NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Current Trends in Mixed-Methods Research Designs, Methodological Limitations, and Future Directions: A Systematic Review

Min Tamang
Business Lecturer
University of Gloucestershire/CECOS College London, UK
min.tutor@cecos.ac.uk
https://orcid.org/0009-0000-3275-5369

Devendra Adhikari*
Independent Researcher, Nepal
devendra.adhi1984@gmail.com
https://orcid.org/0000-0001-5148-1842

Anjali Makane
Associate Lecturer, CECOS College Bradford, UK
anjalim.tutor@cecos.ac.uk

Corresponding Author*
Received: April 02, 2026, Revised & Accepted: April 30, 2026

Abstract

Background: The development of mixed-methods research design as the "third paradigm" in educational research has gained momentum as it integrates qualitative and quantitative approaches to generate deeper insights. However, the selection of research designs, their methodological limitations, and their potential for further development require systematic investigation.

Purpose: This paper systematically examines trends in mixed-methods research designs and their methodological limitations from 2022 to March 2026. It addresses: (RQ1) the most commonly used research designs; (RQ2) the reported methodological limitations; and (RQ3) suggested future research directions.

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Methods: Using Snyder's (2019) model and the PRISMA 2020 criteria, the literature search was conducted across Sage Journals, Google Scholar, and Wiley Online Library using a Boolean search strategy. Of the 18,658 articles initially identified, 86 were included after screening and eligibility assessment. The analysis involved independent coding by three authors using Braun and Clarke's (2006) six-phase framework, with iterative refinement to ensure inter-coder consistency. Categories were not mutually exclusive, allowing studies to be coded under multiple design types and methodological issues.

Findings: Within the included studies (N = 86), four mixed-methods design typologies were identified with overlapping classifications: convergent designs (n = 33, 38.4%), sequential explanatory designs (n = 11, 12.8%), sequential exploratory designs (n = 10, 11.6%), and hybrid/multi-phase designs (n = 28, 32.6%). Methodological limitations were grouped into sampling and contextual constraints (n = 47, 54.7%), design and analytical weaknesses (n = 36, 41.9%), measurement and data quality concerns (n = 28, 32.6%), integrative challenges (n = 21, 24.4%), and practical implementation challenges (n = 19, 22.1%). Future research directions emphasised larger sample sizes (n = 38, 44.2%), improved data quality (n = 32, 37.2%), enhanced methodological rigour (n = 28, 32.6%), theory development (n = 21, 24.4%), and stronger practical implications (n = 21, 24.4%).

Conclusion: Convergent designs appear to be the most frequently identified mixed-methods approach within the reviewed studies. However, persistent weaknesses in design, measurement, and data integration continue to affect overall research rigour. The increasing use of hybrid designs further reflects growing methodological flexibility in addressing complex educational research problems.

Keywords: mixed-methods research; research design typologies; methodological limitations; systematic review; educational research

Introduction

Mixed methods research is positioned as a "third paradigm" (Zandvanian & Daryapoor, 2013) in educational research, distinct from both positivist-quantitative and constructivist-qualitative traditions. Mixed methods research draws from the strengths of both quantitative and qualitative traditions, producing richer insights and more robust conclusions than either approach alone (Oranga, 2025). Key advantages include comprehensive understanding of the research problem, enhanced data triangulation, and contextualised richness of findings (Oranga, 2025). Mixed method is based on pragmatism paradigm as its philosophical foundation, focusing on practical research outcomes rather than adherence to a single ontological or epistemological stance (Zandvanian & Daryapoor, 2013). Thus, mixed methods research is formally defined as combining or mixing quantitative and qualitative techniques, methods, approaches, and concepts within a single study or research programme (Johnson & Onwuegbuzie, 2004).

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Mixed methods research emerged from the so-called "paradigm wars" of the 1970s-80s, when qualitative and quantitative approaches were seen as fundamentally incompatible (Emerald Publishing, 2026). Mixed methods research enhances study quality by allowing researchers to select methods best suited to their specific research questions and contexts (Molina-Azorín, 2016). Over the past two decades, researchers across both camps have increasingly recognised the complementary value of integrating both types of data (Emerald Publishing, 2026). This research design integrates both quantitative and qualitative data within a single study or a series of related studies, making it a complex but powerful approach (Sharma et al., 2023). Studies can be conducted in sequential or concurrent designs; sequential designs use findings from one phase to inform the next, while concurrent designs collect both data types simultaneously (Purohit & Devi, 2023). Growing complexity of research problems and the demand for both deep and broad understanding have driven wider uptake of mixed methods approaches (Emerald Publishing, 2026). Mixed methods approaches have gained prominence because they allow researchers to collect both quantitative and qualitative data simultaneously, providing a more thorough understanding of research problems (Zohrabi, 2013).

Despite its strengths, mixed methods research is more time-consuming, resource-intensive, and complex than single-method studies, requiring careful planning and justification (Purohit & Devi, 2023). While the approach offers considerable methodological richness, it also faces criticisms related to complexity, resource demands, and the challenge of integrating disparate data types (Sharma et al., 2023). The paper also critically examines challenges and common criticisms of mixed-method research, including issues of epistemological compatibility, resource demands, and researcher expertise (Dawadi et al., 2021). These challenges highlight the need for clearer methodological guidance and systematic evaluation of current practices in mixed methods research. Thus, the problem lies in the constantly evolving research dynamics, where the choice of specific mixed methods designs, their methodological limitations, and emerging future research opportunities require systematic and critical exploration.

Purpose and Objectives

This study aims to systematically review current trends in mixed methods research designs and their methodological limitations in studies published between 2022 and March 2026. The review seeks to examine dominant design typologies, assess their applications, and identify key methodological challenges in order to enhance the rigour, transparency, and practical relevance of mixed methods research. This review aims to address the following research questions:

RQ1: What are the most commonly employed research designs in mixed-methods studies?

RQ2: What methodological limitations are reported in mixed-methods research?

RQ3: What future research directions are identified in the mixed-methods literature?

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

By addressing both the prevalence of research designs and the limitations identified in the literature, this study provides a detailed mapping of current practices, highlights challenges, and offers insights for improving future mixed-methods research.

Literature Review

The authors define mixed methods research as the integration of quantitative and qualitative data collection and analysis, guided by the specific research purpose and questions, thereby producing complete findings (Mondal & Alam, 2025; Plano Clark & Ivankova, 2017; Zandvanian & Daryapoor, 2013).

With this understanding, a range of studies have examined different mixed methods design typologies and their practical applications. Sharma et al. (2023) identified and examined multiple design typologies, including convergent, explanatory sequential, and exploratory sequential designs with their respective purposes and strengths. Dawadi et al. (2021) discuss three major mixed-method research design types: convergent parallel, explanatory sequential, and exploratory sequential, each suited to different research objectives. Likewise, Tenuche (2018) employed a convergent parallel mixed methods design, allowing simultaneous collection of quantitative data via online survey and qualitative data via in-depth interviews. This design enabled a comprehensive investigation of individual behaviour in online health communities by triangulating findings from both data strands (Tenuche, 2018). Similarly, McKim (2017) employed an explanatory sequential mixed methods design to investigate graduate students' perceived value of mixed methods research. In this method, the quantitative phase used an experimental approach, with qualitative follow-up interviews providing richer explanations of the statistical findings (McKim, 2017). Collectively, these studies establish that mixed methods research can be operationalised through diverse methodological design frameworks, each aligned with specific research purposes (McKim, 2017; Dawadi et al., 2021; Sharma et al., 2023; Tenuche, 2018). This previous research does not indicate the dominant choices of particular designs by researchers or the rationale behind them, which represents an important research gap.

Likewise, scholars have stressed that mixed methods approach has been widely applied across disciplines to address complex and multi-dimensional research problems. A study by López-Aymes et al. (2021) adopted a mixed methods approach to examine parental perceptions of children's physical activity and quality of life during COVID-19-related school closures. The combination of quantitative surveys and qualitative interviews allowed for both measurement of trends and in-depth exploration of parental experiences during household confinement (López-Aymes et al., 2021). Similarly, mixed methods are particularly valued in health sciences contexts where both numerical measures and subjective patient/practitioner experiences are needed for a full understanding of phenomena (Nagpal et al., 2020). Mixed methods approaches are increasingly appearing in peer-reviewed health sciences literature, reflecting their value in investigating multi-faceted issues such as patient-provider interactions and cultural health models

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

(National Institutes of Health, 2018). At the same time, several studies highlight the methodological strengths and quality enhancement potential of mixed methods research. Molina-Azorín (2016) argued that mixed methods research enhances study quality by allowing researchers to select methods best suited to their specific research questions and contexts. According to Oranga (2025), the approach also offers flexibility in addressing diverse research questions, though it demands significant expertise, time, and resources from researchers (Oranga, 2025). Importantly, triangulation and cross-validation of data, achieved by combining different data forms, enhance the reliability and validity of mixed methods findings (Mondal & Alam, 2025). This wide coverage of mixed methods research (López-Aymes et al., 2021; Molina-Azorín, 2016; Mondal & Alam, 2025; Nagpal et al., 2020; National Institutes of Health [NIH], 2018; Oranga, 2025), inevitably presents research limitations, which are continually evolving and represent an important avenue for further investigation.

Despite its strengths, mixed methods research is more time-consuming, resource-intensive, and complex than single-method studies, requiring careful planning and justification (Purohit & Devi, 2023). While the approach offers considerable methodological richness, it also faces criticisms related to complexity, resource demands, and the challenge of integrating disparate data types (Sharma et al., 2023). Research by Dawadi et al. (2021) critically examines challenges and common criticisms of mixed-method research, including issues of epistemological compatibility, resource demands, and researcher expertise. In addition, issues of validity, reliability, and reporting are addressed, offering practical guidance for researchers seeking to ensure the rigour of their mixed methods studies (Zohrabi, 2013). Previous research highlights a context of insufficiency in particular mixed-method research designs, indicating the need for interventions and corrective measures to provide credible and reliable findings (Dawadi et al., 2021; Purohit & Devi, 2023; Sharma et al., 2023; Zohrabi, 2013). Current research has identified future directions to guide new researchers in addressing research limitations and enhancing the rigour, validity, and practical relevance of mixed-method research. A critical review of these future research directions in studies that employ mixed-methods approaches remains an existing research gap in academia.

