

A comparative analysis of qualitative and mixed methods research: Strengths, limitations, and practical applications

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Abstract

This paper provides a comparative analysis of qualitative and mixed methods research designs, focusing on their strengths, limitations, and practical applications across various research fields. Qualitative research aims to understand individuals' experiences and behaviors through approaches such as case studies, phenomenology, grounded theory, and ethnography. While these methods offer rich, in-depth insights into complex human phenomena, they often lack generalizability. In contrast, mixed methods research integrates qualitative and quantitative techniques, allowing researchers to leverage the strengths of both paradigms for a more comprehensive understanding. This paper explores key mixed methods designs, including convergent parallel, exploratory sequential, and explanatory sequential approaches, and examines their implementation in research. By evaluating the strengths and challenges of each methodology, this study provides practical guidance on selecting and applying the most appropriate research approach based on the research problem and objectives. The findings emphasize the significance of methodological alignment in ensuring research rigor, enhancing validity, and producing well-rounded insights.

Keywords: Qualitative research; Mixed methods research; Research methodology; Research design integration

1. Introduction

The choice of research methodology plays a crucial role in shaping the outcomes and contributions of a study (Gamage, 2025). Among the various research approaches, qualitative and mixed methods research methodologies have gained significant traction due to their ability to provide in-depth insights and a comprehensive understanding of complex phenomena. Qualitative research, rooted in exploring the richness of human experience and social contexts, emphasizes non-numerical data and subjective interpretation. In contrast, mixed methods research combines both qualitative and quantitative approaches, aiming to capitalize on the strengths of each to offer a more holistic view of the research problem.

This paper aims to provide a comparative analysis of these two methodologies, highlighting their distinct features, strengths, limitations, and suitability for different types of research questions. By exploring existing theoretical knowledge, research designs, data collection techniques, and analysis methods inherent in both qualitative and mixed methods approaches, this study will provide valuable insights to help researchers navigate the complex process of selecting the most suitable methodology.

The objective of this study is to present a clear distinction between qualitative and mixed methods research, while emphasizing how each methodology can be applied effectively to address specific research needs. In doing so, this paper will contribute to a deeper understanding of the strengths and challenges associated with these methodologies, ultimately guiding researchers in making informed decisions regarding their research design.

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Research Objectives

The primary objective of this study is to conduct a comparative analysis of qualitative and mixed methods research methodologies. Specifically, this research aims to:

- Explore the theoretical foundations and key principles of qualitative and mixed methods research.
- Assess the strengths, limitations, and applicability of both methodologies in various research contexts.
- Offer practical guidance for selecting the most appropriate methodology based on research objectives and study requirements.

2. Qualitative Research Design

Qualitative Research Design is used across various fields, including social sciences, to gather and interpret non-numerical data. Unlike quantitative research, which focuses on measurable variables, qualitative research seeks to understand human behavior, experiences, and social phenomena in context. It provides in-depth insights into real-world issues and is valuable for forming hypotheses and understanding quantitative data (Tenny et al., 2017).

Qualitative research focuses on collecting experiences, viewpoints, and behaviors, addressing "hows" and "whys" rather than numerical data. It can be applied as an independent study or integrated into mixed-methods research (Tenny et al., 2017). Despite its naturalistic nature, qualitative research follows a systematic approach, including identifying the problem, collecting and analyzing data, and maintaining rigor to ensure high-quality research (Nassaji, 2020). Common data collection methods include interviews, observations, and participation (Asenahabi, 2019). Figure 1 illustrates different qualitative research methodologies.

