Conceptual framework development: a systematic review and an integrative methodological pathway

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ARTIGO

CONCEPTUAL FRAMEWORK DEVELOPMENT: A SYSTEMATIC REVIEW AND AN INTEGRATIVE METHODOLOGICAL PATHWAY

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ABSTRACT: Conceptual frameworks are widely used across scientific fields to synthesize dispersed knowledge and structure the interpretation of complex phenomena. However, the literature still lacks systematic descriptions of how these frameworks are developed, which stages underpin their construction, and how analytical decisions are made throughout the process. In this context, this study conducts a Systematic Literature Review (SLR) on the development of conceptual models and frameworks, aiming to identify recurring principles, map methodological differences, and examine how distinct fields structure processes of conceptual synthesis. Methodologically, 37 studies were selected and analyzed through thematic coding and interpretive synthesis, enabling an examination of how different traditions mobilize deductive, inductive, and abductive approaches in conceptual development. The results reveal convergences in stages such as phenomenon delimitation, evidence gathering, concept extraction, organization of relationships, and internal verification, alongside variations related to analytical logic, level of abstraction, use of empirical evidence, and forms of visual representation. Based on this mapping, the study proposes a methodological framework structured into eight stages distributed across three analytical moments (preparation, construction, and consolidation), integrating practices identified across different fields and offering a systematic pathway for conceptual framework development. By organizing dispersed methodological elements into a coherent analytical sequence, the proposed structure contributes to reducing the ambiguity that frequently characterizes conceptual framework construction and supports researchers in the transparent articulation of concepts, relationships, and analytical decisions across different research domains.

Keywords: Conceptual Framework, Systematic Literature Review, Conceptual Modeling, Research Methodology, Conceptual Synthesis.

DESENVOLVIMENTO DE FRAMEWORKS CONCEITUAIS: UMA REVISÃO SISTEMÁTICA E UM PERCURSO METODOLÓGICO INTEGRADOR

RESUMO: Frameworks conceituais são amplamente utilizados em diferentes campos científicos para sintetizar conhecimentos dispersos e estruturar a interpretação de fenômenos complexos. No entanto, a

literatura ainda carece de descrições sistemáticas sobre como esses frameworks são desenvolvidos, quais etapas sustentam sua construção e como as decisões analíticas são tomadas ao longo do processo. Nesse contexto, este estudo realiza uma Revisão Sistemática da Literatura (RSL) sobre o desenvolvimento de modelos e frameworks conceituais, com o objetivo de identificar princípios recorrentes, mapear diferenças metodológicas e examinar como distintos campos estruturam processos de síntese conceitual. Metodologicamente, 37 estudos foram selecionados e analisados por meio de codificação temática e síntese interpretativa, permitindo examinar como diferentes tradições mobilizam abordagens dedutivas, indutivas e abdutivas no desenvolvimento conceitual. Os resultados revelam convergências em etapas como delimitação do fenômeno, coleta de evidências, extração de conceitos, organização de relações e verificação interna, bem como variações relacionadas à lógica analítica, ao nível de abstração, ao uso de evidências empíricas e às formas de representação visual. Com base nesse mapeamento, o estudo propõe um framework metodológico estruturado em oito etapas distribuídas em três momentos analíticos (preparação, construção e consolidação), integrando práticas identificadas em diferentes campos e oferecendo um percurso sistemático para o desenvolvimento de frameworks conceituais. Ao organizar elementos metodológicos dispersos em uma sequência analítica coerente, a estrutura proposta contribui para reduzir a ambiguidade que frequentemente caracteriza a construção de frameworks conceituais e apoia pesquisadores na articulação transparente de conceitos, relações e decisões analíticas em diferentes domínios de pesquisa.

Palavras-chave: Framework Conceitual, Revisão Sistemática da Literatura, Modelagem Conceitual, Metodologia de Pesquisa, Síntese conceitual.

DESARROLLO DE FRAMEWORKS CONCEPTUALES: UNA REVISIÓN SISTEMÁTICA Y UN RECORRIDO METODOLÓGICO INTEGRADOR

RESUMEN: Los frameworks conceptuales son ampliamente utilizados en diferentes campos científicos para sintetizar conocimientos dispersos y estructurar la interpretación de fenómenos complejos. Sin embargo, la literatura aún carece de descripciones sistemáticas sobre cómo se desarrollan estos frameworks, qué etapas sustentan su construcción y cómo se toman las decisiones analíticas a lo largo del proceso. En este contexto, este estudio realiza una Revisión Sistemática de la Literatura (RSL) sobre el desarrollo de modelos y frameworks conceptuales, con el objetivo de identificar principios recurrentes, mapear diferencias metodológicas y examinar cómo distintos campos estructuran procesos de síntesis conceptual. Metodológicamente, se seleccionaron y analizaron 37 estudios mediante codificación temática y síntesis interpretativa, lo que permitió examinar cómo diferentes tradiciones movilizan enfoques deductivos, inductivos y abductivos en el desarrollo conceptual. Los resultados revelan convergencias en etapas como la delimitación del fenómeno, la recopilación de evidencias, la extracción de conceptos, la organización de relaciones y la verificación interna, así como variaciones relacionadas con la lógica analítica, el nivel de abstracción, el uso de evidencias empíricas y las formas de representación visual. A partir de este mapeo, el estudio propone un framework metodológico estructurado en ocho etapas distribuidas en tres momentos analíticos (preparación, construcción y consolidación), integrando prácticas identificadas en diferentes campos y ofreciendo un recorrido sistemático para el desarrollo de frameworks conceptuales. Al organizar elementos metodológicos dispersos en una secuencia analítica coherente, la estructura propuesta contribuye a reducir la ambigüedad que frecuentemente caracteriza la construcción de frameworks conceptuales y apoya a los investigadores en la articulación transparente de conceptos, relaciones y decisiones analíticas en distintos dominios de investigación.

Palabras clave: Framework Conceptual, Revisión Sistemática de la Literatura; Modelización Conceptual; Metodología de Investigación; Síntesis Conceptual.

INTRODUCTION

In contemporary scientific research, conceptual frameworks play a structuring role by enabling researchers to represent phenomena in abstract terms and to articulate theory, evidence, and analytical inference (Grames et al., 2022). These frameworks are not limited to descriptive schemes; rather, they constitute integrative structures that organize categories, mechanisms, and relationships, synthesizing dispersed knowledge and providing support for interpretation, explanation, and methodological design. By operating across different levels of abstraction, they become instruments capable of sustaining internal coherence and guiding inquiry in contexts characterized by increasing complexity (Jaakkola, 2020; Partelow, 2023).

In the field of educational research, conceptual frameworks perform a central function in guiding the formulation of research problems, the definition of analytical boundaries, and the articulation between theory, method, and empirical evidence (Waldt, 2020; Soliani et al., 2025). In studies addressing teaching, learning, educational policy, and teacher education, these instruments are widely employed as structuring references (Sale & Carlin, 2025). Nevertheless, despite their recurrent use, the processes through which such frameworks are constructed are rarely described in a systematic manner, which undermines methodological transparency, researcher training, and the reproducibility of investigations (Luft et al., 2022).