In summary, the mixed-method research approach is adopted in diverse fields of study due to its ability to accommodate qualitative and quantitative data and to evaluate issues from multiple perspectives. Despite this, it is essential to identify patterns regarding which mixed-method research designs are most commonly used by current researchers, what the research limitations are in applying the mixed-method approach, and what future research opportunities have been highlighted. This can be achieved through a systematic review of the literature covering mixed-method research topics.

Methodology

For this study, the documents were reviewed, analysed, and reported following Snyder's (2019) model, which outlines the stages of design, conduct, analysis, and write-up. In the design stage,

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

the review was structured around the research title and problem, and relevant literature was purposefully selected for inclusion. A Boolean search string (Ugwu & Opah, 2023) was used across Sage Journals, Google Scholar, and Wiley Online Library: *("mixed methods" OR "mixed-methods" OR multimethod) AND ("research design" OR design OR integration OR triangulation) AND (review OR trend OR challenge* OR gap*), to identify recent studies on mixed methods research design in educational contexts, published between 2022 and March 2026. Most studies retrieved under educational contexts were in health education, reflecting its prominence in evidence-based teaching research. The same Boolean search string were used for all databases. The literature search was conducted on March 31, 2026, for Sage Open, and on April 1, 2026, for Google Scholar and Wiley databases. Scopus and Web of Science were not used due to inaccessibility, despite being standard databases for systematic reviews.

From Sage Journals, 1,169 articles were identified, of which the top 100 most-cited and 20 most-relevant recent articles were manually screened, resulting in 28 studies retained for full-text analysis. Exclusions included purely qualitative studies (n = 18), purely quantitative or survey-only studies (n = 21), reviews not examining mixed methods research design (n = 16), studies outside education (n = 11), and conceptual/theoretical papers with no empirical data (n = 8). From Google Scholar, 16,300 records were initially retrieved. The first 30 relevant articles were retained for full-text review based on their classification according to SCImago Journal Rankings. From Wiley Online Library, 1,189 records were identified, and the first 30 most relevant articles were retained based on their focus on mixed methods research design, integration, and trends in educational research. Thresholds were set to capture influential and recent studies while keeping the review manageable. Across the three databases, a total of 86 studies were included for full-text extraction and synthesis, ensuring comprehensive coverage of publication patterns, design types, integration strategies, and methodological challenges.

For coding and analysis, three coders independently analysed the data, calibrated their approach, resolved discrepancies by consensus, and developed themes following Braun and Clarke's (2006) six-phase framework until saturation was achieved. The included literature was organised in an Excel sheet, paraphrased, coded, and grouped into three major themes. The write-up phase involved logically describing the results to address the research objectives and provide meaningful insights, with credibility maintained through systematic evaluation of the literature (Ozkan, 2023). GPT-4 improved the language, and Claude Sonnet 4.6 assisted with organising the literature search. All analysis was done manually, independently verified by the authors, and they take full responsibility for accuracy and originality. This systematic review was conducted following the PRISMA 2020 reporting guidelines

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Figure 1 illustrates the number of publications (86) included in this article and their corresponding years, ranging from 2022 to March 2026.

Figure 1 Number of Publications by Years

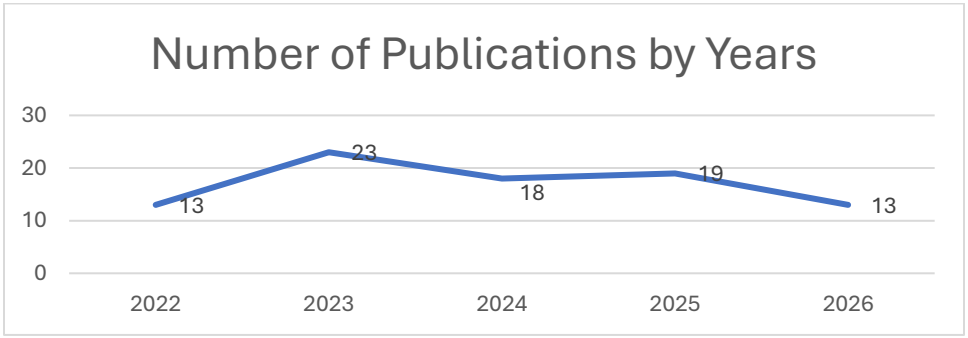
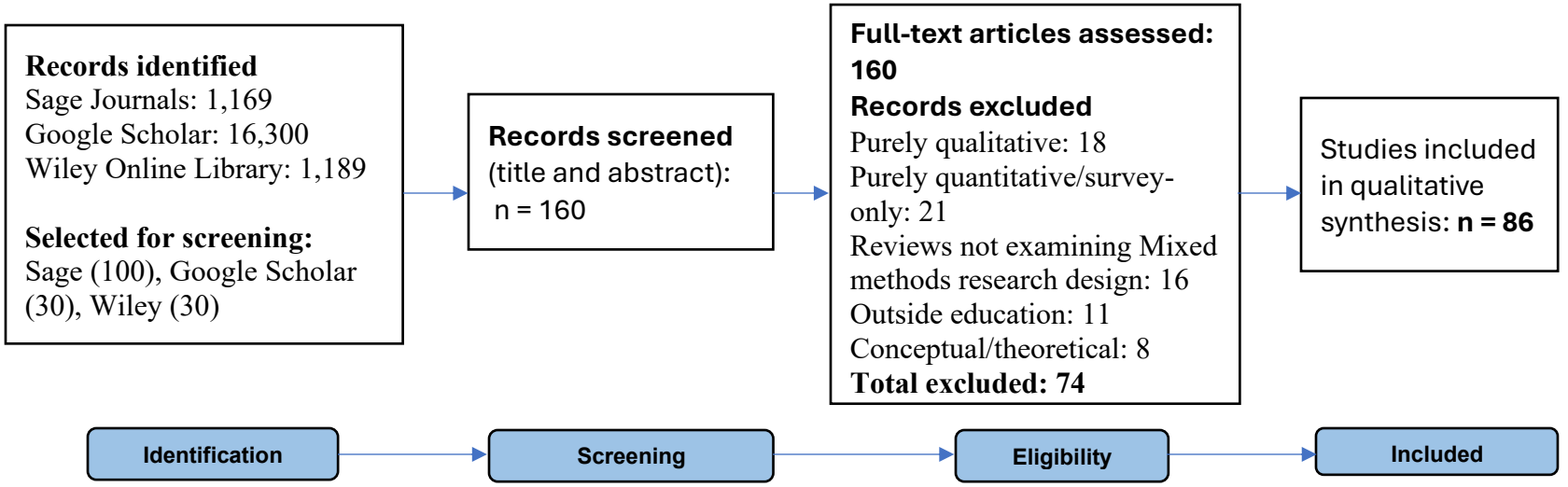


Figure 2 presents the PRISMA flow of included studies, demonstrating the identification, screening, eligibility, and inclusion stages across all three databases.

Figure 2 PRISMA 2020 flow diagram (Page et al., 2021)



NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Findings

The findings are presented in three subsections: mixed-methods research design types, methodological limitations in mixed methods, and the future scope of mixed-methods research. Each section presents tabular data that clarifies the key aspects of the analysis. In the following tables, "n" refers to the number of studies.

Mixed-Methods Research Design Types

Table 1 presents a structured classification of dominant mixed-methods research designs identified in recent literature. It outlines four major design typologies-convergent, sequential explanatory, sequential exploratory, and hybrid approaches-along with their definitions, core methodological features, and supporting empirical studies. This categorisation provides a clear analytical framework for understanding how mixed-methods designs are operationalised across disciplines.

Table 1: Mixed-Methods Research Design Types

Design Type	Definition	Key Characteristics	Studies	n
Convergent Mixed-Methods Design (Parallel / Triangulation)	A design where quantitative and qualitative data are collected simultaneously, analysed separately, and then merged to develop a comprehensive understanding of the research problem.	• Simultaneous data collection (QUAN + QUAL) • Separate analysis of each strand • Merging/integration at interpretation stage • Equal priority to both strands • Joint displays (e.g., convergence tables) used for integration • Meta inferences derived from integrated findings	Benson-Goldberg & Erickson (2024); Bergling et al. (2022); Chen (2023); Chen et al. (2026b); Clark et al. (2023); Cummins et al. (2025); Davis et al. (2024); Dhakal et al. (2022); Dwyer et al. (2025); Garner et al. (2024); Hands (2022); Ho et al. (2023); Jakoet-Salie & Ramalobe (2023); Jin et al. (2026); Kamaşak & Sahan (2024); Laufer et al. (2022); Lee et al. (2024); Liu et al. (2024); Liu et al. (2025); Lowry et al. (2025); Lyhne et al. (2022); Marcus et al. (2023);	33

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Design Type	Definition	Key Characteristics	Studies	n
			McParland et al. (2022); Nussli & Oh (2024); Radović et al. (2023); Rosa et al. (2023); Ryan et al. (2023); Sahan et al. (2025); Sakurai et al. (2024); Soltani Delgosha et al. (2024); Sun (2026); Wang et al. (2025); Younas et al. (2023).	
Sequential Explanatory Design (Quant → Qual)	A two-phase design in which quantitative data are collected and analysed first, followed by qualitative data collection to explain or elaborate on the quantitative results.	• Phase 1: Quantitative data collection and analysis • Phase 2: Qualitative data to explain/elaborate quantitative findings • Priority typically given to quantitative strand • Integration occurs at the interpretation phase • Qualitative phase informed by quantitative results	Alotaibi (2023); Bai (2024); Chen et al. (2026a); Fan (2023); Hogan & Sun (2025); Kelly et al. (2026); Meunier et al. (2023); Şeren et al. (2025); Thompson et al. (2022); Välimäki et al. (2024); Younas & Dong (2024).	11
Sequential Exploratory Design (Qual → Quant)	A two-phase design beginning with qualitative exploration, whose findings then inform a subsequent quantitative phase, often used to develop and test	• Phase 1: Qualitative exploration • Phase 2: Quantitative testing/generalisation • Priority typically given to qualitative strand	Drenoyianni & Bekos (2023); Holquist et al. (2023); Kahwati et al. (2023); Lee (2024); Liu (2022); Mielikäinen & Viippola (2023); Sharma et al. (2023); Taherdoost	10