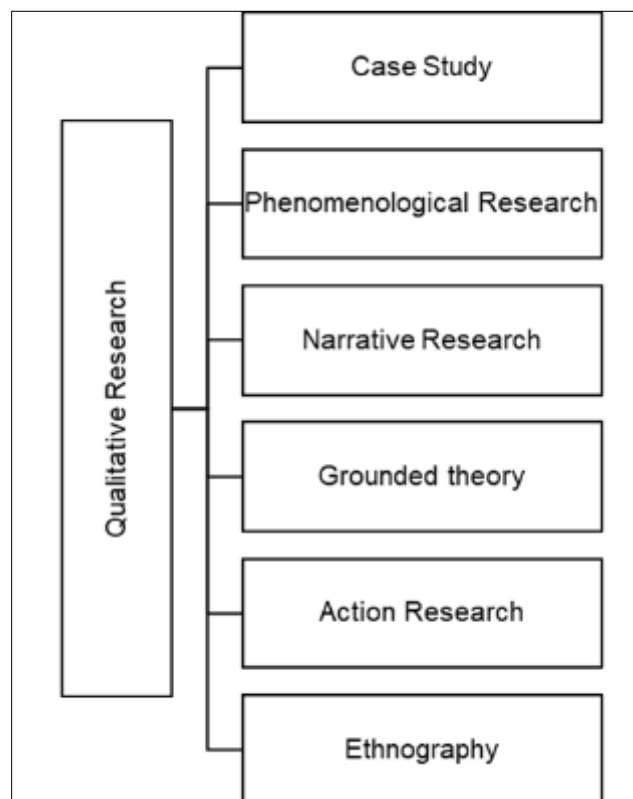


Figure 1 Types of Qualitative Research Methodologies

2.1. Case Study

A case study is a qualitative research method that examines a specific instance or phenomenon in-depth to understand its unique characteristics, actions, and context (Tomaszewski et al., 2020). It is particularly useful when addressing research topics that require detailed investigation within a defined framework. Case studies can focus on various subjects, such as organizations, communities, or programs, and are often used to gain a comprehensive understanding

of a particular case. In addition to being an independent research method, case studies are commonly employed for evaluation purposes, including external assessments or reviews (Tomaszewski et al., 2020).

2.2. Phenomenological Research

Phenomenological research explores individuals' experiences and perceptions of a specific phenomenon, aiming to uncover the essence and meaning of those experiences as described by participants (Aguas, 2022). It focuses on understanding how people make sense of their world through subjective consciousness. This approach is widely applied in psychology, sociology, nursing, education, and philosophy to interpret how individuals perceive, feel about, and interpret events (Tenny et al., 2017).

2.3. Narrative Research

Narrative research explores the stories individuals create to make sense of their lives, focusing on how they recount personal experiences, challenges, and transformations. These narratives reveal insights into people's identities, beliefs, values, and worldviews (Framp et al., 2019). Researchers collect and analyze narratives through interviews, diaries, written accounts, or visual media, identifying themes and structures to uncover deeper meanings and cultural contexts (Wolgemuth & Agosto, 2019). By studying these narratives, researchers gain a richer understanding of individual and collective identities and the interplay between personal experiences and broader cultural influences (Dhungana, 2022).

2.4. Grounded theory

Grounded Theory is a qualitative approach focused on developing theories based on empirical data, emphasizing theory-building from the ground up rather than applying pre-existing ones (Mohajan & Mohajan, 2023). Researchers begin by immersing themselves in data from methods like interviews or observations, identifying patterns and categories, which evolve into abstract concepts forming a new theory (Toniolo et al., 2020). The process includes four main stages: comparing data, merging categories, refining the theory, and formulating the final theory (Lee, 2019). Grounded Theory also involves theoretical sampling, where new data collection is guided by emerging theories until saturation is reached, offering insights deeply connected to participants' real-world experiences (Cepellos & Tonelli, 2020).