At the same time, the use of conceptual models has expanded across different fields of knowledge, particularly in studies aimed at organizing complex phenomena and guiding analytical processes (Lindgreen et al., 2021). This growing presence can be explained by the usefulness of these arrangements across multiple research traditions. In diverse domains, frameworks assist in structuring extensive thematic fields, strengthening theoretical consistency, and enabling empirical approaches to be conducted with greater clarity (Waldt, 2020).

These frameworks also facilitate dialogue among researchers by providing a shared basis for interpreting problems that cut across disciplinary boundaries. For these reasons, understanding the process of framework development is relevant not only for early-career researchers but also for those working in established fields (Luft et al., 2022).

This trend can be observed in studies in the health sciences (Tark et al., 2023), the built environment (Ullah, 2021), Amazonian bioeconomy research (Silva et al., 2025), and investigations focused on knowledge integration within interdisciplinary teams (Zhang et al., 2025). Although situated within distinct traditions, these contributions consistently indicate that the development of conceptual models requires a structured process, guided by theoretical, methodological, and interpretive decisions that shape the definition of analytical categories and relationships.

Despite this expansion, many studies do not provide detailed accounts of the procedures employed in constructing their models (Koivunen et al., 2022). There are substantial variations in how different fields present stages, methods, and criteria, which limits comparability across studies and reduces transparency in analytical processes (Lindgreen et al., 2021). In many cases, conceptual models are formulated on the basis of author-selected interpretations, loosely systematized syntheses of the literature, or methodological choices that remain implicit (McMeekin et al., 2020).

Other studies reinforce this diagnosis. Sale and Carlin (2025) argue that the prescriptive use of frameworks may lead to analytical simplification and compromise methodological clarity. Grames et al. (2022) identify ad hoc approaches in hypothesis synthesis and conceptual model formulation. Schreiber and Cramer (2022) observe that the absence of formal methodological design principles affects model reproducibility. Nagel and Partelow (2022) show that the lack of shared guidelines hampers comparison across studies, while Paul et al. (2023) emphasize the need to strengthen analytical capacities aimed at producing more systematic conceptual contributions.

In response to these challenges, more explicitly articulated methodological proposals have emerged, such as the SODIP approach presented by Eyzaguirre and Fernandes (2024), as well as collaborative approaches that conceptualize frameworks as instruments for disciplinary integration, as described by Zhang et al. (2025). Although relevant, these initiatives remain fragmented and largely tailored to the specific demands of fields such as ecology, health, the built environment, or socio-environmental studies.

Against this backdrop, it becomes evident that there is still no unified methodological pathway capable of guiding researchers across different fields. The literature lacks an integrative synthesis that brings together principles, stages, and criteria applicable to diverse research traditions and that allows the process through which evidence is transformed into conceptual models to be traced in an organized manner. This situation gives rise to the following question: is it possible to articulate methodological elements and guidelines that can serve as a foundation for the development of conceptual frameworks across different scientific domains?

This article contributes to this debate by conducting a systematic review of the specialized literature on the development of conceptual models and frameworks, with particular emphasis on its implications for educational research and for the methodological training of researchers. Given the diversity of fields that employ these instruments, the objective is to identify recurring elements, map methodological variations, and systematize strategies that support researchers in the transparent and theoretically grounded construction of conceptual models. The review was guided by the following research question: what methods, principles, and stages are described in the literature for the development of conceptual frameworks?

Based on this mapping, the article presents an integrative methodological framework that brings together dispersed contributions from the literature and organizes, within a clear analytical pathway, the stages involved in the development of conceptual frameworks. The proposed framework seeks to strengthen initiatives aimed at organizing complex phenomena by offering a systematized foundation capable of supporting research across multiple disciplinary contexts, with potential relevance for educational research and for the methodological training of researchers.

CONCEPTUAL MODELS AND FRAMEWORKS AS INSTRUMENTS FOR THEORETICAL SYSTEMATIZATION

The development of conceptual models has become established as a relevant practice across different fields of science, particularly in contexts that require the organization of knowledge, the integration of dispersed research, and the orientation of research agendas. The construction of these models involves theoretical and methodological choices that reflect both the traditions of each field and the researcher's intentions when representing a given phenomenon (Jabareen, 2009). Conceptual models are used to structure the core elements of a topic, make relationships explicit, and provide support for analytical interpretation (Naeem et al., 2023; Sale & Carlin, 2025). Despite the expansion of this practice, conceptual divergences persist regarding the distinctions between models, frameworks, and related categories, which makes it necessary to clarify these terms before advancing to the methodological discussion developed in the following sections.

Conceptual models and frameworks: distinctions and convergences

The use of the terms conceptual model and conceptual framework varies across fields and authors, making it necessary to clarify how these expressions are employed in the literature. In fields such as management and education, conceptual framework commonly refers to an organizing structure composed of categories or dimensions that assist in understanding a phenomenon (Koivunen et al., 2022; Soliani et al., 2025). In areas such as ecology and public health, by contrast, conceptual model is more frequently used to represent mechanisms, processes, or hypotheses concerning interactions among elements, as evidenced by studies focused on the development of applied models in public health (Brady et al., 2020). This terminological distinction stems from different ways of conceptualizing phenomena: while frameworks emphasize the organization of elements and relationships, conceptual models privilege dynamics, mechanisms, and trajectories, reflecting epistemological traditions specific to each field.

Despite these differences, the literature converges in recognizing that conceptual models and frameworks perform similar functions by synthesizing knowledge, organizing concepts, and structuring interpretations of a phenomenon. Heger et al. (2021) describe conceptual models as structured syntheses that articulate hypotheses, explanations, or mechanisms and may include causal relationships. Ullah (2021), in turn, characterizes frameworks as analytical tools designed to visualize and systematize elements

of a topic, particularly when developed on the basis of literature reviews. In this sense, frameworks can be understood as boundary objects, capable of integrating different disciplinary perspectives without requiring the full unification of methods or concepts (Zhang et al., 2025).

MacInnis (2011) adopts a broader conception by using the term to refer to any conceptual contribution that enables the identification, connection, or explication of ideas. Taken together, these perspectives suggest that, in practice, both terms operate as instruments for organizing and interpreting complex phenomena.