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Design Type	Definition	Key Characteristics	Studies	n
	instruments or generalise findings.	• Qualitative findings shape quantitative instruments/measures • Integration occurs between phases and at interpretation	(2022); Villa Larenas & Brunfaut (2023); Zhou et al. (2024).	
Other / Hybrid Mixed-Methods Designs	Designs that do not fit neatly into convergent or sequential categories, including embedded, transformative, multi-phase, scoping/systematic reviews, handbook syntheses, and multimethod research combining multiple studies.	• Embedded designs (one strand nested within another) •Transformative/advocacy frameworks • Multi-phase designs across multiple studies • Mixed-methods systematic reviews (PRISMA-guided, JBI methodology) • Handbook/edited volume syntheses • Multimethod research (multiple independent studies) • Constructivist grounded theory with quantitative corroboration • Bibliometric-content analyses • Flexible methodological logic; may combine multiple designs	Afaya et al. (2022); Creswell & Inoue (2025); Dozal (2023); Fiedler et al. (2025); Griebler et al. (2023); Hastings (2022); Jeliseh et al. (2025); Kishino et al. (2022); Li & Han (2025); Love et al. (2022); Makabe et al. (2022); Nordin et al. (2023); O'Mahony et al. (2026); Ormiston et al. (2025); Owen & Senel (2025); Paisi et al. (2022); Porta & Nawas (2026); Poth (2023); Ramakrishnan et al. (2023); Schlunegger et al. (2024); Sharma & Bhattarai (2022); Taheri & Okumus (2024); van der Velde et al. (2023); Wang et al. (2024); Wasti et al. (2022); Wellman et al. (2023); Zhang & Wang (2025); Zheng et al. (2025).	28

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Overall, the table highlights the methodological diversity and evolving nature of mixed-methods research. While convergent and sequential designs remain predominant, the growing use of hybrid and multi-phase approaches reflects increasing methodological flexibility. This synthesis establishes a foundation for examining associated limitations and future methodological advancements in mixed-methods research.

Methodological Limitations in Mixed-Methods Research

Table 2 synthesises the key methodological limitations identified across mixed-methods studies, categorised into five major domains: sampling and contextual constraints, measurement and data quality issues, design and analytical limitations, integration challenges, and practical implementation barriers. This structured classification enables a systematic understanding of recurring weaknesses affecting the rigour and applicability of mixed-methods research.

Table 2: Methodological Limitations in Mixed-Methods Research

Category	Covers / Key Issues	Synthesis / Implications	Studies	n
1. Sampling and Contextual Constraints	• Small or non-representative samples • Restriction to specific geographic/cultural contexts (Western, Northern European, Asian LMICs) • Single institution / single-country focus • Exclusion of non-English publications • Underrepresentation of CALD, LGBTQ+, and refugee populations • Cultural and linguistic bias	Sampling limitations reduce generalisability and cultural breadth of findings across diverse populations and healthcare, educational, and social contexts. Single-site designs and context-bound conditions-such as pandemic-era settings-may introduce situational bias not reflective of normal conditions.	Afaya et al. (2022); Alterkait & Alduaij (2024); Bai (2024); Bergling et al. (2022); Chen (2023); Chen et al. (2026a); Chen et al. (2026b); Clark et al. (2023); Cummins et al. (2025); Dwyer et al. (2025); Fiedler et al. (2025); Garner et al. (2024); Hands (2022); Jakoet-Salie & Ramalobe (2023); Jeliseh et al. (2025); Jin et al. (2026); Kahwati et al. (2023); Kamaşak & Sahan (2024); Kelly et al. (2026); Kishino et al. (2022); Lee (2024); Lee et al. (2024); Li &	47

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Category	Covers / Key Issues	Synthesis / Implications	Studies	n
	• Self-selection bias in qualitative participant recruitment • Context-specific conditions (e.g., COVID-19)		Han (2025); Liu (2022); Liu et al. (2024); Liu et al. (2025); Marcus et al. (2023); McParland et al. (2022); Mielikäinen & Viippola (2023); Nussli & Oh (2024); Ormiston et al. (2025); Radović et al. (2023); Rosa et al. (2023); Ryan et al. (2023); Sahan et al. (2025); Sakurai et al. (2024); Şeren et al. (2025); Sharma & Bhattarai (2022); Soltani Delgosha et al. (2024); Sun (2026); Thompson et al. (2022); Välimäki et al. (2024); Villa Larenas & Brunfaut (2023); Wang et al. (2024); Wang et al. (2025); Zhang & Wang (2025); Zhou et al. (2024).	
2. Measurement and Data Quality Issues	• Heterogeneity of measurement tools across studies • Inability to perform meta-analysis due to inconsistent definitions • Inclusion of low-quality evidence without exclusion	Measurement inconsistency and heavy reliance on self-report data weaken internal validity and limit the comparability, replicability, and confidence in outcomes across mixed-methods syntheses. Instruments not designed for research purposes and rapidly	Alotaibi (2023); Benson-Goldberg & Erickson (2024); Bergling et al. (2022); Chen (2023); Chen et al. (2026b); Cummins et al. (2025); Davis et al. (2024); Drenoyianni & Bekos (2023); Dwyer et al. (2025); Huang et al. (2023); Jeliseh et al. (2025); Jin et al. (2026); Lee et al.	28

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Category	Covers / Key Issues	Synthesis / Implications	Studies	n
	• Reliance on self-report measures susceptible to social desirability and recall bias • Absence of objective performance or outcome measures • Psychometric limitations of self-designed instruments • Rapidly evolving phenomena (e.g., AI tools) making findings quickly outdated • Positive response skew reducing variability in quantitative analyses • Cross-sectional designs limiting causal inference	evolving phenomena further reduce precision.	(2024); Li & Han (2025); Liu et al. (2025); Makabe et al. (2022); Meunier et al. (2023); Nordin et al. (2023); Nussli & Oh (2024); Radović et al. (2023); Ramakrishnan et al. (2023); Ryan et al. (2023); Sun (2026); van der Velde et al. (2023); Wang et al. (2024); Wang et al. (2025); Wasti et al. (2022); Zhang & Wang (2025).	
3. Design and Analytical Limitations	• Single-author screening introducing selection bias • Cross-sectional designs preventing causal inference • Short intervention periods; limited longitudinal tracking • Absence of control or comparison groups	Design and analytical weaknesses-including the dominance of cross-sectional and quasi-experimental approaches without randomisation or control conditions, researcher subjectivity, and theoretical rather than empirical grounding-restrict	Alotaibi (2023); Alterkait & Alduaij (2024); Bai (2024); Chen et al. (2026a); Chen et al. (2026b); Creswell & Inoue (2025); Cummins et al. (2025); Davis et al. (2024); Dozal (2023); Fan (2023); Fiedler et al. (2025); Ho et al. (2023); Hogan & Sun (2025);	36

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Category	Covers / Key Issues	Synthesis / Implications	Studies	n
	• Quasi-experimental designs with uncontrolled variables • Reflexivity and subjectivity in qualitative interpretation • Theoretical designs lacking empirical validation • Algorithmic bias in computational/visual analysis methods • Researcher proximity introducing experimenter bias • Weak qualitative or statistical analysis	the rigour, causal conclusions, and long-term insights of findings.	Jeliseh et al. (2025); Kahwati et al. (2023); Kelly et al. (2026); Kishino et al. (2022); Laufer et al. (2022); Li (2023); Li & Han (2025); Liu et al. (2024); Liu et al. (2025); Lowry et al. (2025); Ormiston et al. (2025); Ryu et al. (2024); Schlunegger et al. (2024); Sharma et al. (2023); Şeren et al. (2025); Taherdoost (2022); Thompson et al. (2022); Wang et al. (2024); Wellman et al. (2023); Younas & Dong (2024); Younas et al. (2023); Zhang & Wang (2025); Zhou et al. (2024).	
4. Mixed-Methods Integration and Scope Limitations	• Challenges in reconciling divergent qualitative and quantitative findings • No established tool for assessing certainty of integrated evidence • Complexity of JBI convergent segregated approaches	Integration challenges and the absence of validated appraisal tools for mixed-methods evidence constrain the rigour and interpretive depth of syntheses. Quantitative strands often dominate, limiting comprehensive theoretical insights, and incomplete reporting in primary	Chen et al. (2026a); Clark et al. (2023); Dhakal et al. (2022); Dozal (2023); Griebler et al. (2023); Holquist et al. (2023); Lee (2024); Lyhne et al. (2022); Makabe et al. (2022); McParland et al. (2022); Mielikäinen & Viippola (2023); O'Mahony et al. (2026); Owen & Senel (2025); Paisi et al. (2022);	21

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Category	Covers / Key Issues	Synthesis / Implications	Studies	n
	• Incomplete or unclear reporting of mixed-methods limitations • Retrospective application of analytical frameworks introducing uncertainty • Dominance of one method strand reducing added value of mixing • Limited stakeholder inclusion; narrow theoretical or conceptual scope • Ethical concerns about privacy in computational social media methods	studies compounds interpretive uncertainty.	Ryan et al. (2023); Sahan et al. (2025); Sakurai et al. (2024); Sharma & Bhattarai (2022); Sharma et al. (2023); Välimäki et al. (2024); Villa Larenas & Brunfaut (2023).	
5. Practical and Contextual Implementation Limitations	• Limited training and familiarity with mixed methods among researchers • Difficulty identifying appropriate journals for mixed-methods papers • Rapid evolution of the field rendering some content quickly outdated	Practical barriers-including limited researcher training, publication challenges, context-bound and non-empirical outputs, domain-specific constraints, and unresolved ethical issues-impede the widespread, consistent application of rigorous mixed-methods approaches and restrict	Bai (2024); Bergling et al. (2022); Clark et al. (2023); Creswell & Inoue (2025); Davis et al. (2024); Dozal (2023); Griebler et al. (2023); Hastings (2022); Holquist et al. (2023); Lee et al. (2024); Love et al. (2022); Mielikäinen & Viippola (2023); Poth (2023); Porta & Nawas (2026); Taheri & Okumus	19

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Category	Covers / Key Issues	Synthesis / Implications	Studies	n
	• Domain-specific applicability (e.g., hospitality/tourism, leadership, special education) • Feasibility focus meaning findings are preliminary rather than effectiveness evidence • Conceptual/framework articles lacking empirical validation • Ethical concerns about privacy and safety in social media research • Short or context-bound interventions; resource or infrastructure constraints • Challenges in stakeholder engagement • COVID-19 pandemic confounding implementation contexts	the actionable and transferable value of findings for policy and practice.	(2024); Villa Larenas & Brunfaut (2023); Wasti et al. (2022); Younas et al. (2023); Zheng et al. (2025).	

