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Methodological Paper

Integrating Conceptual Frameworks in Mixed Methods Research: A Guide to Design and Application

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Abstract

Conceptual frameworks are critical yet often underdeveloped components of mixed methods research (MMR). This methodological paper presents a structured guide to integrating conceptual frameworks within major MMR designs to enhance coherence, theoretical grounding, and methodological rigor. It begins by clarifying the distinction between conceptual and theoretical frameworks and addressing common challenges in framework development, including methodological misalignment and fragmented integration. The paper introduces tailored conceptual models for three core MMR designs—Convergent Parallel, Explanatory Sequential, and Exploratory Sequential—illustrating how frameworks can systematically align research questions, data collection, analysis strategies, and integration points. Each framework includes visual representations that depict the flow of qualitative and quantitative strands and mechanisms for data integration, such as joint displays and connecting logics. By foregrounding the role of conceptual frameworks as scaffolds for inquiry, this study contributes practical tools and design logic to guide researchers in constructing methodologically sound mixed methods studies. It ultimately advocates for intentional framework use as a cornerstone of high-quality MMR.

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1. Introduction

Mixed methods research (MMR) has emerged as a powerful methodological approach that integrates qualitative and quantitative data to provide a more comprehensive understanding of research problems (Fetters et al., 2013). This methodological integration capitalizes on the strengths of both qualitative and quantitative paradigms, allowing researchers to generate deeper insights into complex phenomena (Bazeley, 2024; Greene et al., 1989). However, one of the critical challenges in conducting MMR is the effective integration of conceptual frameworks to ensure methodological coherence and rigor (Long & Rodgers, 2017). Conceptual frameworks serve as the structural foundation that links literature, research design, and data analysis, enabling researchers to clarify concepts, establish relationships, and justify methodological choices (Jabareen, 2009; Kulesa et al., 2024; Thorhallsson, 2017).

Despite their importance, conceptual frameworks are often underutilized or misapplied in MMR studies (Evans et al., 2011). Many researchers struggle to develop frameworks that align theoretical assumptions with practical research applications, leading to fragmented or inconsistent integration of methods (Haynes-Brown, 2022). This paper aims to address this gap by presenting suggested conceptual frameworks tailored to different MMR designs. Through a systematic discussion of their roles, applications, and integration strategies, this study provides a guide for researchers to strengthen the coherence, depth, and theoretical grounding of their mixed methods research.

2. Overview of Mixed Methods Research Designs

Mixed methods research is characterized by the deliberate combination of qualitative and quantitative research approaches within a single study to achieve a more holistic understanding of a research problem (Lall, 2021; Morgan, 2022; Roy, 2021). This methodological pluralism allows researchers to draw on the strengths of both paradigms, mitigate their individual weaknesses, and produce findings that are richer and more nuanced (Fetters et al., 2013; Hadi & Closs, 2015; Mavodza, 2022). Several key mixed methods designs have been identified in the literature:

2.1 Convergent Parallel Design: This design involves the simultaneous collection of qualitative and quantitative data, which are analyzed separately and then merged for comparison and interpretation (Creswell & Creswell, 2022; Lall, 2021; Roy, 2021). The purpose is to achieve triangulation, validation, and complementarity in research findings (Creswell & Creswell, 2022; Morgan, 2022).

2.2. Exploratory Sequential Design: In this approach, qualitative data collection and analysis occur first, followed by a quantitative phase that builds upon the initial findings (Baran, 2022; Jenkins et al., 2023; Lall, 2021). It is particularly useful for instrument development or when a phenomenon requires initial qualitative exploration before quantitative testing.

2.3. Explanatory Sequential Design: This design starts with the collection and analysis of quantitative data, followed by qualitative data collection to further explore or elaborate on the quantitative results (Creswell & Creswell, 2022; Jenkins et al., 2023; Toyon, 2021). It is effective in understanding unexpected quantitative findings and enriching statistical interpretations.

