

Phenomenography as a research design in architecture: A multi-stage literature review

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ARTICLE INFO	ABSTRACT
<i>Article history:</i> Received May 08, 2026 Received in revised form July 08, 2026 Accepted August 09, 2026 Available online September 01, 2026 <i>Keywords:</i> Categories of descriptions Outcome space Phenomenography Spatial phenomena Systematic literature review	<i>Phenomenography is a qualitative research approach concerned with investigating variations in the ways individuals experience, perceive, and understand particular phenomena. Although the approach was originally developed within the field of education, it has subsequently demonstrated considerable relevance to architectural and urban research. This paper applies phenomenography through a systematic literature review, beginning with an initial body of 1,195 articles that was progressively narrowed to 14 studies. From these studies, six principal thematic dimensions were identified: sensory-affective, representational, performative, cognitive-developmental, socio-political, and temporal. Three articles were subsequently examined in greater depth to establish a methodological protocol for applying phenomenography within architectural research. The findings demonstrate that phenomenography can effectively identify and represent the diversity of understandings associated with architectural design and spatial experience. The research process comprises four principal stages: (1) establishing the research focus; (2) defining and framing the phenomenon under investigation; (3) analyzing empirical material to develop descriptive categories through familiarization, condensation, comparison, and grouping; and (4) interpreting the findings through articulating, labeling, and contrasting categories in order to construct the Outcome Space. The Outcome Space constitutes the distinctive product of phenomenographic inquiry and can be understood as a “territory map” that represents variations in spatial experience through the relationships established among concepts and categories. Most architectural studies employing phenomenography remain primarily at the level of descriptive categorization, where experiential diversity is mapped and organized. Relatively few studies proceed toward the development of comprehensive outcome spaces. Such outcome spaces provide structural descriptions that possess considerable diagnostic potential for architectural design, education, pedagogy, and urban planning. properly, and there are gaps in the connection between units.</i>
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Introduction

Phenomenography is a qualitative research method designed to investigate the different ways in which individuals experience and understand phenomena (Marton 1986). Initially developed within educational research to distinguish between intended learning objectives and actual learning outcomes (Prosser 2000; John A. Bowden 2000), the approach subsequently evolved into a means of examining lived experiences as they are shaped by contextual conditions, including memory, psychological circumstances, and social backgrounds. Over time, phenomenography has increasingly been applied to the built environment to investigate the ways in which people experience and interpret architecture.

This paper presents a systematic literature review intended to clarify three principal aspects of phenomenography within architectural research: (1) the scholarly landscape surrounding the application of phenomenography in architectural studies; (2) the procedures employed in phenomenographic investigation; and (3) the contribution of phenomenography to the study of architectural and urban space.

Literature review

Research approaches on human experience

Architectural research has maintained a longstanding interest in human experience; however, investigations of this subject have predominantly relied on phenomenological, ethnographic, and behaviorist approaches, each of which presents particular conceptual and methodological limitations. Phenomenology, with its intellectual foundations in Husserl, places emphasis on the meanings experienced from within by individuals. Ethnography, associated with scholars such as Malinowski and Mead, understands experience as a cultural construction, although its findings may have limited generalizability.

Phenomenology functions simultaneously as both an approach and a paradigm, whereas phenomenography adopts an interpretive position (Sims 2024). Through its second-order perspective, phenomenography focuses on the ways phenomena are interpreted rather than attempting to establish or essentialize the phenomena themselves. In this sense, it examines how interpretations contribute to the formation of collective patterns of thought and understanding (Marton and Booth 2013; Uljens 1996; Kaapu et al. 2006) (figure 1).