Overall, the table reveals that limitations are not confined to a single stage of research but span design, data, analysis, and implementation processes. These interconnected challenges collectively constrain validity, generalisability, and practical relevance, underscoring the need for more robust, transparent, and context-sensitive mixed-methods approaches in future research.

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Future Scope of Mixed-Methods Research

Table 3 outlines key future directions for advancing mixed-methods research, organised across five thematic areas: methodological rigour, sampling and generalisability, data quality, theoretical development, and practical implementation. It synthesises emerging priorities from recent studies to highlight where methodological and applied improvements are most needed.

Table 3: Future Scope of Mixed-Methods Research

Theme	Covers / Key Focus Areas	Synthesis / Implications	Studies	n
1. Advancing Methodological Rigour and Research Design	• Standardising triangulation processes for traceability • Developing validated quality appraisal tools for mixed-methods evidence • Empirical validation of proposed paradigm compatibility frameworks • Achieving consensus on appraisal tools • Use of randomised controlled and quasi-experimental designs with control groups • Standardised reporting guidelines for mixed-methods in specific fields	Advancing methodological rigour requires validated appraisal instruments, consensus-driven standards, and empirically tested frameworks. Investment in randomised designs, longitudinal approaches, and advanced statistical and qualitative integration will ensure the coherence, replicability, and explanatory power of mixed-methods research.	Alotaibi (2023); Alterkait & Alduaij (2024); Bai (2024); Chen et al. (2026a); Chen et al. (2026b); Davis et al. (2024); Dozal (2023); Fan (2023); Garner et al. (2024); Griebler et al. (2023); Hastings (2022); Ho et al. (2023); Kelly et al. (2026); Li (2023); Liu (2022); Love et al. (2022); Lyhne et al. (2022); Makabe et al. (2022); O'Mahony et al. (2026); Owen & Senel (2025); Ramakrishnan et al. (2023); Ryu et al. (2024); Schlunegger et al. (2024); Sharma & Bhattarai (2022); Şeren et al. (2025); Wellman et al. (2023); Younas & Dong (2024); Younas et al. (2023).	28

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Theme	Covers / Key Focus Areas	Synthesis / Implications	Studies	n
	• Standardised coding tools for retrospective framework application • Prospective adoption of analytical frameworks (e.g., CFIR) • Reducing algorithmic bias in computational visual analysis • Advanced statistical and qualitative analyses; stronger mixed-methods integration • Longitudinal, experimental, and quasi-experimental designs			
2. Expanding Sampling, Contexts, and Generalisability	• Larger samples for doctoral and nursing populations • Inclusion of CALD, LGBTQ+, refugee, and non-Western populations • Geographic diversification beyond Western and Northern European contexts • Multi-country and cross-cultural research	Expanding sampling diversity and geographic breadth is essential to improve the generalisability and cultural relevance of mixed-methods findings across social, healthcare, and educational contexts. Moving beyond single-site, homogeneous samples toward diverse and cross-	Afaya et al. (2022); Alterkait & Alduaij (2024); Bai (2024); Bergling et al. (2022); Chen (2023); Chen et al. (2026b); Clark et al. (2023); Cummins et al. (2025); Dwyer et al. (2025); Fiedler et al. (2025); Hands (2022); Jeliseh et al. (2025); Jin et al. (2026); Kahwati et al. (2023); Kamaşak & Sahan (2024); Kelly et al. (2026);	38

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Theme	Covers / Key Focus Areas	Synthesis / Implications	Studies	n
	• Cross-institutional and multi-site replication studies • Larger, more diverse and representative samples • Multi-teacher and multi-institutional designs for scalability assessment • Comparative designs; inclusion of participants who declined or discontinued interventions	contextual studies will improve global relevance.	Lee (2024); Lee et al. (2024); Li & Han (2025); Liu et al. (2024); Liu et al. (2025); Lowry et al. (2025); Marcus et al. (2023); Mielikäinen & Viippola (2023); Nussli & Oh (2024); Ormiston et al. (2025); Radović et al. (2023); Rosa et al. (2023); Sakurai et al. (2024); Sahan et al. (2025); Sharma & Bhattarai (2022); Sun (2026); Villa Larenas & Brunfaut (2023); Välimäki et al. (2024); van der Velde et al. (2023); Wang et al. (2024); Wang et al. (2025); Zhang & Wang (2025).	
3. Improving Data Quality and Expanding Analytical Scope	• Standardising measurement tools for comparability across studies • Including grey literature and non-English publications • Employing longitudinal designs to establish causality • Developing a validated overall quality scoring system	Improving data quality and analytical scope through standardised tools, longitudinal designs, objective measures, and broader literature inclusion will strengthen the evidence base and enable more reliable cross-study comparisons. Reducing reliance on self-reported data by incorporating multi-source and	Alotaibi (2023); Benson-Goldberg & Erickson (2024); Chen et al. (2026b); Cummins et al. (2025); Davis et al. (2024); Drenoyianni & Bekos (2023); Fiedler et al. (2025); Griebler et al. (2023); Huang et al. (2023); Hogan & Sun (2025); Jeliseh et al. (2025); Jin et al. (2026); Kamaşak & Sahan (2024); Lee et al. (2024); Li & Han (2025);	32

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Theme	Covers / Key Focus Areas	Synthesis / Implications	Studies	n
	using the Mixed Methods Appraisal Tool • Broadening database searches and extending review timeframes • Integration of objective performance and behavioural outcome measures • Real-time experience sampling and diary methods for dynamic constructs • Multi-source data (students, teachers, institutions) • Classroom observation and behavioural measures • Inclusion of additional variables (digital literacy, institutional support) • Broader construct coverage; broadening analytical frameworks	observational data enhances validity and explanatory depth.	Liu et al. (2025); McParland et al. (2022); Nordin et al. (2023); Nussli & Oh (2024); O'Mahony et al. (2026); Owen & Senel (2025); Paisi et al. (2022); Radović et al. (2023); Ramakrishnan et al. (2023); Ryan et al. (2023); Sahan et al. (2025); Sharma & Bhattarai (2022); Sun (2026); van der Velde et al. (2023); Wang et al. (2024); Wang et al. (2025); Zhou et al. (2024).	
4. Strengthening Theoretical Development and	• Ensuring theoretical and operational alignment in multimethod papers	Strengthening theoretical grounding and linking research to practice enhances the explanatory	Clark et al. (2023); Creswell & Inoue (2025); Drenoyianni & Bekos (2023); Garner et al. (2024);	21

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Theme	Covers / Key Focus Areas	Synthesis / Implications	Studies	n
Research-Practice Linkages	• Developing micro-macro aggregation logic in multimethod designs • Expanding FAccT scholarship to governance, accountability, and stakeholder diversity • Integrating emerging qualitative approaches (digital ethnography, PAR) into mixed methods frameworks • Generating substantive theories through mixed-methods combinations • Framework and model development; validation across contexts • Linking findings to educational outcomes • Policy and practice implications • Empirical testing of proposed conceptual and framework-based models	power of mixed-methods studies and ensures findings are relevant to real-world policy and implementation contexts. Future research must move from framework proposal to validation and practice-oriented application through participatory and longitudinal designs.	Hastings (2022); Holquist et al. (2023); Laufer et al. (2022); Liu et al. (2024); Love et al. (2022); Mielikäinen & Viippola (2023); Ormiston et al. (2025); Owen & Senel (2025); Poth (2023); Porta & Nawas (2026); Sakurai et al. (2024); Sahan et al. (2025); Sharma et al. (2023); Taherdoost (2022); Villa Larenas & Brunfaut (2023); Wellman et al. (2023); Zheng et al. (2025).	

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Theme	Covers / Key Focus Areas	Synthesis / Implications	Studies	n
	• Action research to enable iterative, practitioner-driven framework refinement • Cross-disciplinary collaborations			
5. Enhancing Practical Relevance and Implementation Feasibility	• Mixed-methods training to enhance evidence-based nursing and health practice • Encouraging nursing journals to accept longer mixed methods articles • Developing reporting guidelines specific to co-production research • Applying mixed methods principles to emerging topics (digital transformation, sustainability) • Using inference association maps as practical visual tools • Encouraging clinical leaders to take initiative in education and empowerment	Enhancing practical uptake of mixed-methods research requires targeted training, supportive publication environments, clear reporting guidelines, and tools that make rigorous mixed methods approaches accessible to practitioners and applied researchers. Translating findings into scalable, culturally appropriate practice requires investment in large-scale effectiveness trials, real-world implementation studies, and sustained cross-sectoral collaboration.	Bai (2024); Bergling et al. (2022); Clark et al. (2023); Davis et al. (2024); Garner et al. (2024); Holquist et al. (2023); Huang et al. (2023); Lee et al. (2024); Liu et al. (2025); Lowry et al. (2025); Mielikäinen & Viippola (2023); Nordin et al. (2023); Ormiston et al. (2025); Porta & Nawas (2026); Soltani Delgosha et al. (2024); Sun (2026); Taheri & Okumus (2024); Villa Larenas & Brunfaut (2023); Wasti et al. (2022); Younas et al. (2023); Zhang & Wang (2025).	21

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Theme	Covers / Key Focus Areas	Synthesis / Implications	Studies	n
	• Large-scale trials to test intervention effectiveness beyond feasibility • Implementation research on organisational and policy enablers of adoption • Development of culturally sensitive frameworks • Longitudinal evaluation of proposed platform design solutions in real-world settings • Training and support for researchers in mixed-methods and AI-enhanced inquiry • Stakeholder engagement and co-design; institutional and resource considerations • Scalability and sustainability of interventions			

Overall, the table indicates a clear shift toward more rigorous, inclusive, and practice-oriented mixed-methods research. Addressing these future priorities will strengthen validity, enhance real-world applicability, and support the continued evolution of mixed-methods approaches across diverse research contexts.