2.4. Embedded Design: In this approach, one type of data (qualitative or quantitative) is embedded within the dominant research methodology to offer additional insights (Greene et al., 1989). This design is particularly useful in program evaluations and intervention studies where supplementary qualitative insights can enhance the interpretation of quantitative findings.

2.5. Transformative Design: This design is guided by a theoretical framework that advocates for social change, such as critical theory or feminist theory (Long & Rodgers, 2017). It integrates qualitative and quantitative methods to address issues of power, inequality, and social justice.

2.6. Multiphase Design: This approach involves multiple phases of data collection over an extended period, often combining various mixed methods designs to address complex research questions (Morgan, 2022). It is commonly used in longitudinal studies and large-scale evaluations.

While these designs offer distinct advantages, their successful implementation hinges on the integration of well-defined conceptual frameworks that align with the study's objectives, methodology, and theoretical underpinnings.

3. The Role of Conceptual Frameworks in Mixed Methods Research

Conceptual frameworks are critical tools in mixed methods research (MMR) as they provide an organizing structure that links theoretical perspectives, research questions, and methodological choices (Jabareen, 2009; Kulesa et al., 2024). They serve multiple functions that enhance the clarity, coherence, and rigor of mixed methods studies. Conceptual frameworks help structure research inquiries by establishing a theory-based and data-driven rationale for the study (Antonenko, 2015). They provide a logical foundation for selecting appropriate mixed methods designs and data integration strategies. Additionally, they assist researchers in defining key concepts, articulating relationships between variables, and framing the study within an established body of knowledge (Thorhallsson, 2017). This is particularly crucial in MMR, where researchers must navigate the complexity of integrating diverse data sources. Furthermore, conceptual frameworks serve as a blueprint that informs methodological decisions, including data collection techniques, analytical procedures, and integration strategies (Bordage, 2009). They ensure that qualitative and quantitative components are aligned with the study's overarching objectives and theoretical perspectives.

3.1. Distinctions and Misconceptions

A common misconception in research is the interchangeable use of theoretical and conceptual frameworks. While both provide structural guidance, they serve distinct roles in research design (Green, 2014; Imenda, 2014; Varpio et al., 2019). Theoretical frameworks are typically employed in deductive research, drawing from established theories to formulate hypotheses and interpret findings (Majeed et al., 2023). In contrast, conceptual frameworks are more commonly used in inductive research, integrating multiple concepts to develop new theoretical insights (Adom et al., 2018; Kulesa et al., 2024; Thorhallsson, 2017).

3.2. Challenges in Developing Conceptual Frameworks for MMR

Despite their significance, constructing conceptual frameworks for MMR presents several challenges. One major challenge is ensuring coherence between qualitative and quantitative methodologies (Bazeley, 2024). Conceptual frameworks must emphasize interdependence and provide a systematic approach for data integration. Another challenge is the lack of widely accepted theoretical models to guide MMR, making it difficult for researchers to conceptualize studies and interpret findings (Evans et al., 2011; Haynes-Brown, 2022). Developing a robust framework can enhance the rigor and coherence of a study. Furthermore, while triangulation is a common purpose in MMR, it is often misapplied, leading to incomplete or inaccurate findings (Greene et al., 1989). Conceptual frameworks can help ensure proper

triangulation by aligning research questions with appropriate integration strategies. Lastly, the inherent complexity of MMR requires careful consideration of both theoretical and practical elements (Long & Rodgers, 2017). Conceptual frameworks provide a structured approach to managing this complexity, ensuring methodological rigor and coherence.

Conceptual frameworks play a vital role in enhancing the coherence, clarity, and methodological rigor of mixed methods research. By organizing inquiry, clarifying concepts, and guiding research design, they enable researchers to effectively integrate qualitative and quantitative methodologies. However, developing a robust conceptual framework requires addressing key challenges such as methodological integration, theoretical alignment, and proper triangulation. This paper provides suggested frameworks tailored to different MMR designs, offering researchers a structured approach to improving the theoretical and practical foundations of their studies.

