than an authentic inquiry process, limiting its impact on professional growth and instructional practice. Furthermore, CAR findings are rarely published or disseminated widely, reducing opportunities for peer learning and cross-school collaboration. This indicates a gap between policy-driven CAR implementation and the

development of a robust research culture that supports reflective practice and evidence-based teaching.

Another key aspect identified in both foreign and Philippine literature is the cyclical nature of CAR. The process typically includes identifying a problem, planning an intervention, implementing the action, observing outcomes, reflecting on results, and planning subsequent cycles. This iterative approach encourages teachers to engage continuously in reflective practice and instructional refinement [39, 40]. When conducted rigorously, CAR not only improves teaching strategies but also strengthens teachers' research skills, analytical thinking, and confidence in using evidence to inform decisions.

Recent studies highlight the role of collaboration in enhancing CAR outcomes. In foreign contexts, teacher-researchers often work in professional learning communities, sharing observations, co-analyzing data, and refining practices collaboratively [41]. In the Philippines, however, collaborative CAR is less systematically implemented. While workshops and mentoring programs exist, opportunities for sustained peer collaboration and joint reflection are limited, reducing the potential for CAR to contribute to a research-informed teaching culture [38].

Both foreign and Philippine literature converge on the conclusion that CAR is a powerful tool for linking research to practice. While international studies demonstrate consistent positive outcomes for student learning and teacher growth, Philippine studies reveal that CAR's effectiveness depends on mentorship, capacity building, and systematic dissemination of results. Bridging this gap can enhance teacher empowerment and institutionalize reflective, evidence-based practices across schools.

Figure 5 illustrates the cyclical process of Classroom Action Research (CAR), which involves continuous improvement in teaching practice. It begins with identifying a problem, followed by implementing an action to address it. The outcomes are then observed, and the results are reflected upon. Based on this reflection, the teacher plans the next action, creating an ongoing cycle of improvement.

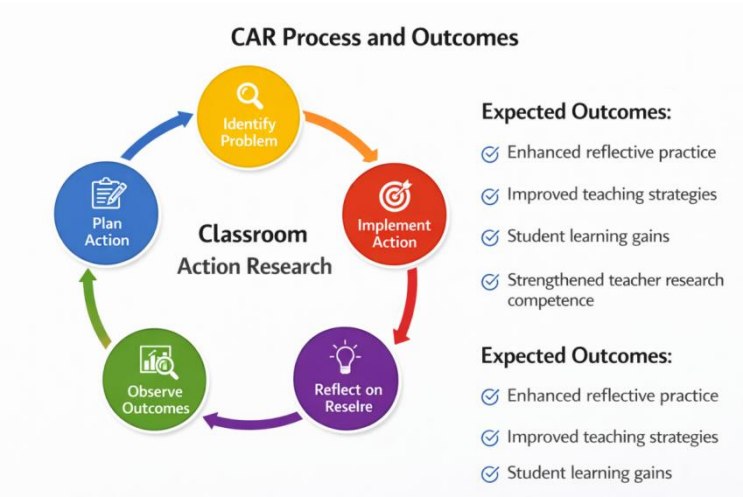

Figure 5. Classroom action research process and outcomes.

The expected outcomes of this process include enhanced reflective practice, improved teaching strategies, student learning gains, and strengthened teacher research competence. Overall, the model highlights CAR as a dynamic and iterative process aimed at improving both teaching effectiveness and student learning outcomes.

3.4. Use of research in teaching.

The integration of research into teaching practices has been widely recognized as a critical factor for improving student outcomes globally. International studies consistently show that teachers who incorporate research-based instructional strategies achieve higher levels of student engagement and academic performance. Evidence from meta-analyses and large-scale educational studies suggests that evidence-informed practices enable teachers to make instructional decisions that are responsive to diverse student needs [42, 43]. By using research evidence to guide pedagogy, educators are able to implement interventions that are empirically supported rather than relying solely on intuition or tradition.