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Discussion

The present review provides a systematic analysis of recent mixed-methods research, focusing on design typologies, methodological limitations, and future directions. The findings demonstrate both the diversity and the challenges inherent in contemporary mixed-methods studies, highlighting trends that are shaping the field and areas where methodological refinement is urgently needed. This aligns with the broader recognition that mixed methods emerged from the "paradigm wars" of the 1970s-80s and has since become a formally recognised research paradigm that integrates quantitative and qualitative approaches to address complex problems (Emerald Publishing, 2026; Johnson & Onwuegbuzie, 2004; Zandvanian & Daryapoor, 2013).

Mixed-Methods Research Design Types

The analysis reveals that mixed-methods research employs a range of design typologies, reflecting the adaptability and methodological innovation in contemporary studies. Convergent designs remain the most widely used approach, characterised by the simultaneous collection and separate analysis of quantitative and qualitative data, followed by integration at the interpretation stage. This design allows for the triangulation of findings and supports meta-inferences that combine the strengths of both strands, thereby enhancing the comprehensiveness of the research outcomes (Mondal & Alam, 2025; Tenuche, 2018). The prevalence of convergent designs suggests that researchers increasingly value the ability to capture complex phenomena through complementary data sources, consistent with observations in educational and health research contexts (Chen et al., 2026b; Dhakal et al., 2022; López-Aymes et al., 2021; Marcus et al., 2023).

Sequential explanatory designs prioritise quantitative data collection and analysis, followed by qualitative inquiry aimed at elaborating or explaining the initial findings. This phased approach provides structured opportunities to investigate causal relationships or test hypotheses and has been widely applied in fields such as education, healthcare, and social sciences (Meunier et al., 2023; McKim, 2017; Thompson et al., 2022). In contrast, sequential exploratory designs begin with qualitative exploration to develop instruments, generate theory, or identify key constructs, which then informs subsequent quantitative analysis. This design is particularly effective for instrument development, generalisation of findings, or testing emergent conceptual frameworks (Liu, 2022; Sharma et al., 2023).

The rise of hybrid or multi-phase designs reflects a growing methodological flexibility. These designs incorporate embedded, transformative, or advocacy-oriented approaches, multi-phase studies, and systematic or handbook-based reviews (Creswell & Inoue, 2025; Poth, 2023). The increasing adoption of hybrid designs indicates a trend toward integrating multiple methodological logics to address complex research questions, allowing researchers to combine exploratory, explanatory, and evaluative components within a single study. Such flexibility is echoed in the work of Plano Clark and Ivankova (2017), who highlight the deliberate formalisation of mixed methods with explicit theoretical frameworks and design strategies as a hallmark of

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

contemporary practice. This diversity in design typologies underscores the evolving nature of mixed-methods research, highlighting the field's responsiveness to emerging challenges, interdisciplinary applications, and nuanced research objectives.

Methodological Limitations in Mixed-Methods Research

Despite the methodological sophistication observed in design typologies, the review identifies persistent limitations across mixed-methods research. One of the most prominent constraints is sampling and contextual limitations, including small or non-representative samples, single-institution studies, and geographical restrictions (Afaya et al., 2022; Marcus et al., 2023; Thompson et al., 2022). These limitations reduce generalisability and the cross-cultural applicability of findings. Furthermore, underrepresentation of marginalised populations-including CALD, LGBTQ+, and refugee groups-limits the inclusivity and societal relevance of research outcomes, reinforcing prior critiques that mixed-methods studies often struggle to address equity and diversity considerations (NIH, 2018; Oranga, 2025). Contextual biases introduced by factors such as the COVID-19 pandemic or local institutional practices further constrain the applicability of findings (López-Aymes et al., 2021).

Measurement and data quality issues also pose substantial challenges. Reliance on heterogeneous or self-reported instruments, absence of objective performance measures, and inconsistencies in operational definitions compromise internal validity and comparability across studies (Huang et al., 2023; Makabe et al., 2022; Zohrabi, 2013). Cross-sectional designs and rapidly evolving phenomena, such as AI integration in education or healthcare, make findings quickly outdated, reducing the confidence with which conclusions can be drawn (Mondal & Alam, 2025; NIH, 2018).

Design and analytical limitations were evident in several studies, particularly where single-author screening, weak longitudinal tracking, absence of control groups, and subjectivity in qualitative interpretation were present (Creswell & Inoue, 2025; Taherdoost, 2022). Such constraints hinder causal inference and limit the ability to derive robust, long-term insights. In computational or visual analyses, algorithmic biases and researcher proximity effects further compromise analytical rigour (Purohit & Devi, 2023).

A critical challenge is the integration of mixed-methods strands. Studies often struggle to reconcile divergent qualitative and quantitative findings, and the absence of validated tools for assessing integrated evidence reduces interpretive depth (Dhakal et al., 2022; Makabe et al., 2022). When one methodological strand dominates, the benefits of triangulation diminish, compromising the added explanatory value of combining approaches (Creswell, 2022; Molina-Azorín, 2016).

Finally, practical and contextual barriers-including limited researcher training, publication constraints, resource scarcity, and domain-specific applicability-impede the consistent implementation of rigorous mixed-methods designs (Creswell & Inoue, 2025; Taheri & Okumus, 2024). Short intervention periods, feasibility-focused outputs, and ethical concerns in emerging

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

fields further reduce the applicability and policy relevance of findings (Hill, 2016; Sharma et al., 2023). Collectively, these limitations emphasise that mixed-methods research requires careful consideration across design, data collection, analysis, and practical application stages.

Future Scope of Mixed-Methods Research

The synthesis of emerging literature highlights multiple avenues for advancing the rigour, applicability, and impact of mixed-methods research. First, there is a critical need to enhance methodological rigour through standardised triangulation procedures, validated appraisal tools, empirical validation of paradigm compatibility frameworks, and adoption of longitudinal, quasi-experimental, and randomised designs (Chen et al., 2026a, 2026b; Creswell, 2022; Liu, 2022; Schlunegger et al., 2024). Such methodological improvements will strengthen the coherence, replicability, and explanatory power of mixed-methods studies.

Second, expanding sampling diversity and generalisability is essential. Future research should incorporate larger, cross-cultural, multi-institutional, and multi-country samples, including populations often neglected in prior studies, to enhance global relevance and cultural applicability (Afaya et al., 2022; Marcus et al., 2023; NIH, 2018; Wang et al., 2024). Broadening the range of participants and contexts will enable findings to inform policy and practice more effectively across diverse settings.

Third, improving data quality and analytical depth requires the use of standardised measurement tools, multi-source data collection, observational measures, and inclusion of longitudinal and experimental designs (Huang et al., 2023; McKim, 2017; Zhou et al., 2024). Reducing reliance on self-reported data and integrating objective, real-time, or behavioural measures will enhance validity and allow for more robust cross-study comparisons.

Fourth, strengthening theoretical development and research-practice linkages is crucial. Mixed-methods studies must ensure alignment between theoretical frameworks and operationalisation, incorporate emerging qualitative approaches (e.g., digital ethnography, participatory action research), and validate models across contexts (Creswell & Inoue, 2025; Poth, 2023; Sharma et al., 2023). Linking findings to real-world outcomes, policy, and practice ensures that research informs both scholarly and applied domains, consistent with the pragmatic orientation of mixed-methods research as a “third paradigm” (Johnson & Onwuegbuzie, 2004; Zandvanian & Daryapoor, 2013).

Finally, enhancing practical relevance and implementation feasibility will require investment in researcher training, supportive publication environments, co-designed interventions, and large-scale effectiveness trials (Huang et al., 2023; Liu et al., 2025; Nordin et al., 2023). Practical tools such as inference association maps, culturally sensitive frameworks, and stakeholder engagement protocols can bridge the gap between research and practice, ensuring that mixed-methods findings are actionable, scalable, and sustainable (Hill, 2016; Zohrabi, 2013).

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Overall, the findings illustrate that while mixed-methods research offers significant advantages for addressing complex social, educational, and healthcare challenges, its full potential is constrained by design, measurement, integration, and implementation limitations. Future research that systematically addresses these challenges through methodological refinement, inclusive sampling, improved data quality, theory-driven designs, and practical applicability will enhance the scientific rigour, societal relevance, and policy impact of mixed-methods studies (Creswell, 2022; Molina-Azorín, 2016; Purohit & Devi, 2023).

Limitations and Future Scope of this Study

This study has several limitations. The review covers a short timeframe from 2022 to March 2026, which may not capture longer term trends. Only three databases, SAGE Journals, Google Scholar, and Wiley Online Library, were searched, so relevant studies from other sources may have been missed. The restriction to English language publications, the use of manual selection thresholds, and the focus on educational research with a predominance of health-related topics may limit generalisability and overlook less cited but methodologically important studies. Although systematic procedures were used for coding and synthesis, some interpretive subjectivity cannot be fully ruled out, and AI assisted screening may introduce errors in source compilation, affecting the accuracy and completeness of the review. Importantly, no formal risk of bias assessment was conducted, as the review focused on describing design trends rather than synthesising effect sizes, which limits conclusions about the methodological quality of the included studies.