4. Suggested Conceptual Frameworks for Different MMR Designs

Mixed methods research employs various designs, each requiring a conceptual framework that integrates qualitative and quantitative components effectively. This section presents suggested conceptual frameworks tailored to three major MMR designs: Convergent, Explanatory Sequential, and Exploratory Sequential.

4.1. The Convergent Mixed Methods (CMM)

CMM design is a well-established methodological approach that allows for the simultaneous collection and analysis of both quantitative and qualitative data. Unlike sequential designs, CMM emphasizes the parallel execution of both strands to gain a more comprehensive understanding of a research phenomenon (Creswell & Plano Clark, 2018). This design is particularly advantageous when researchers seek to compare, validate, or integrate different perspectives within a single study.

This paper presents a conceptual framework for CMM research, specifically focusing on psychological empowerment (PE) and organizational commitment (OC) as the key variables. The framework illustrates how correlational analysis in the quantitative phase and phenomenological inquiry in the qualitative phase contribute to the final integration of findings.

The conceptual framework for CMM, as depicted in Figure 1, consists of three core components: (1) the quantitative phase, (2) the qualitative phase, and (3) data integration. These components operate concurrently, with the final stage integrating insights from both datasets.

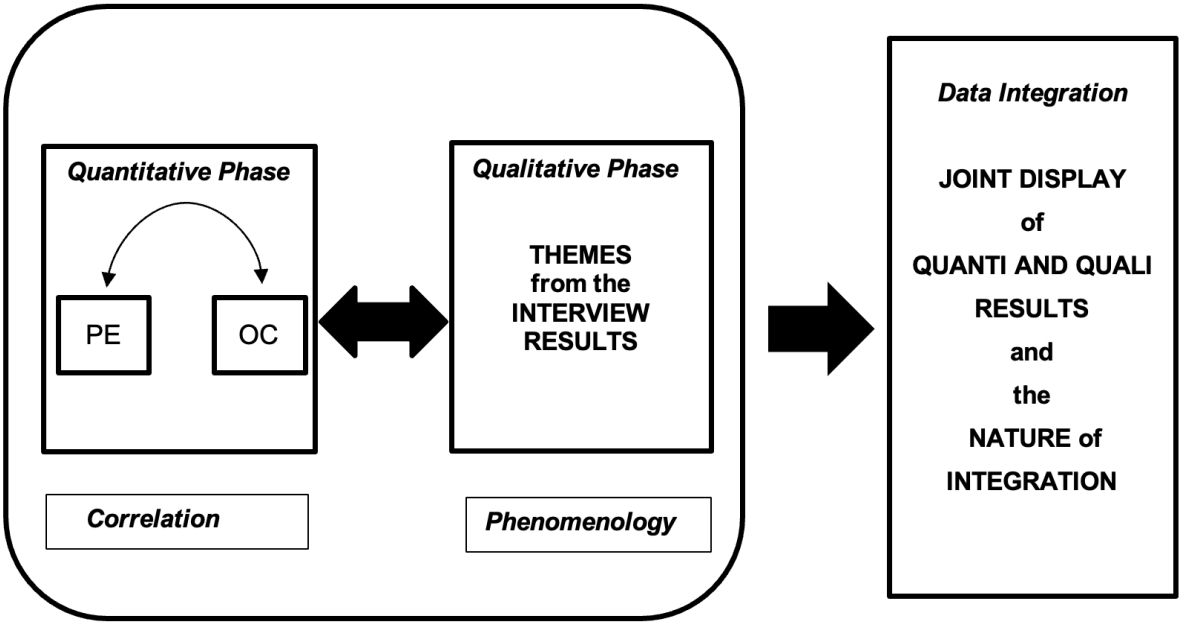
4.1.1. Quantitative Phase: Correlational Analysis of Key Variables

The quantitative phase employs a correlational analysis to examine the statistical association between psychological empowerment (PE) and organizational commitment (OC). The association is illustrated by a double-headed curved arrow between the two variables. By applying statistical tests, researchers can establish whether a significant relationship exists between these variables.