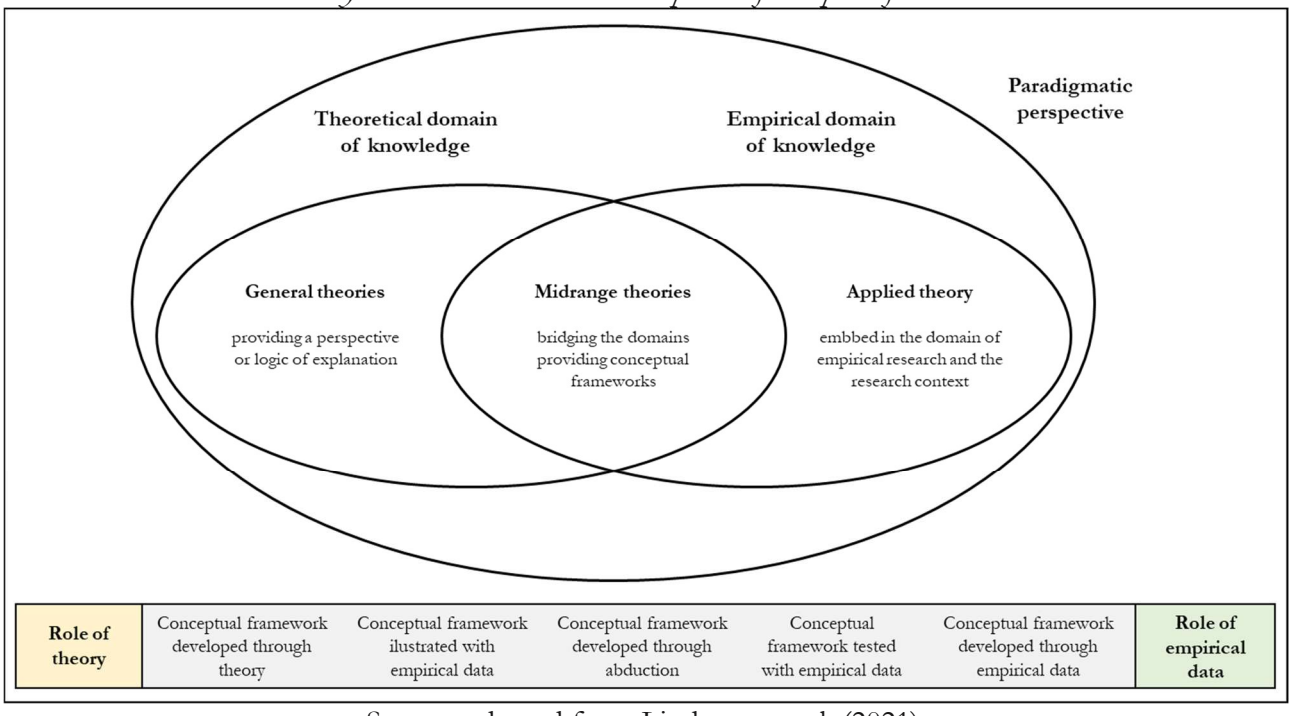
Given this variety of uses, two complementary tendencies can be identified in the literature. The first seeks to differentiate the terms, viewing conceptual models as representations oriented toward mechanisms, processes, or causal relationships, while conceptual frameworks function as structures that organize analytical categories or dimensions. The second tendency uses the terms in an almost interchangeable manner, treating both as theoretical constructions intended to interpret complex phenomena, regardless of the level of detail or analytical orientation adopted.

In light of this scenario, it is necessary to specify the terminology adopted in this study. The term conceptual framework is used here for four reasons: (1) it is a more encompassing term, capable of covering both structural schemes and mechanism-oriented models; (2) recent literature frequently employs the expression conceptual framework to refer to systematized processes of theoretical synthesis (Ullah, 2021; Tark et al., 2023; Eyzaguirre & Fernandes, 2024); (3) the use of the term framework facilitates the integration of different disciplinary traditions, particularly due to its function as a boundary object (Zhang et al., 2025); and (4) its adoption supports methodological standardization in studies that aim to organize elements of a topic without necessarily proposing detailed causal relationships.

Accordingly, in this study, a conceptual framework is understood as an abstract structure that coherently organizes concepts, categories, dimensions, mechanisms, or hypotheses in order to support processes of interpretation, analysis, and knowledge development. As argued by Jabareen (2009), conceptual frameworks constitute flexible structures that articulate different levels of abstraction and can be constructed through the interaction of theory, empirical evidence, and the researcher's analytical interpretation. This relationship between theory and data is synthesized in Figure 1, which positions conceptual frameworks along a continuum of abstraction.

Figure 1

Theory–data continuum in the development of conceptual frameworks



Source: adapted from Lindgreen et al. (2021).

By situating framework development between structures grounded in established theories and interpretations derived from empirical data, Figure 1 highlights the existence of intermediate approaches that combine both domains, including abductive processes. Within this continuum, middle-range theories emerge as a point of convergence, providing analytical foundations capable of supporting frameworks oriented both toward the interpretation of phenomena and the guidance of empirical investigations. This perspective reinforces the hybrid character of conceptual frameworks and prepares the discussion of their functions in scientific research, which is developed in the following section.

Analytical and methodological functions of conceptual frameworks

Conceptual frameworks perform distinct functions depending on the field of application and the type of investigation conducted. Conceptual contributions may range from the identification of new concepts to the integration of ideas that result in broader analytical structures. These arrangements act as guides that support hypothesis formulation and orient the development of empirical studies (Lindgreen et al., 2021).

A recurrent function relates to their organizing role, as frameworks assist in understanding complex topics and in identifying gaps in knowledge. The development of such structures facilitates the visualization of relationships among components and creates conditions for dialogue across different theoretical approaches (Luft et al., 2022). This perspective is emphasized by Eyzaguirre and Fernandes (2024), who advocate the use of frameworks as instruments of synthesis in socio-environmental research grounded in systematic literature reviews.

In interdisciplinary contexts, frameworks also assume an integrative function. Collaboratively developed models can operate as boundary objects, bringing together distinct fields and facilitating communication among researchers who mobilize diverse theoretical perspectives. This process enables the exploration of multiple interpretations of a phenomenon without compromising the internal coherence of the proposed arrangement (Zhang et al., 2025).

Another relevant function lies in the capacity of frameworks to support investigations grounded in the structured synthesis of evidence. Johanning et al. (2024) present an approach that organizes concepts, identifies recurring patterns, and combines findings from different studies. From this perspective, frameworks function as analytical representations that accompany the evolution of a field over time and guide the formulation of future research agendas.

Notwithstanding these functions, the literature presents different methodological pathways for the development of conceptual frameworks, ranging from analytically driven approaches based on literature reviews to collaborative methods emerging from interdisciplinary efforts. This diversity reveals a field marked by heterogeneous strategies, formulated to address the specific demands of each area and not always articulated with one another. Even so, certain steps tend to recur and structure the development of these models.

In this regard, approaches guided by structured literature reviews emphasize the need to precisely define the research problem, conduct systematic searches, and organize concepts into logical arrangements. Conceptual clarity and reproducibility emerge, in this context, as central elements of the process (Ullah, 2021). Grames et al. (2022) propose a procedure focused on the detailed mapping of hypotheses and the identification of relationships among them, representing these connections through networks. This type of approach supports the construction of process- and mechanism-oriented frameworks, particularly in fields that address ecological, environmental, or organizational phenomena.

Eyzaguirre and Fernandes (2024) structure SODIP as a set of five stages that combine systematic literature reviews, the use of open software and databases, data visualization, and the identification of trends prior to framework formulation. For these authors, conceptual frameworks result from an analytical process that integrates different types of information and articulates multiple sources.

In the construction of these arrangements, iterative and collaborative practices are emphasized, in which concepts, categories, and terminologies are refined through interactions among researchers from different fields (Zhang et al., 2025). From this perspective, framework development involves collective construction, negotiation of meanings, and successive revisions.