Despite these limitations, the study provides directions for future research. Expanding database coverage, including non-English literature, and examining mixed methods research across disciplines could provide broader insights. Longitudinal reviews and meta-analytic approaches could help identify evolving design trends and best practices. Further studies can also develop practical guidance for emerging researchers to enhance methodological rigour, efficiency, and the practical relevance of mixed methods research.

Conclusion

The review of 86 studies reveals three key findings in recent mixed-methods research. Convergent and sequential designs are most frequently used, demonstrating their practical effectiveness in combining quantitative and qualitative data. Methodological limitations are widespread, including small or context-specific samples, inconsistent measurement tools, and integration challenges, which reduce validity, generalisability, and interpretive depth. Hybrid and multi-phase designs are increasingly adopted, reflecting growing methodological flexibility. These findings underscore the importance of careful design selection, rigorous measurement, and thorough data integration. Such methodological precision is critical for producing reliable, credible, and meaningful results.

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Authors' Contribution

Conceptualisation and study design: MT, DA; Literature search and synthesis: MT, DA, AM; Analysis and interpretation of literature: MT, DA, AM; Manuscript drafting: MT, DA; Critical revision of the manuscript for important intellectual content: MT, DA; Final approval of the version to be published: MT, DA, AM.
All authors agree to be accountable for all aspects of the work.

Conflict of Interest: All authors confirm that there are no relevant financial or non-financial competing interests to report.

Declaration of Funding: No funding was received.

Ethics Statement: Not applicable.

AI Usage Declaration: GPT-4 improved the language, and Claude Sonnet 4.6 assisted with the review; all authors verified results with 95% agreement. The authors take full responsibility for all content.

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

References

Afaya, A., Ramazanu, S., Bolarinwa, O. A., Yakong, V. N., Afaya, R. A., Aboagye, R. G., Daniels-Donkor, S. S., Yahaya, A.-R., Shin, J., & Dzomeku, V. M. (2022). Health system barriers influencing timely breast cancer diagnosis and treatment among women in low and middle-income Asian countries: Evidence from a mixed-methods systematic review. *BMC Health Services Research, 22*(1), 1601. https://doi.org/10.1186/s12913-022-08927-x

Alotaibi, M. S. (2023). Factors influencing early childhood educators' use of digital educational aids: A sequential explanatory study. *SAGE Open, 13*(4). https://doi.org/10.1177/21582440231217727

Alterkait, M. A., & Alduaij, M. Y. (2024). Impact of information quality on satisfaction with e-learning platforms: Moderating role of instructor and learner quality. *SAGE Open, 14*(1). https://doi.org/10.1177/21582440241233400

Bai, Y. (2024). A mixed methods investigation of mobile-based language learning on EFL students' listening, speaking, foreign language enjoyment, and anxiety. *SAGE Open, 14*(2). https://doi.org/10.1177/21582440241255554

Benson-Goldberg, S., & Erickson, K. (2024). Reported and enacted emergent literacy instruction: Understanding young students with extensive support and complex communication needs, opportunity to learn. *Topics in Early Childhood Special Education, 44*(1), 6–19. https://doi.org/10.1177/02711214241235404

Bergling, E., Pendleton, D., Shore, E., Harpin, S., Whitesell, N., & Puma, J. (2022). Implementation factors and teacher experience of the integrated nutrition education program: A mixed methods program evaluation. *Journal of School Health, 92*(5), 493–503. https://doi.org/10.1111/josh.13153

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Chen, C. Y. (2023). Are professors satisfied with their jobs? The factors that influence professors' job satisfaction. *SAGE Open, 13*(3). https://doi.org/10.1177/21582440231181515

Chen, H.-Y., Liu, Y.-C., & Chiu, T. (2026b). A problem-to-code teaching framework for technology-enhanced database programming in engineering education: A mixed-methods study. *Computer Applications in Engineering Education, 34*(2), e70163. https://doi.org/10.1002/cae.70163

Chen, Z., Wei, W., Zhu, X., & Yao, Y. (2026a). Unpacking the rejection of L2 students toward ChatGPT-generated feedback: An explanatory research. *ECNU Review of Education, 9*(1). https://doi.org/10.1177/20965311241305140

Clark, A. M., Zhan, M., Dellinger, J. T., & Semingson, P. L. (2023). Innovating teaching practice through professional learning communities: Determining knowledge sharing and program value. *SAGE Open, 13*(4). https://doi.org/10.1177/21582440231200983

Creswell, J. W. (2022). *A concise introduction to mixed methods research* (2nd ed.). SAGE Publications.

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Creswell, J. W., & Inoue, M. (2025). A process for conducting mixed methods data analysis. *Journal of General and Family Medicine, 26*(1), 4–11. https://doi.org/10.1002/jgf2.736

Cummins, E. R., Walley, A. Y., Xuan, Z., Yan, S., Schoenberger, S. F., Formica, S. W., Bagley, S. M., Beletsky, L., Green, T. C., Lambert, A., & Carroll, J. J. (2025). Use and perceptions of involuntary civil commitment among post-overdose outreach staff in Massachusetts, United States: A mixed-methods study. *Addiction, 120*(2), 327–334. https://doi.org/10.1111/add.16690

Davis, C. R., Baker, C. N., Osborn, J., & Overstreet, S. (2024). Understanding teacher self-efficacy to address students' social-emotional needs in the COVID-19 pandemic. *Urban Education, 59*(8), 2427–2457. https://doi.org/10.1177/00420859221099834

Dawadi, S., Shrestha, S., & Giri, R. A. (2021). Mixed-methods research: A discussion on its types, challenges, and criticisms. *Journal of Practical Studies in Education, 2*(2), 25–36. https://doi.org/10.46809/jpse.v2i2.20

Dhakal, P., Creedy, D. K., Gamble, J., Newnham, E., & McInnes, R. (2022). Educational interventions to promote respectful maternity care: A mixed-methods systematic review. *Nurse Education in Practice, 60*, 103317. https://doi.org/10.1016/j.nepr.2022.103317

Dozal, L. W. (2023). Mixed methods framework for understanding visual frames in social movements. *Proceedings of the Association for Information Science and Technology, 60*(1), 111–120. https://doi.org/10.1002/pra2.773

Drenoyianni, H., & Bekos, N. (2023). IT teachers' beliefs about alternative curriculum designs: Results from a mixed methods study. *The Curriculum Journal, 34*(2), 315–334. https://doi.org/10.1002/curj.176

Dwyer, P., Gurba, A. N., Kapp, S. K., Kilgallon, E., Hersh, L. H., Chang, D. S., Rivera, S. M., & Gillespie-Lynch, K. (2025). Community views of neurodiversity, models of disability and autism intervention: Mixed methods reveal shared goals and key tensions. *Autism, 29*(9), 2297–2314. https://doi.org/10.1177/13623613241273029

Emerald Publishing. (2026). Using mixed methods research. https://www.emeraldgrouppublishing.com/how-to/research-methods/using-mixed-methods-research

Fan, N. (2023). Exploring the effects of automated written corrective feedback on EFL students' writing quality: A mixed-methods study. *SAGE Open, 13*(2). https://doi.org/10.1177/21582440231181296

Fiedler, K., Kubsch, M., Neumann, K., & Nordine, J. (2025). Supporting learning about energy with fields: Evidence from a mixed-methods study. *Journal of Research in Science Teaching, 62*(8), 1859–1878. https://doi.org/10.1002/tea.70006

Garner, P. W., Legette, K., & Shadur, J. M. (2024). A mixed-methods approach to identify elements of culturally-attuned teacher–student relationship interventions. *Psychology in the Schools, 61*(7), 2968–2991. https://doi.org/10.1002/pits.23197

Griebler, U., Dobrescu, A., Ledinger, D., Klingenstein, P., Sommer, I., Emprechtinger, R., Persad, E., Gadinger, A., Trivella, M., Klerings, I., & Nussbaumer-Streit, B. (2023). Evaluation of the

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

interim Cochrane rapid review methods guidance: A mixed-methods study on the understanding of and adherence to the guidance. *Research Synthesis Methods, 14*(6), 824–846. https://doi.org/10.1002/jrsm.1656

Hands, A. S. (2022). Integrating quantitative and qualitative data in mixed methods research: An illustration. *The Canadian Journal of Information and Library Science, 45*(1), 1–20. https://doi.org/10.5206/cjilsrcsib.v45i1.10645

Hastings, L. J. (2022). Don't be afraid to eat the whole whale! Using mixed methods to enhance what we learn in leadership research and assessment. *New Directions for Student Leadership, 2022*(175), 105–114. https://doi.org/10.1002/yd.20524

Hill, D. M. (2016). *A mixed-methods study of student perceptions of the transition to middle school* (Doctoral dissertation). Gardner-Webb University. https://digitalcommons.gardner-webb.edu/education_etd/159

Ho, N. T. T., Abdullah, M. R. T. L., Idrus, H. B., Sivapalan, S., Pham, H.-H., Dinh, V.-H., Pham, H. K., & Nguyen, L. T. M. (2023). Acceptance toward Coursera MOOCs blended learning: A mixed methods view of Vietnamese higher education stakeholders. *SAGE Open, 13*(4). https://doi.org/10.1177/21582440231197997

Hogan, E., & Sun, Y. (2025). The association between classroom dialogic interaction and student reading performance: A mixed methods study of teacher stance, discourse moves, and reading achievement. *Reading Research Quarterly, 60*(2), e70009. https://doi.org/10.1002/rrq.70009

Holquist, S. E., Mitra, D. L., Conner, J., & Wright, N. L. (2023). What is student voice anyway? The intersection of student voice practices and shared leadership. *Educational Administration Quarterly, 59*(4), 703–743. https://doi.org/10.1177/0013161x231178023

Huang, A., Hong, W., Zhao, B., Lin, J., Xi, R., & Wang, Y. (2023). Knowledge, attitudes and practices concerning catheter-associated urinary tract infection amongst healthcare workers: A mixed methods systematic review. *Nursing Open, 10*(3), 1281–1304. https://doi.org/10.1002/nop2.1384