This approach aligns with the positivist paradigm, which relies on objective measurement and inferential analysis to determine patterns and relationships (Bryman, 2015). The statistical findings serve as an empirical foundation that can later be integrated with qualitative insights.

In this particular example, the quantitative phase involves a correlation analysis between two

variables, but other quantitative approaches or analyses such as regression, mediation, moderation, ANOVA, path, and SEM can be employed. These methods can be presented in the quantitative phase using their respective diagrams.



Legend:

PE – Psychological Empowerment
OC – Organizational Commitment

Figure 1. Conceptual Design Convergent Mixed Methods

4.1.2. Qualitative Phase: Phenomenological Exploration of Lived Experiences

Simultaneously, the qualitative phase adopts a phenomenological approach to capture participants' lived experiences regarding psychological empowerment and organizational commitment. Through in-depth interviews, researchers explore themes that highlight the subjective meanings and contextual influences that affect these constructs. Phenomenological inquiry is instrumental in uncovering the nuanced interpretations and individual variations that cannot be quantified (van Manen, 2016).

As presented in the figure, the thick double-headed arrow between the two phases indicates that the quantitative data, gathered through surveys and qualitative data, obtained through interviews, are collected simultaneously from different sets of participants. The statistical output obtained from correlation analysis and the themes generated from the interview results, employing a phenomenological approach, are enclosed in a squircle, symbolizing the integration of two methods in place, much like the squircle that combines the characteristics of a square and a circle. The parallel execution of both strands allows researchers to analyze data independently before integrating insights, ensuring that each dataset maintains its methodological rigor (Plano Clark & Ivankova, 2016).

4.1.3. Data Integration: Joint Display and Interpretation

The final stage of CMM involves data integration, where findings from both quantitative and

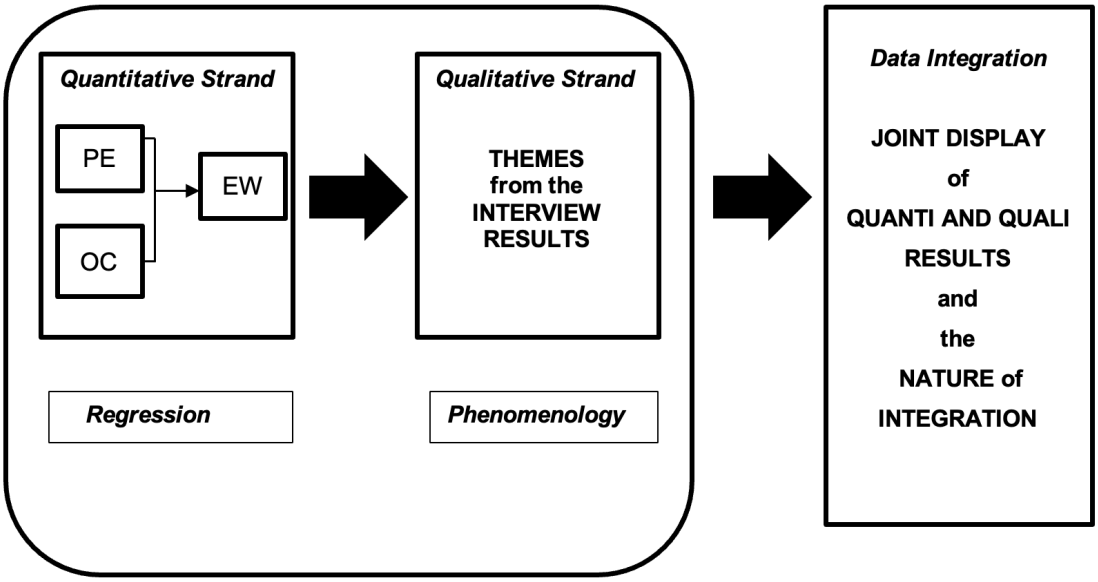
qualitative phases are compared, contrasted, and synthesized. Following the principles of mixed methods integration (Fetters, Curry, & Creswell, 2013), this process typically occurs through a joint display, allowing researchers to visually align quantitative correlations with qualitative themes.