Taken together, these approaches demonstrate that, although they offer relevant contributions, they do not constitute a unified methodological pathway. Nevertheless, they allow for the identification of recurring strategies, among which stand out the clear definition of the phenomenon, systematic mapping of the literature, extraction of concepts and relationships, structured graphical representation, and validation of the resulting framework within the scientific community.

METHODOLOGY

A qualitative approach was adopted, considering the interpretive nature of the problem under investigation (Ahmed, 2024), which requires examining how different fields conceptualize, define, and structure conceptual frameworks. This object of study depends on the analysis of meanings, theoretical decisions, and methodological choices made explicit by authors, elements that cannot be adequately captured through quantitative procedures.

The qualitative approach made it possible to identify patterns, convergences, and variations in the ways models and frameworks are constructed, as well as to interpret nuances present in the justifications, stages, and foundations reported in the literature. This strategy enabled the analysis and synthesis of theoretical and procedural contributions dispersed across multiple fields of knowledge, serving as the basis for proposing an integrative methodological structure.

In this sense, the investigation focused on the interpretive analysis of studies that discuss the methods, processes, and foundations employed in the construction of conceptual frameworks, seeking to understand both the internal logic of each approach and the points of articulation that allow for the consolidation of a shared methodological pathway.

Conducting the Systematic Literature Review (SLR)

The SLR was conducted in accordance with the guidelines proposed by Paul et al. (2023), following the stages of defining the research question, developing the search strategy, screening studies, extracting information, and synthesizing the selected material. Given that the aim of the study was to examine methods for constructing conceptual frameworks, an interpretive approach aligned with the practices described by Luft et al. (2022) was also adopted.

Only studies published in English and Portuguese were considered, reflecting the predominance of English in the international methodological literature and enabling the inclusion of relevant Portuguese-language contributions aligned with the objectives of the review. Searches were carried out in the Scopus, Web of Science, and SciELO databases, using structured search strings in English with Boolean operators, such as: ("conceptual framework development" OR "conceptual framework design" OR "developing conceptual frameworks" OR "framework building process" OR "conceptual model construction" OR "conceptual modelling" OR "theoretical model development") AND (develop* OR construct* OR design* OR build*), with appropriate adaptations to the specific features of each search engine and to the resources available in each database.

The selection of descriptors was based on their recurrence in the literature addressing formal processes of conceptual construction across different fields of knowledge. No disciplinary limits were established, as the objective was to identify transversal methodological patterns.

The temporal scope covered the period from 2005 to 2025, corresponding to the consolidation of more systematic methodological approaches to conceptual model development. Over the past two decades, systematic reviews have gained increasing prominence in scientific production, alongside the development of more structured techniques for theoretical synthesis (Paul et al., 2023) and the expanded use of conceptual frameworks as instruments for organizing and explaining complex phenomena (Luft et al., 2022). This time frame made it possible to identify contemporary guidelines aligned with current standards of methodological rigor while simultaneously ensuring sufficient theoretical diversity for a comprehensive analysis.

The review included articles published in peer-reviewed journals that describe formal processes for developing conceptual frameworks, presenting foundations, stages, methods, or strategies of elaboration, as well as studies that offer structured theoretical syntheses. Excluded were studies that

employ frameworks without explicitly describing their construction processes, works focused exclusively on mathematical, physical, or computational models, documents with insufficient methodological information, as well as book chapters, editorials, conference proceedings, and grey literature. The application of these criteria ensured the inclusion only of studies with a level of detail adequate for identifying the stages, methods, and foundations involved in the construction of conceptual frameworks.

Study screening was conducted in accordance with the PRISMA 2020 guidelines (Page et al., 2021). Initially, database filters (year, language, and document type) were applied, followed by the removal of duplicates and verification of full-text availability. Subsequently, titles and abstracts were screened with a preliminary application of the inclusion and exclusion criteria. Potentially eligible studies were then assessed in full to reapply these criteria in detail and to verify their relevance. Ultimately, the final sample of studies that underpinned the SLR was defined.

Interpretive analysis and conceptual framework development

The qualitative analysis was conducted following an interpretive logic structured around three complementary movements, inspired by the practical thematic analysis approach proposed by Saunders et al. (2023). The first movement consisted of extracting information from the selected studies, focusing on definitions of conceptual frameworks, the objectives and purposes attributed by the authors, strategies of theoretical synthesis, stages of development, validation procedures, and the forms of graphical representation adopted.

Subsequently, thematic coding was carried out in an interpretive manner, organizing the information into categories emerging from the literature. These categories included the definition of the phenomenon and its scope, the mapping and synthesis of the scientific literature, the identification of core concepts and structuring relationships, the development of the conceptual arrangement, the visual representation of the model, and procedures for internal and external validation. This stage enabled the identification of recurrent methodological patterns and variations across the analyzed studies.

The third movement consisted of an integrative synthesis achieved through the articulation of the identified categories, with the aim of highlighting convergences, regularities, and divergences among the approaches examined. This synthesis consolidated the findings of the review and served as the basis for formulating a unified methodological framework for the development of conceptual models.

The construction of the conceptual framework followed four analytical stages grounded in the findings of the literature review. Initially, the elements identified in the studies were organized according to their function within the modeling process through an interpretive grouping procedure that brought together components related to phenomenon definition, literature synthesis, conceptual structuring, model representation, and validation procedures.

In the subsequent stage, the core stages structuring the development of conceptual frameworks were delineated. Comparison across different approaches made it possible to identify eight recurrent stages in the literature, which constitute the backbone of the methodological process analyzed and underpin the proposal presented in this study.

The third stage involved integrating the theoretical and empirical contributions identified in the review, taking into account the diversity of approaches described in the analyzed studies, including deductive, inductive, and abductive trajectories for conceptual framework construction. Synthesizing these pathways made it possible to structure a model capable of accommodating different analytical logics and reflecting the variety of methodological traditions identified in the literature.

Finally, the graphical representation of the framework was developed on the basis of the consolidated theoretical synthesis. The visualization highlights the articulation among stages, the dynamics between levels of abstraction, and the analytical flow that underpins the integrative methodological proposal, fulfilling an analytical rather than merely illustrative function.