In the United States and other high-performing education systems, professional learning communities (PLCs) often serve as the primary vehicle for translating research into classroom practice. Within these collaborative structures, teachers collectively review educational research, discuss its relevance to their context, and implement strategies aligned with empirical findings [41]. PLCs promote reflective practice, ongoing assessment, and shared accountability, allowing research evidence to directly influence curriculum planning and instructional improvement. International literature highlights several instructional strategies informed by research that improve student outcomes. Differentiated instruction, formative assessment, and active learning approaches are among the most commonly cited examples [42]. Teachers trained to interpret and apply these strategies demonstrate an ability to adapt lessons to accommodate varied learning styles, adjust pacing based on student performance data, and identify evidence-based interventions for struggling learners. Research also underscores the importance of data literacy, emphasizing that teachers must be able to analyze and interpret results to optimize learning outcomes [44].

In addition to instructional strategies, international studies highlight the role of research in informing broader curricular and policy decisions. For instance, Burns [17] and Levin and Datnow [32] argue that teachers who engage in systematic inquiry contribute to curriculum refinement and innovation. Their research suggests that classrooms function as dynamic research sites where evidence is generated and applied iteratively, thereby creating a feedback loop that strengthens both teaching and learning. In the Philippine context, teachers increasingly recognize the value of research in enhancing instruction, yet several challenges limit its effective use. Many educators express a need for locally relevant studies that consider the unique cultural, linguistic, and socio-economic factors affecting Filipino learners [1, 28]. While international research provides generalizable insights, its direct applicability to the Philippine classroom is sometimes limited, necessitating context-specific evidence to inform practice. Action research is the most widely utilized mechanism for integrating research into Philippine classrooms. Studies by Reyes [22] and Malapo [19] illustrate how teachers implement small-scale investigations to address reading comprehension, numeracy, and engagement challenges. These projects encourage reflective practice, data-driven decision-making, and iterative adaptation of instructional strategies. However, evidence also suggests that research often remains in the academic domain, with limited dissemination beyond school or district levels, reducing its broader impact [17].

The literature also indicates that Filipino teachers face constraints in interpreting and applying research findings. Many educators lack sufficient training in data analysis, research critique, and translating results into actionable instructional strategies [1]. As a result, research often becomes a procedural requirement rather than a tool for instructional innovation. Scholars

recommend targeted professional development to bridge this gap, focusing on skills for evidence evaluation, classroom application, and collaborative inquiry [23, 27]. Despite these limitations, successful examples of research-informed teaching in the Philippines demonstrate its potential for improving learning outcomes. Reyes [22] documented increased reading scores among students after teachers implemented interventions based on their classroom action research findings. Similarly, pilot programs in differentiated instruction and formative assessment have shown promising results when teachers apply evidence-based strategies adapted to local contexts [15]. These cases underscore the importance of institutional support, mentorship, and opportunities for collaboration to maximize the benefits of research integration. Both international and Philippine literature converge on the principle that research use in teaching enhances instructional quality and student achievement. The key differentiator is the systematic translation of research into practice. While international settings often have well-established mechanisms, such as PLCs and formal professional development programs, Philippine contexts require strengthening of teacher capacity, mentorship, and structures to facilitate research application.

The effective use of research in teaching involves not only understanding research methods and critique skills but also actively applying findings to classroom decisions. This integration fosters reflective practice, promotes innovation, and leads to measurable improvements in student engagement and learning outcomes. Bridging the gap between research production and classroom implementation remains a priority for both policy and practice in the Philippines. Table 4 presents evidence of how research is integrated into teaching practices across different contexts, including the USA, Philippines, Australia, and international settings. The studies show that teachers actively apply research-based strategies such as differentiation, formative assessment, action research, and evidence-based instructional approaches to improve classroom instruction. Across all contexts, the integration of research into teaching consistently leads to positive outcomes, including improved student achievement, enhanced engagement, better reading and numeracy skills, and increased motivation. Additionally, several studies highlight that engaging in teacher-led research and data-informed decision-making supports curriculum refinement, professional growth, and more effective instructional planning. Overall, the table demonstrates a strong link between research utilization in teaching and improved educational outcomes.