2.5. Action Research

Action Research is a participatory, iterative methodology that addresses real-world problems by collaborating with practitioners. It aims to bridge theory and practice, involving stakeholders actively in the process (Erro-Garcés & Alfaro-Tanco, 2020). Developed by Kurt Lewin in the 1940s, the approach emphasizes researchers transitioning from external observers to active participants in problem-solving (Elg et al., 2020). The goal is to produce knowledge with both practical and scientific value (Elg et al., 2020). Action research is often seen as a cyclical process, where each phase leads into the next, and the final phase sets the stage for the iterative cycle to begin again (Stahl & King, 2019).

2.6. Ethnography

Ethnography is a qualitative research method used to explore the culture, behaviors, and practices of a group or community through immersive fieldwork (Strudwick, 2021). Researchers engage with the subjects in their natural environment, using techniques like participant observation, interviews, and document analysis to collect data (Ploder & Hamann, 2021). The aim is to understand the group's identity, beliefs, and social dynamics, often uncovering unexpected insights.

Ethnography values context and the researcher's reflexivity, acknowledging the impact of the researcher's presence on the study. This approach provides rich, detailed data often overlooked by quantitative methods, and is widely used in anthropology, sociology, and cultural studies to deepen understanding of human behavior and societies (Mohajan, 2020).

3. Mixed Methods Research Design

Mixed Methods research combines both quantitative and qualitative approaches within a single study to provide a comprehensive understanding of a research topic. It involves collecting both numerical data (quantitative) and non-numerical data (qualitative) and integrating these to draw conclusions (Dawadi et al., 2021).

This approach leverages the strengths of both methods, quantitative data for statistical insights and generalizability, and qualitative data for deeper contextual understanding (Guetterman et al., 2021). The research process typically

includes designing, collecting, analyzing, and integrating data, often by using one method to inform the other or comparing findings from both (Schoonenboom & Johnson, 2017).

Mixed Methods is especially useful for studying complex phenomena and enhances the validity and reliability of research by offering multiple perspectives (Schoonenboom & Johnson, 2017). It is widely applied in fields like social sciences, healthcare, education, and business, and includes designs such as convergent parallel, exploratory sequential, embedded, and explanatory sequential methods (Asenahabi, 2019). Figure 2 illustrates the types of mixed methods research design.

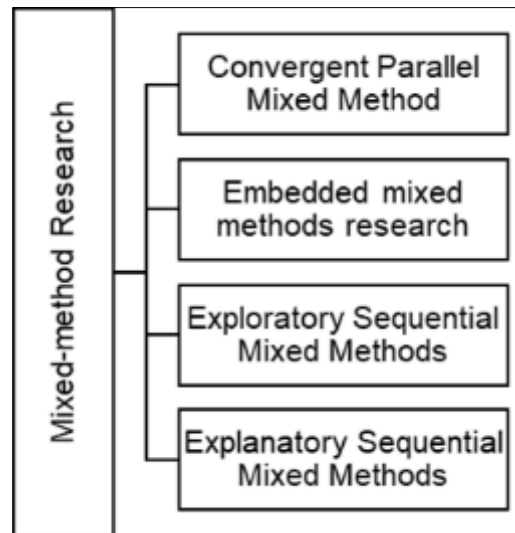


Figure 2 Types of Mixed Methods Research Design

3.1. Convergent Parallel Mixed Methods

Convergent parallel mixed methods involve separately collecting quantitative and qualitative data, then merging or comparing the results to gain a comprehensive understanding of a research topic. This approach helps validate and enrich findings, providing a more holistic view of complex phenomena (Reyes, 2023). By directly comparing quantitative and qualitative data, researchers can validate their research question or objective.

3.2. Embedded Mixed Methods Research

Embedded mixed methods research integrates both quantitative and qualitative data within a single study, using one method as the primary and the other as secondary. This approach allows researchers to leverage the strengths of both methods for a more comprehensive understanding of a research question (Saunders et al., 2019). For example, quantitative data might be collected first, followed by qualitative data to provide additional context and insights. This blending enhances the validity and depth of findings, offering a more robust exploration of complex research phenomena (Yu & Khazanchi, 2017).