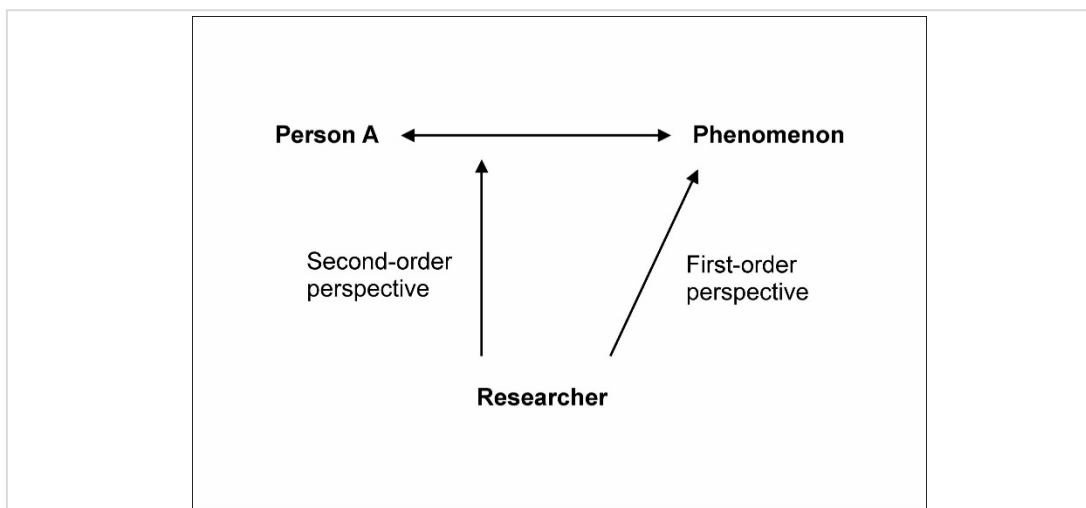


Figure 1. Researcher position in Phenomenography by Uljens (1996) in Kaapu et al. (2006)

Phenomenography assumes that a phenomenon can be experienced in a limited number of qualitatively different ways, with each mode of experience possessing distinctive characteristics (Bodner 2004). The following example illustrates this principle. Marton's study

at Gothenburg identified differences in students' responses to the same text, demonstrating that distinct experiential lenses can produce substantially different forms of understanding (John A. Bowden 2000). Such findings strengthen opportunities for reflection while also supporting

more inclusive approaches to education. A further illustration can be found in Tallo (2015) study of *Hina Gilen* wisdom. In that research, phenomenology was employed to investigate the essence of settlement harmony among the Bunaq people. If the same subject were investigated through phenomenography, however, the objective would not be to identify an essential condition. Instead, the research would investigate the diversity of individual experiences within the community. Such knowledge could subsequently contribute to efforts to address or mitigate imbalanced development within the area.

Mainstream phenomenographic researchers generally operate through empirical and theoretical perspectives (Richardson 1999), although phenomenography is sometimes incorrectly interpreted as an extension of behaviorism or an environment-behavior framework. Behaviorism, however, tends to reduce experience to a stimulus-response relationship and consequently gives insufficient attention to spatial cognition and cultural context (Skinner 2014; Watson 1994).

A comparison of these four approaches appears in table 1.

Table 1. Table differences between phenomenography, phenomenology, and environmental behavior

Research design	Phenomenography	Phenomenology	Environment-behavior	Ethnography
Paradigm	Interpretive and constructivist	Phenomenology	Positivist	Interpretive
Analytical lens	Participant- second order perspective	Participant- first order perspective	Objective observer	Insider Perspective
Unit of analysis	Cognitive experience	Lived Space	Stimulus-Response	Etnics
Aims of study	Different ways of understanding phenomena	The essence of lived experience	Human-environment interactions	Life, practice, culture

Phenomenography as a research approach Stages of phenomenography research

The phenomenographic method initially proposed by Marton (1993) within educational research was subsequently expanded by John A. Bowden (2000) as a broader qualitative research approach and can be elaborated as follows.

1. Preparation

At this initial stage, the researcher establishes a limited research focus, defines the objectives, and determines appropriate strategies from a second-order perspective. The unit of analysis concerns the experience of the user, occupant, architect, or other actor within the built environment. Accordingly, the research questions are directed toward understanding how the object or space is experienced rather than toward examining its intrinsic or objective properties (Dall'alba and Sandberg 1996).

2. Data collection

Data are obtained primarily through semi-structured interviews incorporating open-ended questions designed to reveal variations in individual experience. Because participants' expressions may encompass complex sensory, psychological, cultural, and ideological dimensions (Gandy 2017; Brennan 2004), a

holistic approach is required to represent these experiences as authentically as possible.