In this framework, integration occurs through a convergent approach, where both strands are equally weighted and analyzed for points of convergence or divergence. For instance, if the correlational analysis indicates a strong relationship between PE and OC, but qualitative interviews reveal inconsistencies or additional influencing factors, these insights are reconciled to produce a more holistic interpretation of the phenomenon.

The convergent mixed methods approach is an effective research design that allows for a parallel exploration of different data types, enhancing the depth and validity of findings. The conceptual framework presented here outlines a structured pathway for implementing CMM, emphasizing the importance of integration for a more nuanced understanding. Future applications of this framework should consider advanced integration techniques to further refine mixed methods research.

4.2. The Explanatory Sequential Mixed Methods (EaSMM)

EaSMM design is a robust methodological approach that integrates quantitative and qualitative research strands to provide a comprehensive understanding of a given phenomenon. As one of the most widely employed mixed methods designs (Creswell & Plano Clark, 2018), the EaSMM design follows a two-phase structure where the quantitative strand is conducted first, followed by the qualitative strand, which seeks to explain or elaborate on the quantitative findings. The integration of these two strands enhances the depth of interpretation by contextualizing numerical data with qualitative insights (Tashakkori & Teddlie, 2010).



Legend:

PE – Psychological Empowerment
OC – Organizational Commitment
EW – Employee Well-Being

Figure 2. Conceptual Design Explanatory Sequential Mixed Methods

This paper presents a conceptual framework tailored for EaSMM research, with a particular focus on psychological empowerment (PE), organizational commitment (OC), and employee well-being (EW) as key variables of interest. The framework illustrates how regression analysis in the quantitative phase informs the qualitative inquiry, which subsequently leads to an integrated interpretation of findings.

The conceptual framework for EaSMM, as illustrated in Figure 2, consists of three key components: (1) the quantitative strand, (2) the qualitative strand, and (3) data integration. Each of these phases plays a critical role in ensuring a coherent and rigorous mixed methods approach.

4.2.1. Quantitative Strand: Establishing Statistical Relationships

The first phase of the EaSMM design employs quantitative methods to identify relationships among key variables. In this framework, the variables under study include psychological empowerment (PE), organizational commitment (OC), and employee well-being (EW). Regression analysis is conducted to determine the extent to which PE and OC predict EW. This quantitative approach aligns with the principles of positivist inquiry, which prioritizes objective measurement and statistical inference (Bryman, 2015). The findings from this phase provide a structured basis for developing the qualitative phase, ensuring that the qualitative inquiry is directly informed by empirical evidence (Creswell, 2014).

4.2.2. Qualitative Strand: Exploring Themes Through Phenomenology

The second phase of EaSMM involves a qualitative strand that seeks to explore and explain the quantitative findings through phenomenological inquiry (Moustakas, 1994). This phase is particularly useful in understanding how individuals experience and perceive psychological empowerment and organizational commitment in relation to their well-being. By conducting in-depth interviews, the researcher gathers rich narratives that elucidate underlying mechanisms, contextual factors, and personal interpretations that cannot be captured through statistical analysis alone. The phenomenological approach is instrumental in capturing the lived experiences of employees, thus offering a more nuanced understanding of the variables under study (van Manen, 2016).

Unlike the CMM as described above, the thick arrow between the quantitative and qualitative phases is a directional arrow indicating that the quantitative results are needed as the basis for the interviews to be conducted with a small group of participants who are methodically selected from the respondents of the quantitative survey. As the term “explanatory sequential” suggests, the qualitative interview output will explain in-depth the quantitative results of the study. As specified in the CMM, the quantitative phase may involve other approaches/analyses, represented by an appropriate diagram. The qualitative phase, on the other hand, may employ other approaches aside from phenomenology, such as narrative inquiry, ethnography, or any other appropriate method that may prove or disprove the results of the quantitative phase.