3.3. Exploratory Sequential Mixed Methods

Exploratory Sequential Mixed Methods involves two phases: a qualitative phase to explore a topic and generate hypotheses (e.g., through interviews or observations), followed by a quantitative phase to test these hypotheses (Shiyanbola et al., 2021). The approach combines qualitative insights and statistical evidence to provide a deeper understanding of a research problem (Waqar & Ameen, 2020). Unlike the explanatory sequential method, the exploratory approach focuses on exploring concepts before validating them, allowing for flexibility and innovation (Gogo & Musonda, 2022).

3.4. Explanatory Sequential Mixed Methods

Explanatory Sequential Mixed Methods combines qualitative and quantitative phases to provide a comprehensive understanding of a phenomenon. It begins with a quantitative phase to identify patterns and relationships, followed by a qualitative phase to explain or elaborate on the results (Cohen et al., 2018; Kerari et al., 2023). This approach helps clarify complex or unexpected quantitative results by providing deeper context through qualitative insights (Asenahabi,

2019). By integrating both types of data, this method enhances the validity and credibility of research findings (Toyon, 2021). It is particularly useful for exploring multifaceted issues and bridging numerical trends with human experiences.

These research methodologies guide how researchers design their studies. It is crucial for researchers to understand both the available methodologies and the research problem before selecting the most appropriate approach.

4. Comparison between Qualitative and Mixed Methods Research

Qualitative and mixed methods research approaches both offer unique strengths and limitations that can influence their application in various research scenarios. One of the strengths of qualitative research is its ability to provide deep, rich insights into human experiences and behaviors. It allows researchers to explore complex phenomena through methods like interviews, observations, and case studies, providing an in-depth understanding of participants' perspectives (Dhungana, 2022; Framp et al., 2019). However, qualitative research is often criticized for its lack of generalizability due to its typically small sample sizes and subjective nature, which can lead to potential researcher bias (Tomaszewski et al., 2020). Despite this, its ability to uncover nuanced, context-rich data makes it invaluable in fields such as psychology, education, and social sciences (Aguas, 2022).

Mixed methods research, on the other hand, combines the strengths of both qualitative and quantitative approaches. By integrating numerical data with qualitative insights, it provides a more comprehensive understanding of a research problem. Therefore, this approach allows both statistical validation and a deeper exploration of context and meaning (Dawadi et al., 2021; Guetterman et al., 2021). The strengths of mixed methods lie in its ability to enhance the validity and reliability of research findings through triangulation, offering multiple perspectives on a phenomenon (Schoonenboom & Johnson, 2017). However, mixed methods research is resource-intensive and requires expertise in both qualitative and quantitative techniques, which can be a limitation for researchers with a narrow focus or insufficient training in both methods (Asenahabi, 2019; Reyes, 2023).

When deciding between qualitative and mixed methods, researchers should consider the nature of their research question and the goals of their study. Qualitative research is best suited for exploring complex, subjective experiences or understanding underlying meanings (Framp et al., 2019), while mixed methods are ideal when the researcher seeks to address multifaceted research questions that require both statistical and contextual data (Schoonenboom & Johnson, 2017). For example, in a study examining the effectiveness of a new teaching method, qualitative data could capture students' personal experiences with the method, while quantitative data could assess its overall impact on academic performance (Schoonenboom & Johnson, 2017).

In practice, qualitative research is often used in exploratory stages to generate theories or hypotheses, while mixed methods research may be used to validate or further explore these hypotheses using both qualitative and quantitative data. This approach is particularly beneficial in complex studies, such as those in healthcare or education, where a deep understanding of individual experiences is combined with statistical analyses to evaluate outcomes (Dawadi et al., 2021; Schoonenboom & Johnson, 2017). Researchers should carefully assess the strengths and limitations of each approach, ensuring their methodology aligns with the specific objectives and practical constraints of their research.