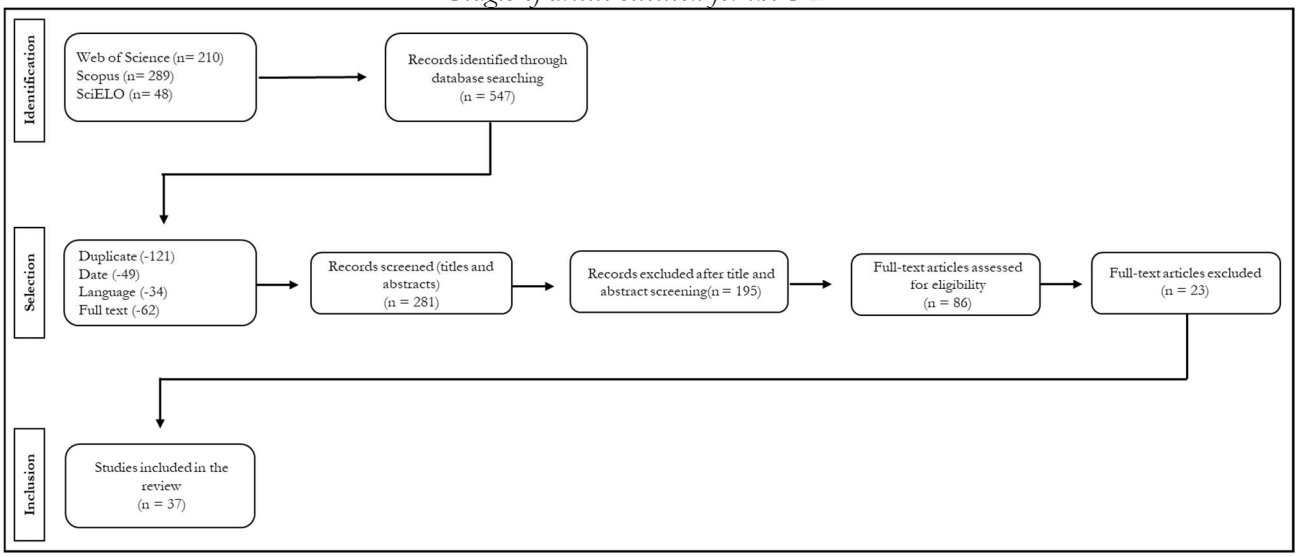
UNDERSTANDING THE PROCESS OF CONCEPTUAL FRAMEWORK DEVELOPMENT

The analysis of the selected studies revealed a diverse set of methodological approaches and procedures employed in the construction of conceptual frameworks, highlighting the breadth and heterogeneity of contributions present in the literature. The application of the SLR initially resulted in the identification of 547 records across the Scopus, Web of Science, and SciELO databases. After the removal of duplicates and other preliminary exclusions, 281 documents were subjected to title and abstract screening, at which stage 195 studies were excluded.

The 86 articles deemed potentially eligible underwent full-text review, resulting in the final selection of 37 studies that comprise the sample of this review. The complete flow of the identification, screening, eligibility, and inclusion stages is summarized in Figure 2.

Figure 2

Stages of article selection for the SLR



Source: prepared by the authors (2026).

Analysis of the selected material indicates that different fields of knowledge have relied on conceptual frameworks to organize complex phenomena, integrate evidence, and guide research designs. Publications are concentrated in areas such as health, ecology, the environment, education, interdisciplinary studies, and applied domains, underscoring the cross-cutting use of this instrument. It is also observed that a substantial proportion of the studies were published after 2010, a period marked by the expansion of systematic reviews, the more frequent adoption of theoretical synthesis techniques, and the strengthening of structured approaches to conceptual modeling.

The objectives of the analyzed studies converge around three main orientations: the proposal of novel frameworks derived from the integration of evidence; the revision or adaptation of previously existing structures; and the development of conceptual syntheses intended to organize categories, relationships, or mechanisms. This diversity reflects the multiplicity of functions attributed to frameworks, which may operate as instruments for organizing information, representing processes, integrating disciplinary perspectives, or guiding subsequent investigations. The methods employed also vary, encompassing systematic reviews, collaborative processes, hypothesis network analyses, qualitative studies, and hybrid approaches that combine empirical data with theoretical formulations.

Another observed characteristic concerns the temporal evolution of the identified approaches. In earlier studies, the focus tends to fall predominantly on the description of categories and components, with limited detail regarding construction stages. In more recent work, there is greater explicitness in the description of search criteria, synthesis procedures, analytical logic, and validation strategies, in line with a broader movement toward increased documentation and traceability of analytical processes.

The analysis further revealed the recurrence of certain stages in the development of conceptual frameworks, although these stages are organized differently across fields and analytical traditions. In general terms, these stages include the delimitation of the phenomenon of interest, the systematic gathering of evidence, the extraction of core concepts, the structuring of relationships among these concepts, and the visual representation of the conceptual arrangement.

To make these convergences explicit, Chart 1 presents a synthesis of the recurring elements identified in the literature, bringing together the broader set of authors who mention or describe each of these stages. This synthesis is bibliographic in nature and aims to illustrate how different studies address these methodological components. In the subsequent analysis, only the most representative works for each convergence are mobilized, with the purpose of examining their characteristics and modes of operationalization in greater depth.

Chart 1

Recurring elements in the development of conceptual frameworks

Recurring element	Description in the literature	Authors
Delimitation of the phenomenon	Definition of scope, objectives, and analytical parameters that delimit the phenomenon under investigation.	Leshem & Trafford (2007); MacInnis (2011); Brady et al. (2020); Ullah (2021); Zhang et al. (2025)
Systematic gathering of evidence	Structured reviews, documentary searches, and integration of bibliographic and empirical data to support conceptual development.	McMeekin et al. (2020); Ullah (2021); Grames et al. (2022); Tark et al. (2023); Eyzaguirre & Fernandes (2024); Paul et al. (2024)
Extraction of concepts and relationships	Identification of categories, mechanisms, dimensions, and recurring patterns derived from the analyzed evidence.	Leshem & Trafford (2007); MacInnis (2011); Brady et al. (2020); Ullah (2021); Grames et al. (2022); Tark et al. (2023); Sale & Carlin (2025); Luft et al. (2022)
Conceptual structuring	Organization of elements into logical arrangements, taxonomies, layered models, or network-based structures.	Leshem & Trafford (2007); MacInnis (2011); Brady et al. (2020); Ullah (2021); Grames et al. (2022); Luft et al. (2022); Lukyanenko et al. (2024); Zhang et al. (2025)
Graphical representation	Diagrams, networks, blocks, or flows that visually express the conceptual arrangement and relationships among elements.	Brady et al. (2020); Ullah (2021); Grames et al. (2022); Lukyanenko et al. (2024); Sale & Carlin (2025); Zhang et al. (2025)
Internal verification or validation	Iterative adjustments through expert consultation, comparison with the literature, and internal analytical review.	Leshem & Trafford (2007); Brady et al. (2020); McMeekin et al. (2020); Ullah (2021); Tark et al. (2023); Luft et al. (2022); Sale & Carlin (2025)

Source: prepared by the authors (2026).

Based on this systematization, it becomes possible to examine more precisely how each stage is described in the selected studies, as well as the different ways in which these stages are operationalized across distinct methodological traditions. The following paragraphs detail these convergences and show how such elements underpin the process of conceptual framework development.

The first convergence refers to the need to explicitly define the scope and delimitation of the phenomenon that the framework seeks to represent. In studies grounded in structured reviews, this stage involves the formulation of guiding questions, the definition of search criteria, and the identification of analytical parameters that direct the collection and synthesis of evidence (Palmatier et al., 2018; Lindgreen et al., 2021). In qualitative or collaborative approaches, particularly those involving interdisciplinary teams, delimitation tends to be constructed progressively, as themes, categories, and dimensions are recognized throughout the analytical development (Jabareen, 2009; Waldt, 2020).