Jakoet-Salie, A., & Ramalobe, K. (2023). The digitalization of learning and teaching practices in higher education institutions during the COVID-19 pandemic. *Teaching Public Administration, 41*(1), 59–71. https://doi.org/10.1177/01447394221092275

Jeliseh, M. T., Valizadeh, M., Zohrabi, M., & Xodabande, I. (2025). Enhancing language teachers' well-being through positive psychology interventions: A mixed-methods study focusing on gratitude journaling. *Psychology in the Schools, 62*(10), 4276–4292. https://doi.org/10.1002/pits.70005

Jin, Y., Jiang, Y., & Wei, Q. (2026). Understanding student teachers' foreign language teaching anxiety and boredom in authentic school settings: A mixed-methods approach. *European Journal of Education, 61*(2), e70572. https://doi.org/10.1111/ejed.70572

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14–26. https://doi.org/10.3102/0013189X033007014

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Kahwati, L. C., Kelly, B. J., Johnson, M., Clark, R. T., & Viswanathan, M. (2023). End-user understanding of qualitative comparative analysis used within evidence synthesis: A mixed-methods study. *Research Synthesis Methods, 14*(2), 180–192. https://doi.org/10.1002/jrsm.1602

Kamaşak, R., & Sahan, K. (2024). Academic success in English medium courses: Exploring student challenges, opinions, language proficiency and L2 use. *RELC Journal, 55*(3), 705–720. https://doi.org/10.1177/00336882231167611

Kelly, M. L., Nieuwoudt, J., Willis, R., & Lee, M. F. (2026). Belonging, enjoyment, motivation, and retention: University students' sense of belonging before and during the COVID-19 pandemic. *Journal of College Student Retention: Research, Theory & Practice, 28*(1), 92–111. https://doi.org/10.1177/15210251241231242

Kishino, M., Ellis-Smith, C., Afolabi, O., & Koffman, J. (2022). Family involvement in advance care planning for people living with advanced cancer: A systematic mixed-methods review. *Palliative Medicine, 36*(3), 462–477. https://doi.org/10.1177/02692163211068282

Laufer, B., Jain, S., Cooper, A. F., Kleinberg, J., & Heidari, H. (2022). Four years of FAccT: A reflexive, mixed-methods analysis of research contributions, shortcomings, and future prospects. In *FAccT '22: Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency* (pp. 401–426). https://doi.org/10.1145/3531146.3533107

Lee, J. W. Y., Susanto, J., Lai, S. H., Cheow, P. C., Low, L. X. T., & Bello, F. (2024). What faculty and students value when evaluating human digital anatomy platforms: A mixed-methods study. *Journal of Medical Education and Curricular Development, 11*. https://doi.org/10.1177/23821205241256043

Lee, T. T.-l. (2024). Leadership for inclusive online learning in public primary schools during COVID-19: A multiple case study in Hong Kong. *Educational Management Administration & Leadership, 52*(6), 1434–1454. https://doi.org/10.1177/17411432221135310

Li, C. (2023). Exploring L2 motivational dynamics among Chinese EAP learners in an EMI context from a socio-cultural perspective. *SAGE Open, 13*(2). https://doi.org/10.1177/21582440231172704

Li, X., & Han, J. (2025). Posture, competitiveness, and motivation of Korean language learners: A mixed-methods study. *International Journal of Applied Linguistics, 35*(3), 1274–1284. https://doi.org/10.1111/ijal.12700

Liu, D., Morgan, W. J., Zhang, X., & Wu, W. (2024). Private tutoring before and after the "Double-Reduction" policy in China: Choices and rationale. *SAGE Open, 14*(2). https://doi.org/10.1177/21582440241255864

Liu, F., Chen, F., Li, G., & Li, X. (2025). Factors influencing body image among Chinese secondary school students: A mixed methods approach. *Psychology in the Schools, 62*(4), 1146–1157. https://doi.org/10.1002/pits.23383

Liu, Y. (2022). Paradigmatic compatibility matters: A critical review of qualitative-quantitative debate in mixed methods research. *SAGE Open, 12*(1). https://doi.org/10.1177/21582440221079922

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

López-Aymes, G., Valadez, M. D., Rodríguez-Naveiras, E., Castellanos-Simons, D., Aguirre, T., & Borges, Á. (2021). A mixed methods research study of parental perception of physical activity and quality of life of children under home lockdown in the COVID-19 pandemic. *Frontiers in Psychology, 12,* 649481. https://doi.org/10.3389/fpsyg.2021.649481

Love, H. R., Cook, B. G., & Cook, L. (2022). Mixed-methods approaches in special education research. *Learning Disabilities Research & Practice, 37*(4), 314–323. https://doi.org/10.1111/ldrp.12295

Lowry, N., McKechnie, A., Day, E., Gilvarry, E., Cowden, F., Evans, R., Locke, R., Murray, R., Vanderwaal, R., Johnstone, S., Hoare, Z., Kelleher, M., Mitcheson, L., & Marsden, J. (2025). Extended-release buprenorphine treatment for opioid use disorder: A mixed-methods study of response and experience. *Addiction, 120*(10), 2055–2066. https://doi.org/10.1111/add.70106

Lyhne, C. N., Bjerrum, M., Riis, A. H., & Jørgensen, M. J. (2022). Interventions to prevent potentially avoidable hospitalizations: A mixed methods systematic review. *Frontiers in Public Health, 10,* 898359. https://doi.org/10.3389/fpubh.2022.898359

Makabe, S., Suda, T., Akagawa, Y., Abe, M., & Kakai, H. (2022). Measurement properties of appraisal tools for mixed methods research: A systematic review protocol. *International Journal of Scientific Research Archives, 7*(1), 46–52. https://doi.org/10.30574/ijsra.2022.7.1.0185

Marcus, K., Balasubramanian, M., Short, S., & Sohn, W. (2023). Barriers and facilitators to dental care among culturally and linguistically diverse carers: A mixed-methods systematic review. *Community Dentistry and Oral Epidemiology, 51*(2), 327–344. https://doi.org/10.1111/cdoe.12745

McKim, C. A. (2017). The value of mixed methods research: A mixed methods study. *Journal of Mixed Methods Research, 11*(2), 202–222. https://doi.org/10.1177/1558689815607096

McParland, C., Johnston, B., & Cooper, M. (2022). A mixed-methods systematic review of nurse-led interventions for people with multimorbidity. *Journal of Advanced Nursing, 78*(12), 3930–3951. https://doi.org/10.1111/jan.15427

Meunier, P.-Y., Raynaud, C., Guimaraes, E., Gueyffier, F., & Letrilliart, L. (2023). Barriers and facilitators to the use of clinical decision support systems in primary care: A mixed-methods systematic review. *The Annals of Family Medicine, 21*(1), 57–69. https://doi.org/10.1370/afm.2908

Mielikäinen, M., & Viippola, E. (2023). ICT engineering students' perceptions on project-based online learning in Community of Inquiry (CoI). *SAGE Open, 13*(3). https://doi.org/10.1177/21582440231180602

Molina-Azorín, J. F. (2016). Mixed methods research: An opportunity to improve our studies and our research skills. *European Journal of Management and Business Economics, 25*(2), 37–38. https://doi.org/10.1016/j.redeen.2016.05.001

Mondal, R., & Alam, M. (2025). Mixed method research: A brief overview. *The Social Science Review: A Multidisciplinary Journal, 3*(5), 91–94. https://doi.org/10.70096/tssr.250305017

Nagpal, D., Kornerup, I., & Gibson, M. P. (2020). Mixed-method research: A basic understanding. *CODS Journal of Dentistry, 12*(1), 11–16. https://doi.org/10.5005/jp-journals-10063-0065

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

National Institutes of Health. (2018). *Best practices for mixed methods research in the health sciences* (2nd ed.). NIH Office of Behavioral and Social Sciences Research. https://implementationscience-gacd.org/wp-content/uploads/2020/11/Best-Practices-for-Mixed-Methods-Research-in-the-Health-Sciences-2018-01-25-1.pdf

Nordin, A., Kjellstrom, S., Robert, G., Masterson, D., & Areskoug Josefsson, K. (2023). Measurement and outcomes of co-production in health and social care: A systematic review of empirical studies. *BMJ Open, 13*(9), e073808. https://doi.org/10.1136/bmjopen-2023-073808

Nussli, N., & Oh, K. (2024). Creating a "space in-between": Learning on the physical-hybrid-virtual continuum. *Journal of Educational Technology Systems, 52*(4), 471–506. https://doi.org/10.1177/00472395241252139

O'Mahony, B., Kerins, C., Barrett, C., Murrin, C., & Kelly, C. (2026). Food service professionals' perspectives on the barriers and facilitators to the implementation of nutrition standards for school food: A mixed-methods systematic review. *Journal of School Health, 96*(1), e70078. https://doi.org/10.1111/josh.70078

Oranga, J. (2025). Mixed methods research: Merits, applications and challenges. *International Journal of Social Science, 5*(2), 233–238. https://doi.org/10.53625/ijss.v5i2.11034

Ormiston, H. E., Nygaard, M. A., & Husmann, P. (2025). School-based mental health practices within a multi-tiered system of support: A mixed methods investigation of targeted and intensive services. *Psychology in the Schools, 62*(4), 1087–1099. https://doi.org/10.1002/pits.23380

Owen, N., & Senel, A. (2025). Enhancing transparency in high-stakes English language assessment: A mixed-methods synthesis of empirical evidence and stakeholder perspectives. *Review of Education, 13*(2), e70096. https://doi.org/10.1002/rev3.70096

Ozkan, U. B. (2023). Validity and reliability in document analysis method: A theoretical review in the context of educational science research. *The Journal of Buca Faculty of Education, 56,* 823–848. https://doi.org/10.53444/deubefd.1258867

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., Stewart, L. A., Thomas, J., Tricco, A. C., Welch, V. A., Whiting, P., & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ, 372,* n71. https://doi.org/10.1136/bmj.n71

Paisi, M., Crombag, N., Burns, L., Bogaerts, A., Withers, L., Bates, L., Crowley, D., Witton, R., & Shawe, J. (2022). Barriers and facilitators to hepatitis C screening and treatment for people with lived experience of homelessness: A mixed-methods systematic review. *Health Expectations, 25*(1), 48–60. https://doi.org/10.1111/hex.13400

Plano Clark, V. L., & Ivankova, N. V. (2017). *Mixed methods research: A guide to the field.* SAGE Research Methods. https://doi.org/10.4135/9781483398341

Porta, T., & Nawas, A. (2026). Inclusion by design: A mixed-methods feasibility study on backward design for inclusive education. *Review of Education, 14*(1), e70143. https://doi.org/10.1002/rev3.70143

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Poth, C. N. (Ed.). (2023). *The SAGE handbook of mixed methods research design.* SAGE Publications.