5. Conclusion

In this paper, we explored the fundamental differences between qualitative and mixed methods research designs. Qualitative research focuses on understanding the subjective experiences and perspectives of individuals through various methodologies such as case studies, phenomenology, narrative research, grounded theory, action research, and ethnography. Each of these approaches provides in-depth insights into the complexities of human behavior and experiences. On the other hand, mixed methods research combines both quantitative and qualitative approaches, allowing researchers to capture the strengths of both paradigms and provide a more comprehensive understanding of a research topic.

The strengths of qualitative research lie in its ability to explore the richness and depth of human experiences, while mixed methods research enhances the validity and reliability of findings by integrating numerical data with contextual insights. However, both approaches have their limitations. Qualitative research may lack generalizability, while mixed methods research can be complex and time-consuming. Researchers must carefully consider the research problem and objectives when deciding which approach to use. In practice, qualitative methods are particularly useful when exploring new or complex phenomena, while mixed methods are ideal when there is a need to triangulate data and validate results.

Understanding these differences is crucial for researchers in designing studies that align with their research questions, ensuring methodological rigor and reliability. By understanding the strengths, limitations, and practical applications of both qualitative and mixed methods research, researchers can make informed decisions that enhance the depth and credibility of their findings, ultimately contributing to more robust and comprehensive studies.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

- [1] Aguas, P. P. (2022). Fusing approaches in educational research: Data collection and data analysis in phenomenological research. *The Qualitative Report*, 27(1), 1-20. doi:<https://doi.org/10.46743/2160-3715/2022.5027>
- [2] Asenahabi, B. M. (2019). Basics of research design: A guide to selecting appropriate research design. *International Journal of Contemporary Applied Researches*, 6(5), 76-89.
- [3] Cepellos, V. M., & Tonelli, M. J. (2020). Grounded Theory: The Step-By-Step And Methodological Issues In Practice. [Grounded Theory: Passo A Passo E Questoes Metodológicas Na Prática] *Revista De Administração Mackenzie*, 21(5), 1-28. <https://doi.org/10.1590/1678-6971/eRAMG200130>
- [4] Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education*. Routledge.
- [5] 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.
- [6] Dhungana, S. (2022). Dialogic storytelling: a narrative research methodology in English language education. *Qualitative Research Journal*, 22(2), 173-187.
- [7] Elg, M., Gremyr, I., Halldorsson, Á., & Wallo, A. (2020). Service action research: review and guidelines. *Journal of Services Marketing*, 34(1), 87-99.
- [8] Erro-Garcés, A., & Alfaro-Tanco, J. A. (2020). Action research as a meta-methodology in the management field. *International Journal of Qualitative Methods*, 19, 1609406920917489.
- [9] Framp, A. C., McAllister, M., & Dwyer, T. (2019). Narrative research methods with vulnerable people: sharing insights. *Nurse Researcher*, 27(4).
- [10] Gamage, A. N. (2025). Research Design, Philosophy, and Quantitative Approaches in Scientific Research Methodology. *Sch J Eng Tech*, 2, 91-103.
- [11] Gogo, S., & Musonda, I. (2022). The Use of the Exploratory Sequential Approach in Mixed-Method Research: A Case of Contextual Top Leadership Interventions in Construction H&S. *International Journal of Environmental Research and Public Health*, 19(12), 7276. <https://doi.org/10.3390/ijerph19127276>
- [12] Guetterman, T. C., Fàbregues, S., & Sakakibara, R. (2021). Visuals in joint displays to represent integration in mixed methods research: A methodological review. *Methods in Psychology*, 5, 100080.
- [13] Kerari, A., Bahari, G., Aldossery, N., Qadhi, O., & Alghamdi, A. (2023). A mixed-methods sequential explanatory study of the factors that impact nurses' perspectives toward nurse practitioners' roles in Saudi Arabia. *Healthcare*, 11(1), 146. doi:<https://doi.org/10.3390/healthcare11010146>
- [14] Lee, J. (2019). Grounded theory of knowledge process on public ecosystem managers in Seoul. [Grounded theory of knowledge process] *The International Journal of Public Sector Management*, 32(2), 175-190. <https://doi.org/10.1108/IJPSM-02-2018-0036>