3. Analysis

The analytical process emphasizes spatial experience across functional, emotional, social, and symbolic dimensions. Following John A. Bowden (2000), the analytical procedures include examination of interview transcripts, comparison of experiences among participants, identification of qualitative variations, and organization of descriptive categories within the outcome space. The process is iterative and proceeds in parallel with data collection rather than being treated as an entirely separate subsequent stage (Säljö 1997; Han and Ellis 2019).

More specifically, based on Han and Ellis (2019), Dall'alba and Sandberg (1996), and Sims (2024), the procedures of phenomenographic analysis can be sequenced as follows:

1. *Familiarization*, which requires the researcher to engage carefully and repeatedly with the empirical material in order to develop a detailed understanding of its content.
2. *Condensation*, which involves selecting significant statements from participants that can subsequently contribute to the identification of recurring patterns and meaningful variations.

3. *Comparison*, which entails examining similarities and differences among statements in order to identify qualitative variations in experience.
4. *Grouping*, which involves organizing statements that demonstrate similar characteristics into coherent groups.
5. *Articulating*, which involves summarizing the essential meaning shared by similar statements and subsequently formulating, categorizing, and describing them.
6. *Labeling*, which consists of assigning an appropriate name to each group of statements so that the distinctive character of the category can be clearly identified.
7. *Contrasting*, which requires systematic comparison among the categories that have been identified.
8. *Constructing* the outcome space

The stages of condensation, comparison, and grouping are frequently equated with thematic coding, although the two approaches are methodologically distinct. Marton (1992) emphasized the importance of grouping quotations to identify variations in experience, while also acknowledging the potential for decontextualization, particularly when the analysis is undertaken by inexperienced researchers (Säljö 1997). In conventional coding procedures, transcripts are commonly fragmented into smaller units. Phenomenographic analysis, in contrast, maintains a holistic orientation and emphasizes the relational character of textual material in the construction of meaning and narrative interpretation.

Phenomenography conceptualizes phenomena as experiences that can be shared among individuals. Accordingly, analysis is undertaken comparatively and iteratively across transcripts to identify variations in how a particular phenomenon is experienced. The resulting propositions concerning variation are conceptualized as conceptions, referring to qualitative differences in experience and interpretation rather than simply differences in individual perspectives or beliefs. These descriptions possess comparable logical structures while demonstrating variation across cases (Sims 2024).

Conceptions are subsequently organized into categories of description through systematic

comparison (Dall'alba and Sandberg 1996). These categories are analytical constructs that represent variations among conceptions and consequently establish structured forms of collective interpretation. Conceptions within a category possess an underlying structural logic through which analytical relationships can be identified and articulated.

On the basis of these findings, an outcome space is formulated as a structured collection of descriptive categories and the logical relationships established among them. The outcome space provides a systematic representation of collective variations in the ways a phenomenon is experienced.

4. Interpretation

The final product of phenomenographic research is a result space, understood as a relational structure representing different ways of experiencing a phenomenon (Marton in John A. Bowden 2000). The result space is developed from categories of description generated through the analysis of variations in experience. These categories are subsequently organized according to their logical relationships and may be represented graphically as a territorial map (Bruce 1997; Säljö 1997 in Yates, Partridge, and Bruce 2012; Marton in John A. Bowden 2000). Within this structure, conceptions function not only as conceptual content but also as representations of the dimensions through which experiences vary. The result space therefore expresses collective understanding through the interrelationships established among categories. Each category incorporates particular aspects or qualities that contribute to a relational hierarchy of meaning.

5. Focus, validity, and reliability

Phenomenography places considerable emphasis on validity and reliability through examination of analytical consistency, researcher or research-team involvement, and transparency throughout the research process (John A. Bowden 2000).

The five procedures described above are represented as an iterative framework characterized by a systematic yet cyclical progression (see figure 2). This framework provides a basis for analyzing the relevant literature.