Table 4. Evidence of research integration into teaching.

Study	Context	Research Application	Outcomes
[45]	USA	Teacher use of research on differentiation	Improved student performance
[22]	Philippines	Action research on reading interventions	Increased reading scores
[19]	Philippines	Action research on formative assessment	Enhanced student engagement
[2]	International	Evidence-based instructional strategies	Higher achievement and motivation
[1]	USA	PLC-driven research application	Curriculum refinement, professional growth
[23]	International	Differentiated instruction informed by research	Improved learning outcomes
[17]	Australia	Teacher-conducted classroom research	Data-driven instruction and reflection
[10]	Philippines	Teacher research on numeracy interventions	Improved student problem-solving
[6]	International	Evidence-based literacy strategies	Improved reading comprehension
[21]	International	Data literacy applied to instructional planning	Optimized classroom decisions

4. Discussions

4.1. Interpretation of findings.

The synthesis of the reviewed literature highlights a strong link between teachers' research methods literacy, critique skills, and effective classroom decision-making. Foreign studies consistently indicate that teachers who are proficient in multiple research methodologies and capable of critically appraising studies demonstrate greater instructional flexibility, data-driven lesson planning, and reflective practice [6, 11]. Similarly, Philippine literature shows that when teachers engage with research through classroom action research or professional development initiatives, they report increased confidence in applying evidence to improve student outcomes [1, 28]. However, compared to international benchmarks, Philippine educators often demonstrate lower levels of methodological competence and confidence in research critique, reflecting gaps in both pre-service training and ongoing professional support.

4.2. Cross-context comparison.

Comparing foreign and Philippine contexts reveals notable differences in the structure and support for teacher research. In many international settings, research literacy is embedded within structured professional development models, often facilitated through professional learning communities, formal mentorship, and systematic exposure to mixed-methods training [5, 16]. These models emphasize iterative application of research findings, collaborative inquiry, and ongoing reflection, creating a culture where research directly informs instruction. In contrast, Philippine studies highlight contextual challenges that shape research utilization. Teachers face resource constraints, high student-teacher ratios, and curriculum priorities that may limit time for sustained inquiry [15]. Additionally, while action research is mandated in teacher education programs and professional development, its implementation is often inconsistent. Teachers report difficulties in advanced data analysis, systematic critique, and dissemination of findings beyond individual schools [28]. These factors collectively contribute to a slower pace of integration of research-based practices into everyday teaching.

4.3 Implications for practice.

The findings suggest several practical strategies to enhance teacher research competence. First, integrating research methodology and critique skills explicitly into teacher education curricula can equip pre-service teachers with the confidence and competence to engage in evidence-based practice. Courses should include applied research projects, data interpretation exercises, and exposure to mixed-methods designs to foster analytical thinking. Second, classroom action research should be encouraged as an ongoing form of professional development. When teachers systematically investigate instructional challenges, reflect on outcomes, and adapt their strategies, CAR serves as both a research and professional growth mechanism. Schools can facilitate this through structured support, peer collaboration, and recognition of CAR contributions. Third, policymakers and educational leaders can enhance research utilization by supporting mentorship programs and institutional frameworks for teacher research. Experienced educators and researchers can guide teachers in methodological rigor, critique skills, and practical application, bridging the gap between theory and classroom implementation.

4.4. Proposed model.

Based on the literature, we propose an Integrated Teacher Research Empowerment Model (Figure 4). This model synthesizes international best practices—such as structured professional development, professional learning communities, and iterative research cycles—with Philippine contextual needs, including mentorship, localized research relevance, and curriculum alignment. The model emphasizes the continuous interaction of research methods literacy, critique skills, classroom action research, and research-informed teaching as interdependent components that collectively strengthen teacher capacity and sustainability of research engagement. Figure 6 presents an Integrated Teacher Research Empowerment Model that illustrates how different dimensions of teacher capacity development are interconnected to produce empowered educators. At the core is the concept of "Empowered Teachers," which is supported by four key components: Research Methods Literacy (study design and data analysis), Critique Skills (evaluating validity and identifying bias), Classroom Action Research (plan–act–observe–reflect cycle), and Research-Informed Teaching (application of evidence-based strategies and curriculum use).