4.2.3. Data Integration: Synthesizing Quantitative and Qualitative Findings

The final component of the ESMM framework is data integration, which involves a joint display of quantitative and qualitative findings, as well as the interpretation of the nature of integration. According to Fetters, Curry, and Creswell (2013), integration can occur through merging, connecting, or embedding the two datasets. In this framework, integration occurs through connecting, whereby qualitative findings are used to explain quantitative results. For instance, if the regression analysis finds that psychological empowerment significantly predicts employee well-being, qualitative interviews may reveal the specific aspects of empowerment that contribute to employees' perceptions of well-being.

By juxtaposing numerical trends with thematic insights, researchers achieve methodological complementarity, allowing for a more holistic and enriched understanding of the research problem (Plano Clark & Ivankova, 2016). The nature of integration is explicitly articulated to ensure transparency in how different strands of data contribute to the final interpretation.

The Explanatory Sequential Mixed Methods approach is a powerful research design that enables a layered understanding of complex phenomena by leveraging the strengths of both quantitative and qualitative methodologies. The conceptual framework presented outlines a structured pathway for conducting ESMM research, emphasizing the importance of integration for enriched interpretation. Future research employing this framework should consider iterative refinement based on emerging themes and adaptive data integration techniques to enhance methodological robustness.

4.3. The Exploratory Sequential Mixed Methods (EoSMM)

EoSMM design is a systematic approach that begins with a qualitative phase, followed by a quantitative phase, and concludes with data integration. This design is particularly useful when researchers aim to explore a phenomenon in-depth before testing it quantitatively (Creswell & Plano Clark, 2018). By initially uncovering key themes through qualitative analysis, ESMM allows for the development of a structured survey instrument for broader generalizability in the subsequent quantitative phase.

This paper presents a conceptual framework for EoSMM research, specifically focusing on language vitality as the central construct. The framework illustrates how phenomenological inquiry informs the development of a survey tool, which is subsequently tested through factor analysis, leading to an integrated interpretation of findings.

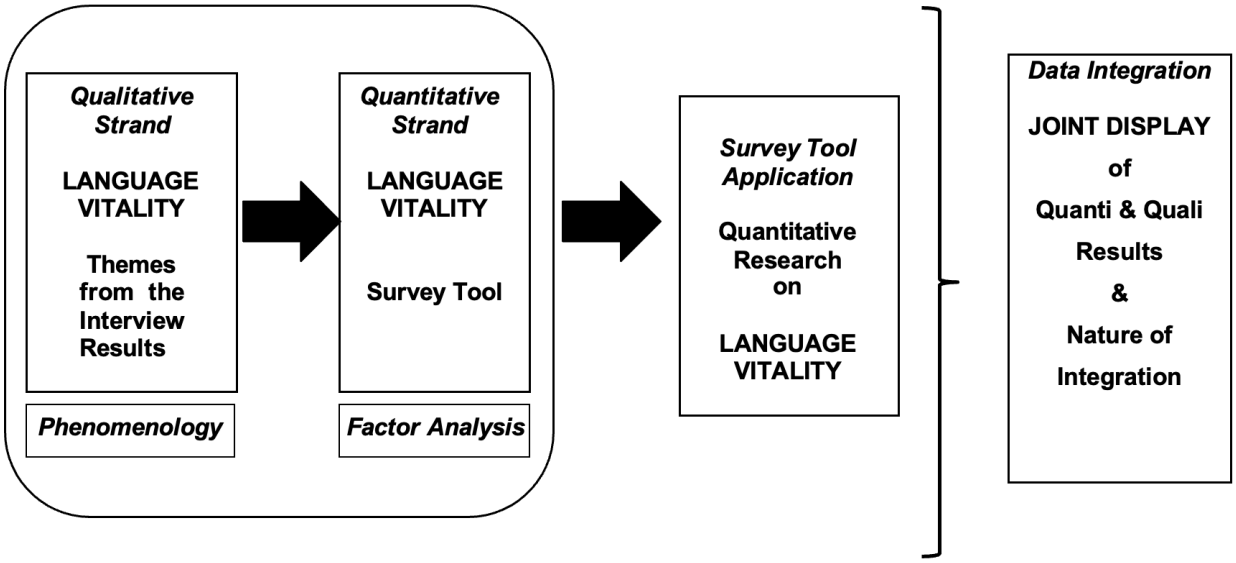


Figure 3. Conceptual Design Exploratory Sequential Mixed Methods

The conceptual framework for EoSMM, as depicted in Figure 3, consists of three core components: (1) the qualitative strand, (2) the quantitative strand, and (3) data integration. Each phase builds upon the previous one to ensure methodological coherence and alignment.