- [15] Mohajan, D., & Mohajan, H. (2023). Glaserian Grounded Theory and Straussian Grounded Theory: Two Standard Qualitative Research Approaches in Social Science.
- [16] Mohajan, H. K. (2020). Quantitative research: A successful investigation in natural and social sciences. *Journal of Economic Development, Environment and People*, 9(4), 50-79.
- [17] Nassaji, H. (2020). Good qualitative research. *Language Teaching Research*, 24(4), 427-431.
- [18] Ploder, A., & Hamann, J. (2021). Practices of ethnographic research: Introduction to the special issue. *Journal of Contemporary Ethnography*, 50(1), 3-10.
- [19] Reyes, E. (2023). Convergent Parallel Mixed Methods Study On Student Record Management System In Higher Education Institutions In Calamba City. Editorial Board, 26.
- [20] Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research methods for business students*. (8th ed.). Pearson education.
- [21] Schoonenboom, J., & Johnson, R. B. (2017). How to construct a mixed methods research design. *Kolner Zeitschrift fur Soziologie und Sozialpsychologie*, 69(Suppl 2), 107.
- [22] Shiyabola, O. O., Rao, D., Bolt, D., Brown, C., Zhang, M., & Ward, E. (2021). Using an exploratory sequential mixed methods design to adapt an Illness Perception Questionnaire for African Americans with diabetes: the mixed data integration process. *Health Psychology and Behavioral Medicine*, 9(1), 796-817. <https://doi.org/10.1080/21642850.2021.1976650>
- [23] Strudwick, R. M. (2021). Ethnographic research in healthcare—patients and service users as participants. *Disability and Rehabilitation*, 43(22), 3271-3275.
- [24] Stahl, N. A., & King, J. R. (2019). Expanding Approaches for Research: Action Research. *Journal of Developmental Education*, 43(1), 26-28,32. <https://www.proquest.com/scholarly-journals/expanding-approaches-research-action/docview/2317576188/se-2>
- [25] Tenny, S., Brannan, J. M., & Brannan, G. D. (2017). Qualitative study.
- [26] Tomaszewski, L. E., Zarestky, J., & Gonzalez, E. (2020). Planning qualitative research: Design and decision making for new researchers. *International Journal of Qualitative Methods*, 19 doi:<https://doi.org/10.1177/1609406920967174>
- [27] Toniolo, K., Masiero, E., Massaro, M., & Bagnoli, C. (2020). A grounded theory study for digital academic entrepreneurship. [Grounded theory study of digital AE] *International Journal of Entrepreneurial Behaviour & Research*, 26(7), 1567-1587. <https://doi.org/10.1108/IJEBR-06-2019-0402>
- [28] Toyon, M. A. S. (2021). Explanatory sequential design of mixed methods research: Phases and challenges. *International Journal of Research in Business and Social Science* (2147-4478), 10(5), 253-260.
- [29] Waqar, A. A., & Ameen, K. (2020). What do the business employers want? A sequential mixed methods exploration of information professionals' competencies. *Global Knowledge, Memory and Communication*, 69(8), 665-680. <https://doi.org/10.1108/GKMC-03-2020-0029>
- [30] Wolgemuth, J. R., & Agosto, V. (2019). Narrative research. *The blackwell encyclopedia of sociology*, 1-3.
- [31] Yu, X., & Khazanchi, D. (2017). Using embedded mixed methods in studying is phenomena: Risks and practical remedies with an illustration. *Using Embedded Mixed Methods in Studying IS Phenomena: Risks and Practical Remedies with an Illustration*, 41.