The systematic gathering of knowledge constitutes another widely reported stage. Even when studies do not conduct a formal review, they describe search, organization, and synthesis procedures that enable the consolidation of concepts dispersed across different sources. This practice is highlighted by Paul et al. (2024), appears as an initial stage in the hypothesis network structuring process analyzed by Grames et al. (2022), and is integrated into the SODIP steps proposed by Eyzaguirre and Fernandes (2024), in which the review articulates bibliographic data, official documents, and information drawn from public databases.

The extraction of concepts and relationships also proves to be recurrent. In some cases, it consists of identifying mechanisms, variables, or processes that characterize a given phenomenon; in others, it corresponds to organizing categories and dimensions that structure different interpretations present in the literature (Morioka & Carvalho, 2016; Baek et al., 2022).

Regardless of the approach adopted, the studies indicate that framework development requires the definition of core elements and the explicit articulation of the connections among them. These relationships are represented through taxonomies, matrices, narrative syntheses, hypothesis networks, or collaborative arrangements (Andrienko et al., 2011; Jaakkola, 2020).

Graphical representation emerges as a relevant stage for making visible the relationships established among the components of the model (Rasolofoarison & Russell, 2024). The visualizations identified include block diagrams, networks, layers, flows, circular models, and hybrid arrangements, all aimed at organizing the analytical structure resulting from the synthesis process.

Finally, it is observed that the analyzed studies describe some form of internal verification or validation procedure, albeit with varying levels of detail. Some compare the proposed framework with previously available models in the literature; others rely on expert appraisal; and some employ collaborative or iterative review processes. Despite these variations, such procedures share the objective of examining the internal coherence of the model and its adequacy to the delimited phenomenon.

Methodological divergences and disciplinary variations

The heterogeneity of the analyzed studies reveals significant differences in the development of conceptual frameworks. These differences stem from methodological choices associated with disciplinary traditions, the type of problem investigated, and distinct ways of articulating theory and evidence. The most recurrent variations relate to the analytical logic adopted, the level of abstraction emphasized, the degree of procedural formalization, the use of empirical evidence, and the formats of visual representation.

Chart 2 synthesizes these dimensions. It represents an analytical organization derived from the body of studies reviewed rather than an author-by-author mapping. For this reason, no specific references are presented in the final column, as the chart results from an interpretive classification of the variations observed across different methodological approaches and constitutes one of the analytical outputs of this research.

Chart 2

Dimensions of variation in the development of conceptual frameworks

Dimension of variation	Observed characteristics	Examples of fields
Analytical logic	Deductive, inductive, or abductive approaches.	Structured reviews (deductive); qualitative studies (inductive); hypothesis networks (abductive).
Level of abstraction	Focus on mechanisms, processes, categories, or boundary objects.	Ecology (processes); health (categories); interdisciplinarity (boundary objects).
Methodological formalization	Detailed procedures or more flexible narrative descriptions.	Ecology and socio-environmental studies (formalized); education and management (flexible).
Use of empirical evidence	Theoretical, data-driven, or hybrid frameworks.	Interviews, observations, reviews, and documentary analyses.

Form of visual representation	Networks, layers, flows, blocks, or circular models.	All fields, with variations according to purpose.

Source: prepared by the authors (2026).

The first dimension refers to the analytical logic that structures framework development. In fields that rely on structured reviews, a deductive approach tends to prevail, in which concepts and relationships are organized based on the existing literature (Jaakkola, 2020). In qualitative or collaborative studies, an inductive logic is observed, whereby categories and connections emerge during data analysis or through interactions among researchers (Timmermans & Tavory, 2012). There are also contexts in which the process assumes abductive characteristics, such as the hypothesis networks analyzed by Belzen et al. (2021) and the interdisciplinary arrangements described by Zhang et al. (2025), in which theory and evidence are combined iteratively.

Another axis of variation concerns the level of abstraction emphasized. Some frameworks focus on mechanisms and processes, a recurrent practice in ecological and environmental research (Harwell et al., 2019). Others organize categories and variables, as observed in health-related studies and applied research (Jull et al., 2019). There are also frameworks that operate as boundary objects, integrating contributions from different disciplines and promoting shared interpretations without requiring complete conceptual unification (Nilsen, 2015).

Methodological formalization also shows marked differences across fields. In areas such as ecology and socio-environmental studies, search, extraction, and analysis stages tend to be described in detail, with procedures made explicit step by step (Nagel & Partelow, 2022). In education and management, greater flexibility is observed, with stronger emphasis on conceptual grounding and narrative descriptions of the structures developed.

The use of empirical evidence constitutes another relevant dimension of variation. Some frameworks are entirely theoretical, constructed from literature syntheses (MacInnis, 2011; Jaakkola, 2020). Others rely predominantly on empirical data derived from interviews, observations, or document analysis (Naeem et al., 2023). There are also hybrid models that combine different types of sources and adjust the degree of empirical support to the characteristics of the phenomenon under investigation (Zhang et al., 2025).

Visual representation likewise constitutes an important dimension of variation. Although present across all fields, it takes different forms, such as networks, layers, flows, blocks, or circular models. These formats reflect both the level of abstraction and the type of relationship emphasized, as well as the analytical purpose of the framework, integrating the conceptual construction process itself rather than merely serving as a final means of communication (Rasolofoarison & Russell, 2024).

The integrated analysis of the studies indicates that, despite these variations, conceptual frameworks converge in organizing elements in a structured manner to support the interpretation of complex phenomena. This pattern appears across different methodological traditions (Ullah, 2021; Grames et al., 2022; Tark et al., 2023; Zhang et al., 2025). The convergences and divergences identified show that the development of these conceptual arrangements involves situated choices, ranging from scope definition and source selection to the visual representation of components (Eyzaguirre & Fernandes, 2024).

Consistently, the literature indicates that transparency in the description of stages has increased, especially in studies based on structured reviews or systematized methods of theoretical synthesis (McMeekin et al., 2020; Paul et al., 2023). Taken together, these elements demonstrate that conceptual framework development does not follow a single pathway but results from the combination of analytical strategies, context-specific methodological decisions, and different forms of interaction between theory and evidence. This integrated reading establishes the foundations for the methodological framework proposed in this article.

Foundations of the proposed framework

The patterns identified in the literature provide the basis for the formulation of the methodological framework presented in this study. The recurrence of stages such as phenomenon

definition, systematic gathering of evidence, identification of structuring concepts and relationships, development of the conceptual arrangement, graphical representation, and verification procedures appears consistently across different fields (Brady et al., 2020; Paul et al., 2023). These recurring elements form the structural foundation of the framework proposed in this study.

At the same time, the reviewed studies reveal that conceptual frameworks may be developed through different analytical logics, including deductive, inductive, and abductive approaches. Methodologies grounded in structured reviews (Ullah, 2021; Eyzaguirre & Fernandes, 2024) tend to follow a deductive logic, whereas qualitative and collaborative investigations often reveal inductive and iterative trajectories (Sale & Carlin, 2025). The proposal by Grames et al. (2022), which employs hypothesis networks, illustrates abductive pathways that combine theory and evidence through successive cycles of construction and revision. Together, these methodological variations inform the architecture of the framework proposed in this study, which is organized into eight articulated stages.