Figure 6. Integrated teacher research empowerment model.

The model shows these components as interconnected and mutually reinforcing, indicating that strengthening one area supports growth in others. It also highlights two contextual anchors: International Best Practices (such as structured professional development, learning communities, and iterative research cycles) and Philippine Contextual Needs (including localized research relevance, mentorship, and curriculum alignment). Overall, the figure emphasizes that teacher empowerment is achieved through a balanced integration of research skills, reflective practice, critical analysis, and contextualized application of educational research.

4.5. Limitations of the review.

Despite its contributions, this review has limitations. First, the literature search was confined to English-language publications, potentially excluding relevant studies published in Filipino or other local languages. Second, the availability of Philippine studies in peer-reviewed journals is limited, restricting the depth of comparative analysis. Third, the heterogeneity of study designs, contexts, and methodologies posed challenges in drawing direct comparisons between foreign and local findings.

4.6. Future Research Directions.

Future studies should explore longitudinal designs to examine how sustained engagement in research affects teaching quality, instructional innovation, and student outcomes over time. Comparative research across Philippine regions can illuminate variations in research culture, institutional support, and teacher engagement, informing targeted interventions. Additionally, studies investigating the integration of localized research with international best practices may provide insights for culturally responsive, evidence-based teaching.

3.7. Synthesis of the Literature review.

The reviewed literature collectively emphasizes the critical role of data-informed teaching, classroom action research, and evidence-based instruction in improving student learning outcomes and instructional quality. Teachers who are data-literate possess the knowledge, skills, and dispositions necessary to collect, analyze, and interpret multiple forms of data, translating them into actionable instructional decisions [16]. Teacher data literacy is foundational, as it enables educators to integrate assessment results, behavioral information, and classroom trends into meaningful pedagogical practices, thus fostering a culture of reflective teaching and collaborative problem-solving. Classroom action research emerges as a natural extension of data-informed teaching, providing teachers with a structured, iterative framework to identify problems, implement interventions, observe outcomes, and reflect on instructional effectiveness [23]. The literature consistently shows that action research cycles, when combined with collaborative inquiry through Professional Learning Communities (PLCs), not only enhance instructional decision-making but also strengthen teacher collaboration, knowledge sharing, and professional growth [11, 25]. Collaborative engagement around data ensures that instructional decisions are both evidence-based and contextually relevant, reducing teacher isolation and promoting consistency in classroom practices. Evidence-based instructional strategies—such as explicit instruction, formative assessment, cooperative learning, metacognitive strategies, and effective feedback—represent the practical application of data-informed teaching and action research findings [22]. These strategies, validated through rigorous research, support measurable improvements in student achievement, engagement, and critical thinking skills. When teachers combine these strategies with ongoing action research cycles, they are better equipped to adapt instruction to meet diverse learner needs, demonstrating a continuous loop of improvement and refinement.

The integration of continuous improvement models, particularly the Plan-Do-Study-Act (PDSA) cycle, with classroom action research represents a culmination of the reviewed literature [5]. This integration formalizes iterative cycles of data collection, intervention, analysis, and reflection at both the classroom and school levels. It ensures that instructional practices are continuously evaluated and refined based on empirical evidence. Empirical studies consistently report that PDSA-informed approaches improve teacher efficacy, instructional coherence, adaptive teaching practices, and student learning outcomes across multiple contexts [21]. The literature highlights a synergistic model in which teacher data literacy, classroom action research, collaborative inquiry, evidence-based instructional strategies, and continuous improvement cycles interact to create a dynamic, evidence-informed teaching environment. Each component reinforces the others: data literacy allows teachers to interpret results, action research provides a framework for testing interventions, collaborative

inquiry amplifies insights, evidence-based strategies guide practice, and continuous improvement ensures iterative enhancement of teaching and learning outcomes.