4.3.1. Qualitative Strand: Phenomenological Exploration of Language Vitality

The qualitative phase employs phenomenology to explore individuals' lived experiences regarding language vitality. Through in-depth interviews, this phase uncovers key themes related to sociolinguistic, cultural, and contextual factors affecting language vitality. Phenomenological inquiry is particularly useful for capturing subjective perceptions and meaning-making processes that are not readily quantifiable (van Manen, 2016).

The insights derived from this phase inform the development of a survey tool, ensuring that the items included in the instrument are directly grounded in the qualitative data (Bryman, 2015). This phase serves as the foundation for the subsequent quantitative phase by ensuring that the measurement tool accurately reflects the lived experiences of the target population.

4.3.2. Quantitative Strand: Survey Tool Development and Factor Analysis

The second phase of EoSMM involves quantitative research to validate and measure the construct of language vitality. A survey tool is developed based on qualitative themes and administered to a larger sample to assess the generalizability of the findings.

This phase employs factor analysis, a statistical technique used to identify the underlying dimensions of language vitality. Factor analysis ensures that the survey instrument has construct validity, allowing researchers to confirm that the identified themes accurately represent measurable factors (Creswell, 2014). By applying statistical tests, researchers refine the survey tool and determine the reliability and validity of the items.

4.3.3. Data Integration: Joint Display and Interpretation

The final phase of EoSMM involves data integration, where qualitative and quantitative findings are synthesized. Following the principles of mixed methods integration (Fetters, Curry, & Creswell, 2013), integration occurs through connecting—where qualitative themes inform the structure of the survey tool—and merging, where findings from both phases are jointly interpreted.

A joint display is utilized to compare qualitative themes and quantitative factor analysis results, ensuring alignment between subjective experiences and measurable constructs. This integration enhances the depth of interpretation, providing a holistic understanding of language vitality that captures both rich personal narratives and statistical generalizability.

The Exploratory Sequential Mixed Methods approach is a powerful research design that allows for a systematic transition from qualitative exploration to quantitative validation. The conceptual framework presented here provides a structured pathway for conducting EoSMM research, emphasizing the importance of methodological rigor and integration. Future applications of this framework should consider iterative refinement of survey instruments and adaptive statistical modeling techniques to enhance research validity.

5. Methodological Considerations for Using Conceptual Frameworks in MMR

A well-defined conceptual framework should align closely with the research questions to ensure coherence in mixed methods research. Researchers must justify their framework selection based on the nature of the study, ensuring that the integration of qualitative and quantitative data addresses the core

research objectives (Creswell, 2014).

Effective integration requires a guiding framework that facilitates the meaningful synthesis of qualitative and quantitative findings. Researchers should adopt systematic strategies, such as joint displays or meta-inferences, to bridge methodological paradigms and enhance the comprehensiveness of their interpretations (Plano Clark & Ivankova, 2016).

Ensuring validity and reliability in MMR involves triangulation, cross-validation, and consistency checks between qualitative and quantitative components. Researchers should employ rigorous data collection and analysis techniques to strengthen the credibility of their findings (Bryman, 2015).

6. Conclusion and Recommendations

The conceptual frameworks presented in this paper provide structured pathways for implementing MMR designs. Methodological rigor, ethical considerations, and data integration strategies play a crucial role in enhancing research validity. Future studies should refine integration techniques to optimize the robustness of mixed methods research.

Conflicts of Interest: *The authors declare no conflict of interest.*

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