The literature also shows that conceptual frameworks perform diverse functions depending on the field and the purpose of the research. These arrangements may organize categories in studies on health, education, and applied domains (Tark et al., 2023); describe mechanisms and dynamics investigated in ecological and socio-environmental research (Grames et al., 2022); articulate theoretical propositions and hypotheses derived from structured syntheses (Eyzaguirre & Fernandes, 2024); integrate disciplinary repertoires through structures conceived as boundary objects (Zhang et al., 2025); and guide methodological procedures by making explicit the stages and criteria of conceptual construction (MacInnis, 2011).

Nevertheless, the analyzed studies also point to complementary functions. Some employ frameworks to identify knowledge gaps and guide research agendas, a practice common in systematic reviews aimed at mapping the state of the art (McMeekin et al., 2020). Others use these arrangements to support communication and the visualization of complex systems, facilitating dialogue among researchers and interdisciplinary teams (Lukyanenko et al., 2024). In addition, hybrid structures were identified that integrate theoretical and empirical evidence within a single analytical architecture (Naeem et al., 2023). Applications oriented toward the design of policies, practices, and interventions in domains such as public health and the environment were also observed (Brady et al., 2020).

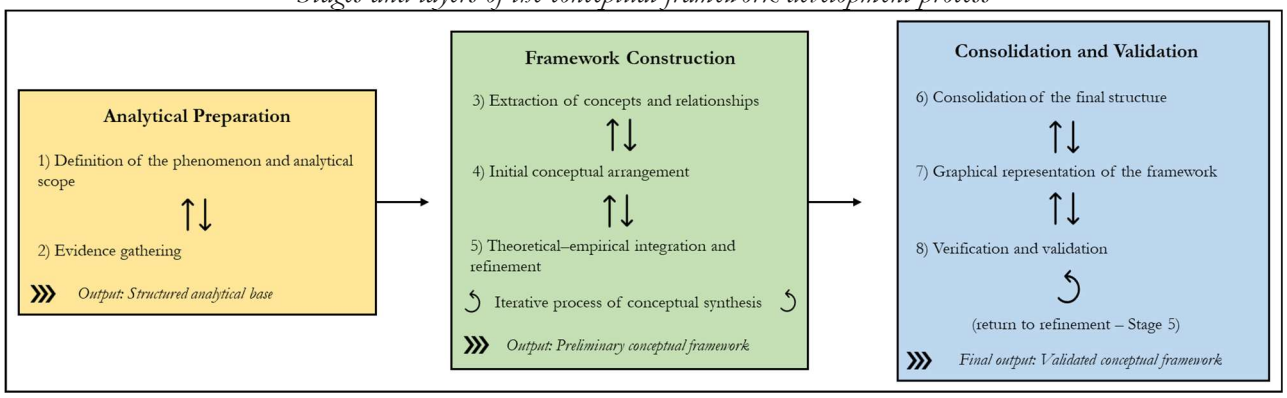
The inclusion of a stage dedicated to graphical representation finds direct support in the literature, which describes visualizations as components that participate in the very structuring of the framework (Ullah, 2021; Grames et al., 2022). The presence of internal verification mechanisms is also noted, although they vary in their degree of formalization and include comparison with the literature, expert appraisal, and collaborative reviews (Eyzaguirre & Fernandes, 2024; Zhang et al., 2025).

Taken together, these elements underpin the proposed methodological framework, conceived as a synthesis of the regularities and variations identified in the literature and capable of accommodating different analytical traditions. On this basis, the framework was structured into eight stages, distributed across three analytical moments (preparation, construction, and consolidation), which organize the pathway for developing conceptual arrangements. The stages comprise: (1) definition of the phenomenon and analytical scope, (2) evidence gathering, (3) extraction of concepts and relationships, (4) development of an initial conceptual arrangement, (5) theoretical–empirical integration and refinement, (6) consolidation of the final structure, (7) graphical representation of the framework, and (8) verification and validation.

This set of stages articulates procedures employed in deductive, inductive, and abductive approaches, bringing them together into a continuous pathway. As illustrated in Figure 3, each analytical layer produces intermediate outputs that support the progressive stabilization of the conceptual framework.

Figure 3

Stages and layers of the conceptual framework development process



Source: prepared by the authors (2026).

The figure synthesizes the overall organization of the proposed methodological framework, structured into three complementary analytical layers that guide the conceptual construction process in a progressive manner. The process begins with Layer 1 – Analytical Preparation, which comprises two stages. The first is the definition of the phenomenon and analytical scope, in which guiding questions are formulated, theoretical boundaries are identified, and the objectives of the investigation are established. The second stage consists of evidence gathering, at which point information from different sources is collected, organized, and prepared to support subsequent analyses. Together, these two stages provide the necessary starting point for the interpretations developed in the following phase.

Layer 2 - Framework Construction concentrates the core operations of conceptual development. In this phase, concepts and relationships are extracted from the analyzed evidence, followed by the proposition of an initial conceptual arrangement. This arrangement is then subjected to theoretical–empirical integration and refinement, a process in which theory and evidence are confronted in order to adjust categories, reposition elements, and improve the proposed relationships. As indicated in Figure 3, this phase is iterative in nature, allowing successive revisions until greater analytical consistency is achieved.

With the completion of the refinement phase, the framework is able to advance to Layer 3, namely Consolidation and Validation. The first stage of this layer is the consolidation of the final structure, in which the framework is stabilized on the basis of the adjustments made throughout the construction process. This is followed by the graphical representation of the framework, which visually synthesizes its components and facilitates understanding by different audiences. The final stage consists of verification and validation, in which the conceptual arrangement is critically examined through engagement with the literature and dialogue with experts. This stage seeks to ensure that the framework is coherent, appropriate to the evidence used, and capable of supporting subsequent investigations.

Although the framework is designed to be applicable across different research domains, a brief illustrative example helps clarify how its stages operate in practice. To illustrate the application of the proposed framework, consider a hypothetical study aimed at developing a conceptual framework for digital inclusion in higher education. In the first analytical layer (preparation), the phenomenon would be delimited by defining the scope of digital inclusion, identifying guiding questions, and conducting a structured review of the literature on access to technology, digital competencies, and institutional support mechanisms.

In the construction layer, the collected evidence would support the extraction of core concepts such as technological infrastructure, digital skills, pedagogical integration, and institutional governance. These elements would then be organized into an initial conceptual arrangement representing their relationships. Through iterative comparison with empirical studies and theoretical perspectives, the framework would be refined, adjusting the positioning and interaction among categories.

Finally, in the consolidation layer, the refined structure would be stabilized, visually represented through a diagram, and subjected to verification through comparison with existing models

or expert feedback. This example illustrates how the stages of the proposed framework guide the transformation of dispersed evidence into a structured conceptual model.

Unlike previous approaches that describe isolated stages of conceptual development, the framework proposed in this study integrates these elements into a coherent methodological pathway that makes explicit the analytical decisions involved in transforming dispersed evidence into structured conceptual models. By articulating deductive, inductive, and abductive trajectories within a single analytical structure, the proposed framework advances existing approaches that tend to privilege only one of these logics.