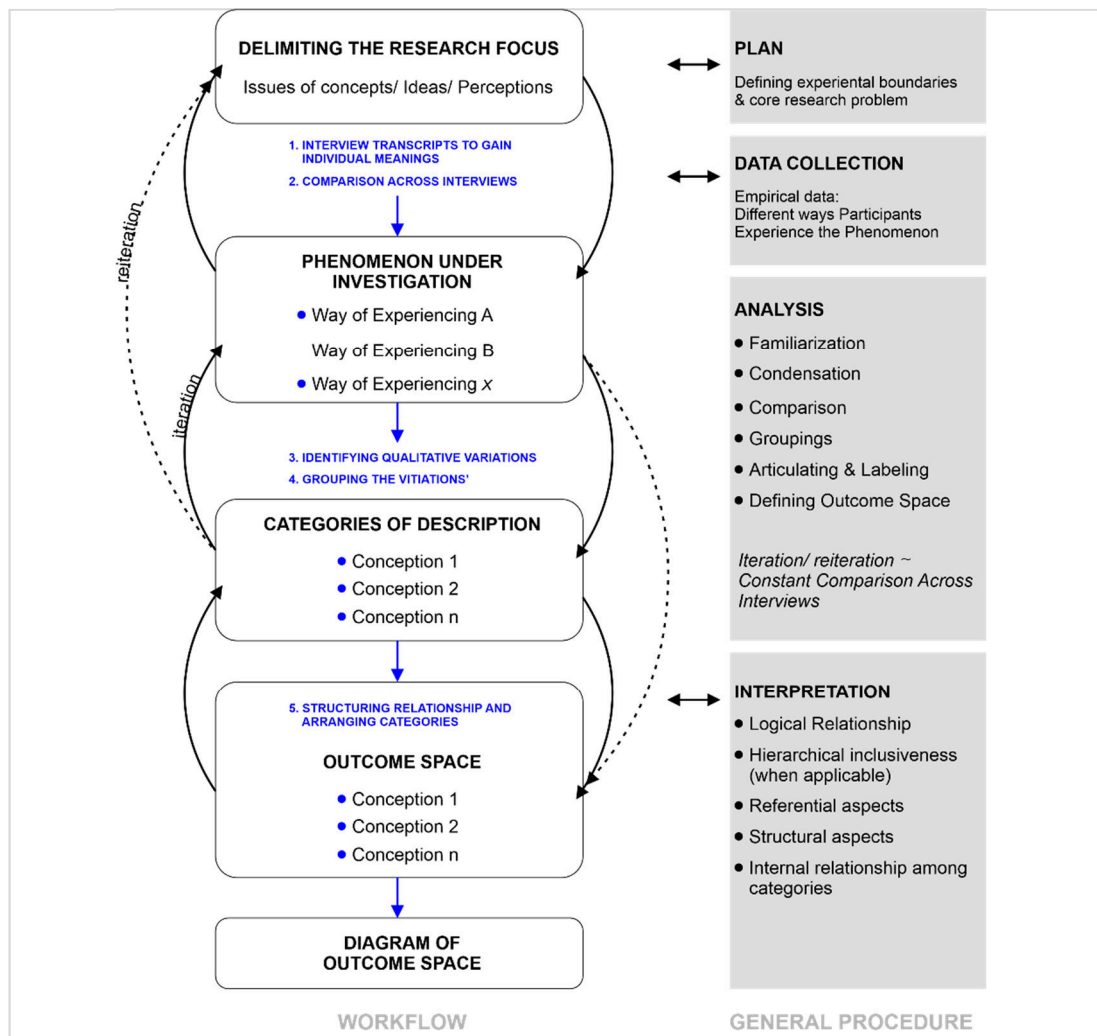


Figure 2. Framework on Phenomenographic research on spatial human experience (referred to and processed from John A. Bowden (2000), Han and Ellis (2019), Dall'alba and Sandberg (1996), and Sims (2024))

Methods

A systematic literature review constitutes a structured, transparent, and replicable research process for identifying, assessing, and synthesizing existing scholarly studies in order to address defined research questions or establish an appropriate research framework. In the present study, the research questions are concerned with the ways in which phenomenography has been applied within built environment research. Because the number of researchers explicitly employing phenomenography in the built environment remains relatively limited, the bibliometric investigation also considers publications dating from before 2000. The year

2000 represents an important period because phenomenography began gaining broader recognition and application within built environment research around this time.