5. Conclusions

The review of both international and Philippine literature underscores the critical role of teacher research competencies in improving instructional quality and student learning outcomes. Globally, studies demonstrate that teachers who are proficient in research methods, skilled in critiquing studies, and able to apply findings in the classroom consistently achieve higher levels of instructional effectiveness, reflective practice, and student engagement. Professional learning communities, structured mentorship programs, and iterative classroom research cycles in international contexts provide strong models for fostering these competencies. In the Philippine context, there is evidence of progress, particularly through the integration of action research in teacher education and professional development programs. However, challenges remain, including limited exposure to advanced research methods, insufficient training in research critique, and gaps in translating research findings into practical classroom strategies. These factors indicate that while teachers recognize the value of research, systemic support and capacity-building initiatives are needed to fully empower educators in the Philippine setting. The literature highlights that research methods literacy, critique skills, and classroom application are mutually reinforcing components that collectively empower teachers to make informed instructional decisions. When educators possess the ability to design and analyze research, evaluate the rigor of studies, and implement evidence-based strategies, they can create more responsive, reflective, and effective learning environments. Strengthening these competencies through targeted training, mentorship, and ongoing professional development is essential for advancing both teacher growth and student achievement, bridging the gap between global best practices and local needs.

Acknowledgments

The author expresses profound gratitude to Almighty God for providing the strength, wisdom, and perseverance necessary to complete this literature review. Special thanks are extended to Dr. Jun S. Adlaon of Surigao del Norte State University for his invaluable guidance, constructive feedback, and continuous encouragement throughout the research process. The author is deeply grateful to family members for their unwavering support, patience, and inspiration, which served as a source of motivation during challenging moments.

Author Contribution

The author is fully responsible for the conception, development, and completion of this literature review. This includes the design of the study, formulation of objectives, and application of inclusion criteria in identifying and selecting relevant literature. The author conducted comprehensive searches for updated studies, organized and synthesized the findings, and critically analyzed international and Philippine sources on teacher research competencies. All write-ups, interpretations, figures, and final revisions were independently executed by the author.

Competing Interest

The author declares no financial, professional, or personal conflicts of interest that could have influenced the conduct, analysis, or interpretation of this literature review. This work was undertaken solely for scholarly and academic purposes, maintaining integrity, impartiality, and objectivity throughout the research process.

References

[1] Cochran-Smith, M.; Lytle, S. L. (2009). Inquiry as stance: Practitioner research for the next generation. Teachers College Press: New York, USA.

[2] Creswell, J. W.; Plano Clark, V. L. (2018). Designing and conducting mixed methods research (3rd ed.). Sage: Thousand Oaks, USA.

[3] DuFour, R.; Eaker, R. (1998). Professional learning communities at work: Best practices for enhancing student achievement. Solution Tree Press: Bloomington, USA.

[4] Darling-Hammond, L.; Hyler, M. E.; Gardner, M. (2017). Effective teacher professional development. Learning Policy Institute: Palo Alto, USA.

[5] Biesta, G. (2015). What is education for? On good education, teacher judgement, and educational professionalism. *European Journal of Education*, *50*(1), 75–87. https://doi.org/10.1111/ejed.12109.

[6] Slavin, R. E. (2020). How evidence-based reform will transform research and practice in education. *Educational Psychologist*, *55*(1), 21–31. https://doi.org/10.1080/00461520.2019.1611432.

[7] Teacher professional learning and development: Best evidence synthesis iteration. (accessed on 1 February 2026) Available online: https://thehub.sia.govt.nz/assets/documents/42432_TPLandDBESentireWeb_0.pdf.

[8] DepEd Order No. 39, s. 2016: Adoption of the Basic Education Research Agenda. (accessed on 1 February 2026) Available online: https://www.deped.gov.ph/wp-content/uploads/2016/06/DO_s2016_039.pdf.

[9] CHED Memorandum Order No. 74, s. 2017: Policies, standards, and guidelines for Bachelor of Secondary Education. (accessed on 1 February 2026) Available online: https://cms-cdn.e.gov.ph/CHED/pdf/2017-CMO-NO74.pdf.