By bringing together stages widely employed across different fields—scope definition, evidence systematization, interpretation, organization, refinement, consolidation, and validation, the methodological framework can be applied in diverse domains such as the social sciences, health, education, environmental sciences, engineering, and management. Its structure supports the systematic organization of concepts and guides the development of conceptual frameworks in a clear and reproducible manner. The distinctive contribution of the proposed framework lies in integrating, within a single analytical pathway, stages that the literature often presents in isolation, thereby offering a structured methodological guide for the development of conceptual frameworks across different research traditions.

Analytical perspectives for conceptual framework development

The analysis of the SLR results indicates that conceptual framework development relies on widely recurring stages, while also involving methodological choices that vary according to the field of application, the phenomenon under investigation, and the underlying epistemological tradition. The proposed framework integrates these patterns by organizing, in a structured manner, elements identified in studies that describe conceptual modeling processes across different fields of knowledge. Its formulation engages with the recent literature and seeks to offer a transversal synthesis capable of accommodating this diversity.

The flexibility embedded in the proposal is aligned with the different pathways described in the analyzed studies. Deductive approaches generally emerge from structured reviews that organize categories based on large bodies of evidence (Jaakkola, 2020; McMeekin et al., 2020). In collaborative and interdisciplinary processes, inductive or iterative logics tend to prevail, in which categories and relationships are progressively constructed throughout the analysis (Waldt, 2020). Abductive pathways, in turn, prove productive by combining theoretical hypotheses and empirical data through successive cycles of formulation and revision (Lindgreen et al., 2021). By integrating these three analytical logics, the framework aligns with practices observed in the literature and broadens its applicability to contexts that require conceptual organization, interpretive synthesis, or the articulation between theory and evidence.

This diversity of methodological approaches has often led to fragmented guidance for researchers, making it difficult to identify consistent procedures for conceptual framework development. Studies in the field of ecology, for example, tend to describe mechanisms and systemic processes (Heger et al., 2021). By contrast, research in health and education often emphasizes categories and dimensions aimed at organizing more descriptive phenomena (Jull et al., 2019). This discussion is further expanded when frameworks are conceived as boundary objects, capable of integrating distinct theoretical repertoires without requiring full conceptual unification (Zhang et al., 2025). The proposed structure engages with these contributions by offering a pathway that allows complex phenomena to be organized across different analytical scales, without predefining the level of abstraction to be adopted.

Another recurring element concerns the role of visualization in the conceptual construction process. The literature describes visual representations as fundamental instruments for organizing elements and making relationships among concepts explicit (Zhang et al., 2025). Diagrams, networks, and graphical schemes render visible patterns that are unlikely to emerge solely through narrative syntheses (Cowhitt et al., 2023). In addition, structured visualizations contribute to communicating results and facilitate understanding of the methodological pathway adopted (Van Biljon & Osei-Bryson, 2020). By including graphical representation as a specific stage, the proposed framework makes this role more explicit and aligns with recommendations identified in the literature.

The internal verification stage is also supported by the analyzed studies. Grames et al. (2022) employ systematic comparisons among hypotheses; Zhang et al. (2025) emphasize iterative reviews among researchers and dialogue with experts; and Eyzaguirre and Fernandes (2024) propose validation processes based on the articulation between bibliographic and empirical evidence. These works indicate that verification does not occur as a single, discrete action but rather as a continuous movement of evaluation and adjustment. By bringing these practices together within a dedicated stage, the framework synthesizes strategies observed across different fields and enhances transparency in the analytical pathway.

The integration of findings further indicates that conceptual frameworks can assume distinct functions, such as organizing categories, synthesizing hypotheses, describing mechanisms, or structuring research processes. These functions appear dispersed throughout the literature, which points to different possibilities of conceptual contribution (MacInnis, 2011), as well as the use of frameworks as instruments for organizing complex topics and guiding future research (Paul et al., 2023). The proposed framework engages with these contributions by offering a broad methodological pathway capable of encompassing these functions without hierarchizing them.

Taken together, these elements indicate that the proposed methodological framework synthesizes recurring components identified in the literature while accommodating disciplinary variations and multiple analytical pathways. By organizing these elements into a coherent analytical sequence, the framework supports the transparent and systematic development of conceptual models across different fields. In doing so, it contributes to reducing the methodological ambiguity that frequently characterizes conceptual framework development, making explicit the analytical decisions involved in transforming dispersed evidence into structured conceptual models.

CONCLUSION

This study sought, through a SLR, to identify how the scientific literature describes the strategies, principles, and stages involved in the construction of conceptual frameworks. The analysis showed that, although variations exist across fields and methodological traditions, a consistent set of recurring components can be identified, including the delimitation of the phenomenon, the systematization of evidence, the extraction of structuring concepts and relationships, the organization of conceptual elements, the visualization of the framework, and the adoption of internal verification procedures. These convergences indicate that conceptual framework development constitutes a structured analytical process, while remaining sensitive to disciplinary contexts and to the methodological choices made by researchers.

Based on this mapping, the study proposed a methodological framework composed of eight stages distributed across three analytical moments, integrating deductive, inductive, and abductive trajectories described in the literature. The proposed structure systematizes procedures that are frequently presented in a fragmented manner and organizes them into a coherent analytical pathway, making explicit the methodological decisions involved in the development of conceptual arrangements. In doing so, the framework offers a clear and flexible structure that can support conceptual model development across different research domains.

The framework also demonstrates potential for application in research areas that address complex phenomena, including public health, socio-environmental studies, management, education, engineering, and environmental sciences. In these contexts, it can support the organization of theoretical elements, the articulation of relationships among concepts, and the development of integrative models capable of synthesizing diverse sources of evidence.

The findings also point to directions for future research. Empirical applications of the proposed structure may help test its adequacy, identify potential adjustments, and explore sectoral variations in conceptual framework development. Studies focused on researcher training may also examine how this methodological pathway contributes to the teaching of conceptual construction and to the development of analytical competencies. In addition, future investigations may explore the use of digital tools capable of supporting the organization of stages, the visualization of relationships among concepts, and the documentation of analytical decisions throughout the modeling process.

Taken together, the results indicate that conceptual framework construction can be understood as a structured analytical process that integrates theoretical synthesis, evidence interpretation, and explicit conceptual articulation. By organizing recurring methodological elements into a unified analytical pathway, the proposed framework contributes to reducing the ambiguity that often characterizes conceptual framework development across disciplines. In the educational domain, this structure may support both scientific methodology training and the development of research projects, theses, and dissertations, thereby strengthening competencies associated with conceptual production and advancing methodological transparency in conceptual research.

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The materials underlying the research are included within the manuscript.

AUTHOR CONTRIBUTIONS

Author 1 – Conceptualization, Methodology, Formal Analysis, Data Curation, Writing – Original Draft, Writing – Review & Editing, Visualization.
Author 2 – Investigation, Data Curation, Formal Analysis, Writing – Review & Editing.
Author 3 – Investigation, Data Curation, Formal Analysis, Writing – Review & Editing.
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DECLARATION OF CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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