Purohit, S., & Devi, A. (2023). Mixed methods-research methodology: An overview. *Mathews Journal of Nursing, 5*(4), Article 24. https://www.mathewsopenaccess.com/full-text/mixed-methods-research-methodology-an-overview

Radović, S., Firssova, O., Hummel, H. G., & Vermeulen, M. (2023). Improving academic performance: Strengthening the relation between theory and practice through prompted reflection. *Active Learning in Higher Education, 24*(2), 139–154. https://doi.org/10.1177/14697874211014411

Rosa, W. E., Roberts, K. E., Braybrook, D., Harding, R., Godwin, K., Mahoney, C., Mathew, S., Atkinson, T. M., Banerjee, S. C., & Haviland, K. (2023). Palliative and end-of-life care needs, experiences, and preferences of LGBTQ+ individuals with serious illness: A systematic mixed-methods review. *Palliative Medicine, 37*(4), 460–474. https://doi.org/10.1177/02692163221124426

Ryan, E., Hore, K., Power, J., & Jackson, T. (2023). The relationship between physician burnout and depression, anxiety, suicidality and substance abuse: A mixed methods systematic review. *Frontiers in Public Health, 11,* 1133484. https://doi.org/10.3389/fpubh.2023.1133484

Ryu, W., Schudde, L., & Pack-Cosme, K. (2024). Dually noted: Examining the implications of dual enrollment course structure for students' course and college enrollment outcomes. *American Educational Research Journal, 61*(4), 803–841. https://doi.org/10.3102/00028312241257453

Sahan, K., Galloway, N., & McKinley, J. (2025). 'English-only' English medium instruction: Mixed views in Thai and Vietnamese higher education. *Language Teaching Research, 29*(2), 657–676. https://doi.org/10.1177/13621688211072632

Sakurai, Y., Saruta, S., & Cheng, W. (2024). Mixed methods study on foreign early career academics' sense of knowledge and intellectual development. *Higher Education Quarterly, 78*(1), 135–152. https://doi.org/10.1111/hequ.12453

Schlunegger, M. C., Zumstein-Shaha, M., & Palm, R. (2024). Methodologic and data-analysis triangulation in case studies: A scoping review. *Western Journal of Nursing Research, 46*(8), 611–622. https://doi.org/10.1177/01939459241263011

Şeren, N., Çetinkaya, F. Ç., & Yıldırım, K. (2025). Promoting gender equality in preservice teachers through creative drama activities integrated with children's picture books: A mixed-methods research. *European Journal of Education, 60*(1), e70039. https://doi.org/10.1111/ejed.70039

Sharma, A., & Bhattarai, P. C. (2022). Mixed methods research in employability discourse: A systematic literature review using PRISMA. *Education Research International, 2022*, 4848220. https://doi.org/10.1155/2022/4848220

Sharma, L. R., Bidari, S., Bidari, D., Neupane, S., & Sapkota, R. (2023). Exploring the mixed methods research design: Types, purposes, strengths, challenges, and criticisms. *Global Academic Journal of Linguistics and Literature, 5*(1), 3–12. https://doi.org/10.36348/gajll.2023.v05i01.002

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, 104*, 333-339. https://doi.org/10.1016/j.jbusres.2019.07.039

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

Soltani Delgosha, M., Hajiheydari, N., & Olya, H. (2024). A person-centred view of citizen participation in civic crowdfunding platforms: A mixed-methods study of civic backers. *Information Systems Journal, 34*(5), 1626–1663. https://doi.org/10.1111/isj.12503

Sun, Q. (2026). Exploring Chinese music students' AI familiarity and AI self-efficacy: A mixed-methods study based on social cognitive theory (SCT). *European Journal of Education, 61*(1), e70446. https://doi.org/10.1111/ejed.70446

Taherdoost, H. (2022). What are different research approaches? Comprehensive review of qualitative, quantitative, and mixed method research, their applications, types, and limitations. *Journal of Management Science & Engineering Research, 5*(1), 53–63. https://doi.org/10.30564/jmser.v5i1.4538

Taheri, B., & Okumus, F. (2024). Conducting mixed methods research. *International Journal of Contemporary Hospitality Management, 36*(3), 995–1004. https://doi.org/10.1108/IJCHM-08-2023-1309

Tenuche, B. S. (2018). *A mixed-method approach to investigate individual behaviour in online health communities* (Doctoral dissertation, Brunel University). Brunel University Research Archive. https://bura.brunel.ac.uk/bitstream/2438/15810/1/FulltextThesis.pdf

Thompson, F., Rongen, F., Cowburn, I., & Till, K. (2022). The impacts of sports schools on holistic athlete development: A mixed methods systematic review. *Sports Medicine, 52*(8), 1879–1917. https://doi.org/10.1007/s40279-022-01664-5

Ugwu, C., & Opah, A. C. (2023). Use of Boolean search strategy for accessing the databases of university of technology libraries by postgraduate students in South-East, Nigeria. *Journal of Library Services and Technologies, 5*(2), 24–35. https://doi.org/10.47524/jlst.v5i2.25

Välimäki, M., Hu, S., Lantta, T., Hipp, K., Varpula, J., Chen, J., Liu, G., Tang, Y., Chen, W., & Li, X. (2024). The impact of evidence-based nursing leadership in healthcare settings: A mixed methods systematic review. *BMC Nursing, 23*(1), 452. https://doi.org/10.1186/s12912-024-02096-4

van der Velde, M., van der Leeden, M., Geleijn, E., Veenhof, C., & Valkenet, K. (2023). What moves patients to participate in prehabilitation before major surgery? A mixed methods systematic review. *International Journal of Behavioral Nutrition and Physical Activity, 20*(1), 75. https://doi.org/10.1186/s12966-023-01474-6

Villa Larenas, S., & Brunfaut, T. (2023). But who trains the language teacher educator who trains the language teacher? An empirical investigation of Chilean EFL teacher educators' language assessment literacy. *Language Testing, 40*(3), 463–492. https://doi.org/10.1177/02655322221134218

Wang, H., Qiao, B., & Patterson, M. M. (2025). Directed motivational currents in US undergraduate language learners: A mixed-methods study. *International Journal of Applied Linguistics, 0*(1), 1–12. https://doi.org/10.1111/ijal.70062

Wang, J., Hida, R. M., Park, J., Kim, E. K., & Begeny, J. C. (2024). A systematic review of mixed methods studies published in six school psychology journals: Prevalence, characteristics, and

NPRC Journal of Multidisciplinary Research
Volume 3, Issue 4, April, 2026 Pages: 44-80
ISSN: 3059-9148 (Online)
DOI: 10.3126/nprcjmr.v3i4.93276

trends from 2011 to 2020. *Psychology in the Schools, 61*(4), 1302–1317. https://doi.org/10.1002/pits.23114

Wasti, S. P., Simkhada, P., van Teijlingen, E. R., Sathian, B., & Banerjee, I. (2022). The growing importance of mixed-methods research in health. *Nepal Journal of Epidemiology, 12*(1), 1175. https://doi.org/10.3126/nje.v12i1.43633

Wellman, N., Tröster, C., Grimes, M., Roberson, Q., Rink, F., & Gruber, M. (2023). Publishing multimethod research in AMJ: A review and best-practice recommendations. *Academy of Management Journal, 66*(4), 1007–1015. https://doi.org/10.5465/amj.2023.4004

Younas, A., Fàbregues, S., & Creswell, J. W. (2023). Generating metainferences in mixed methods research: A worked example in convergent mixed methods designs. *Methodological Innovations, 16*(3), 276–291. https://doi.org/10.1177/20597991231188121

Younas, M., & Dong, Y. (2024). The impact of using animated movies in learning English language vocabulary: An empirical study of Lahore, Pakistan. *SAGE Open, 14*(2). https://doi.org/10.1177/21582440241258398

Zandvanian, A., & Daryapoor, E. (2013). Mixed methods research: A new paradigm in educational research. *Journal of Educational and Management Studies, 3*(4), 525–531. https://jems.science-line.com/attachments/article/23/J.%20Educ.%20Manage.%20Stud.,%203(4)525-531%202013%20.pdf

Zhang, X., & Wang, Y. (2025). The contribution of artificial intelligence (AI) tools to Chinese junior middle school students' self-regulated learning (SRL): An interventional mixed-methods study. *European Journal of Education, 60*(4), e70322. https://doi.org/10.1111/ejed.70322

Zheng, Y., Ortega, L., Pekarek Doehler, S., Sasaki, M., Eskildsen, S. W., & Gao, X. (2025). Praxeology, humanism, equity, and mixed methods: Four pillars for advancing second language acquisition and teaching. *The Modern Language Journal, 109*(S1), 64–89. https://doi.org/10.1111/modl.12977

Zhou, Y., Zhou, Y., & Machtmes, K. (2024). Mixed methods integration strategies used in education: A systematic review. *Methodological Innovations, 17*(1), 41–49. https://doi.org/10.1177/20597991231217937

Zohrabi, M. (2013). Mixed method research: Instruments, validity, reliability and reporting findings. *Theory and Practice in Language Studies, 3*(2), 254–262. https://doi.org/10.4304/tpls.3.2.254-262