[10] Chin, J.M.-C.; Ching, G.S.; del Castillo, F.; Wen, T.-H.; Huang, Y.-C.; del Castillo, C.D.; Gungon, J.L.; Trajera, S.M. (2022). Perspectives on the Barriers to and Needs of Teachers' Professional Development in the Philippines during COVID-19. *Sustainability*, *14*, 470. https://doi.org/10.3390/su14010470.

[11] Morales, M. P. E. (2016). Participatory action research (PAR) cum action research (AR) in teacher professional development: A literature review. *International Journal of Research in Education and Science*, *2*(1), 156–165. https://doi.org/10.21890/ijres.01395.

[12] Elechicon, J.; Paris, P.E. (2026). Research at the Core: How Philippine Science Faculty in State Universities Enact the Research Function Within Trifocal Roles. *Trends in Higher Education*, *5*, 24. https://doi.org/10.3390/higheredu5010024.

[13] Harris, A.; Jones, M. (2019). Teacher leadership and educational change. *School Leadership & Management*, *39*(2), 123–126. https://doi.org/10.1080/13632434.2019.1574964.

[14] Vygotsky, L.S.; Cole, M. (1978). Mind in society: The development of higher psychological processes. Harvard University Press: Cambridge, USA

[15] Schön, D.A. (1993). The reflective practitioner: How professionals think in action. Routledge: London, UK. https://doi.org/10.4324/9781315237473.

[16] Sackett, D. L.; Rosenberg, W. M. C.; Gray, J. A. M.; Haynes, R. B.; Richardson, W. S. (1996). Evidence-based medicine: What it is and what it isn't. *BMJ*, *312*, 71. https://doi.org/10.1136/bmj.312.7023.71.

[17] Burns, A. (2010). Doing action research in English language teaching: A guide for practitioners. Routledge: London, UK.
[18] Matjašič, M.; Vogrinc, J. (2025). Supporting the Development of the Perceived and Actual Research Competence of Pre-Service Teachers. *Education Sciences*, *15*, 652. https://doi.org/10.3390/educsci15060652.
[19] Ares-Ferreirós, M.; Álvarez Martínez-Iglesias, J.M.; Bernárdez-Gómez, A. (2025). Challenges and Opportunities of Multi-Grade Teaching: A Systematic Review of Recent International Studies. *Education Sciences*, *15*, 1052. https://doi.org/10.3390/educsci15081052.
[20] Burns, A.; Cochran-Smith, M. (2019). Teacher research and reflective practice in language education. *Teaching and Teacher Education*, *85*, 102–110. https://doi.org/10.1016/j.tate.2019.05.012.
[21] Mandinach, E.B.; Gummer, E.S. (2016). What does it mean for teachers to be data literate: Laying out the skills, knowledge, and dispositions. *Teaching and Teacher Education*, *60*, 366–376. https://doi.org/10.1016/j.tate.2016.07.011.
[22] Oo, T.Z.; Habók, A.; Józsa, K. (2023). Qualifying Method-Centered Teaching Approaches through the Reflective Teaching Model for Reading Comprehension. *Education Sciences*, *13*, 473. https://doi.org/10.3390/educsci13050473.
[23] Tomlinson, C.A. (2017). How to differentiate instruction in academically diverse classrooms, 3rd ed. ASCD: Arlington, USA.
[24] Zeichner, K.M. (2003). Teacher research as professional development for P–12 educators in the USA. *Educational Action Research*, *11*(2), 301–326. https://doi.org/10.1080/09650790300200211.
[25] Brown, C.; Zhang, D. (2017). Is engaging in evidence-informed practice in education rational? *British Journal of Educational Studies*, *65*(4), 421–443. https://doi.org/10.1080/00071005.2017.1330469.
[26] Hattie, J. (2009). Visible learning: A synthesis of over 800 meta-analyses relating to achievement. Routledge: London, UK..
[27] Vičič Krabonja, M.; Kustec, S.; Skrbinjek, V.; Aberšek, B.; Flogie, A. (2024). Innovative Professional Learning Communities and Sustainable Education Practices through Digital Transformation. *Sustainability*, *16*, 6250. https://doi.org/10.3390/su16146250.
[28] Fullan, M. (2016). The new meaning of educational change, 5th ed. Teachers College Press: New York, USA.
[29] Mertler, C. A. (2019). Action research: Improving schools and empowering educators, 6th ed. SAGE Publications: Los Angeles, USA.
[30] Kemmis, S.; McTaggart, R. (2005). Participatory action research: Communicative action and the public sphere. In Denzin, N. K.; Lincoln, Y. S. (Eds.), *The SAGE handbook of qualitative research* (3rd ed., pp. 559–603). Sage: Thousand Oaks, USA.
[31] Sultana, F.; Watkins, R.C.; Al Baghal, T.; Hughes, J.C. (2025). An Evaluation of Secondary School Students' Use and Understanding of Learning Strategies to Study and Revise for Science Examinations. *Education Sciences*, *15*, 101. https://doi.org/10.3390/educsci15010101.
[32] Levin, J.A.; Datnow, A. (2012). The principal role in data-driven decision making: using case-study data to develop multi-mediator models of educational reform. *School Effectiveness and School Improvement*, *23*(2), 179–201. https://doi.org/10.1080/09243453.2011.599394.
[33] Gorard, S. (2013). Research design: Robust approaches for the social sciences. Sage: Thousand Oaks, USA.
[34] Lave, J.; Wenger, E. (1991). Situated learning: Legitimate peripheral participation. Cambridge University Press: Cambridge, UK.
[35] Farrell, T.S.C. (2018). Research on reflective practice in TESOL. Routledge: Oxfordshire, England, UK.

[36] McNiff, J.; Whitehead, J. (2011). All you need to know about action research, 2nd ed. Sage: Thousand Oaks, USA.
[37] Biasutti, M.; Concina, E.; Frate, S.; Delen, I. (2021). Teacher Professional Development: Experiences in an International Project on Intercultural Education. *Sustainability*, *13*, 4171. https://doi.org/10.3390/su13084171.
[38] Costan, F.; Gonzales, G.; Gonzales, R.; Valle, L.; Dela Cruz, J.; Alcantara, G.; Mahilum, R.; Lauro, M.D.; Atibing, N.M.; Burdeos, A.; et al. (2022). Teachers' Turnover Intentions in View of Implementing a Flexible Learning System: An Extended Theory of Planned Behavior. *Sustainability*, *14*, 13009. https://doi.org/10.3390/su142013009.
[39] Ulla, M.B.; Barrera, K.I.B.; Acompanado, M.M. (2017). Philippine classroom teachers as researchers: Teachers' perceptions, motivations, and challenges. *Australian Journal of Teacher Education*, *42*(11), 52–64. https://doi.org/10.14221/ajte.2017v42n11.4.
[40] Zeichner, K.; Liu, K.Y. (2010). A critical analysis of reflection as a goal for teacher education. *Reflective Practice*, *11*(1), 67–83. https://doi.org/10.1080/14623940903525114.
[41] Avalos, B. (2011). Teacher professional development in teaching and teacher education over ten years. *Teaching and Teacher Education*, *27*(1), 10–20. https://doi.org/10.1016/j.tate.2010.08.007.
[42] Borg, S. (2010). Language teacher research engagement. *Language Teaching*, *43*(4), 391–429. https://doi.org/10.1017/S0261444810000170.
[43] Cochran-Smith, M.; Barnatt, J.; Friedman, A.; Pine, G. (2009). Inquiry on inquiry: Practitioner research and student learning. *Action in Teacher Education*, *31*(2), 17–32. https://doi.org/10.1080/01626620.2009.10463515.
[44] Day, C.; Sachs, J. (2004). International handbook on the continuing professional development of teachers. Open University Press: London, UK.
[45] Levin, B. (2013). To know is not enough: Research knowledge and its use. *Review of Education*, *1*(1), 2–31. https://doi.org/10.1002/rev3.3001.