The literature review was organized into three principal phases: (1) screening the available literature to identify publications appropriate for analytical review; (2) conducting a systematic four-stage analysis to establish a thematic map; and (3) undertaking an in-depth examination of selected phenomenographic studies and their research protocols.

During the first phase, an analytical literature survey was undertaken to identify articles addressing phenomenography within

architecture. The search employed the filtering terms “phenomenography,” “built environment,” and “urban space.” The literature was retrieved using Publish or Perish (Harzing) software through searches conducted in Google Scholar and the Crossref Corpus. The initial search

generated 1,195 articles. Following the preliminary filtering process, 200 potentially relevant articles were identified through Google Scholar, whereas the Crossref Corpus yielded no articles directly addressing phenomenography within built environment research (figure 3).

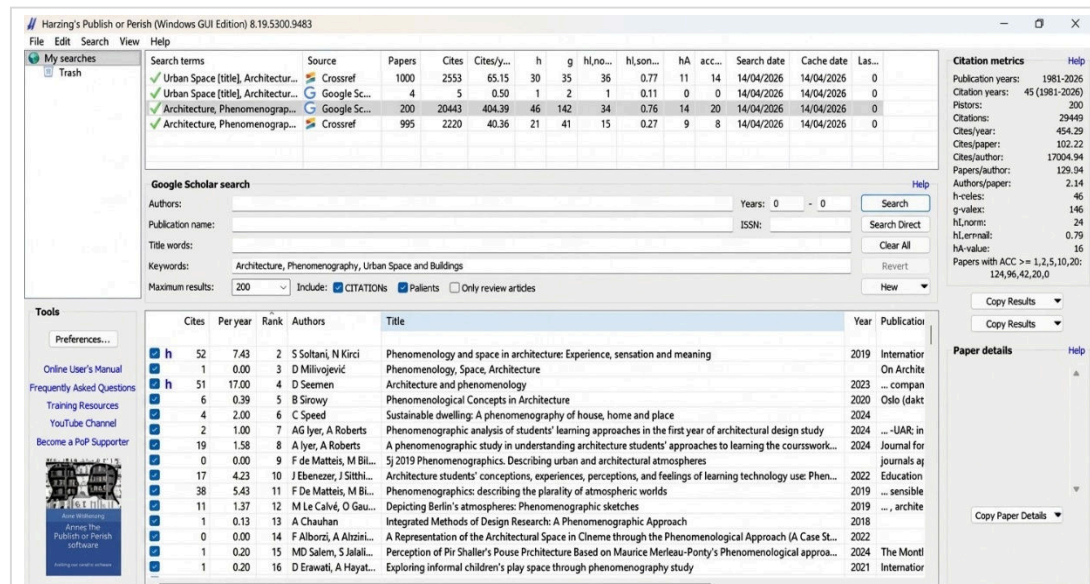


Figure 3. Bibliometric Query collected using Harzing's Publish or Perish software for phenomenography and architecture

Note: From “Publish or Perish” by Harzing.com. (<https://harzing.com/resources/publish-or-perish>). Copyright 2022 by Anne-Wil Harzing

In the second phase, the 200 identified articles were subjected to manual screening, with each publication treated as a unit of analysis. The screening and analytical process consisted of four successive stages and employed a descriptive bibliometric analysis approach to identify temporal tendencies based on the distribution of research themes.

The selection of the 200 phenomenographic articles proceeded through four stages. The first stage involved data cleaning, during which duplicate records and publications that did not constitute research articles, including monographs and essays, were removed. This process reduced the corpus to 75 articles. The resulting exclusion rate of 62.5% suggests that the term phenomenography was frequently employed without a rigorous methodological application.

The second screening stage retained only articles published in scientific journals that demonstrated adequate citation records and indexing. At this stage, additional non-research publications and theoretical expositions were excluded. The resulting database consisted of 46 relevant phenomenographic research articles addressing architecture, spatiality, professional practices, education, and urban space. Figure 4 presents three principal research themes Architectural Experience, Built Environment Education, and Urban Space distributed across three publication periods: the 2000s, 2010s, and 2020s. The stacked bar visualization was prepared with assistance from Microsoft Copilot to improve visual clarity and consistency.

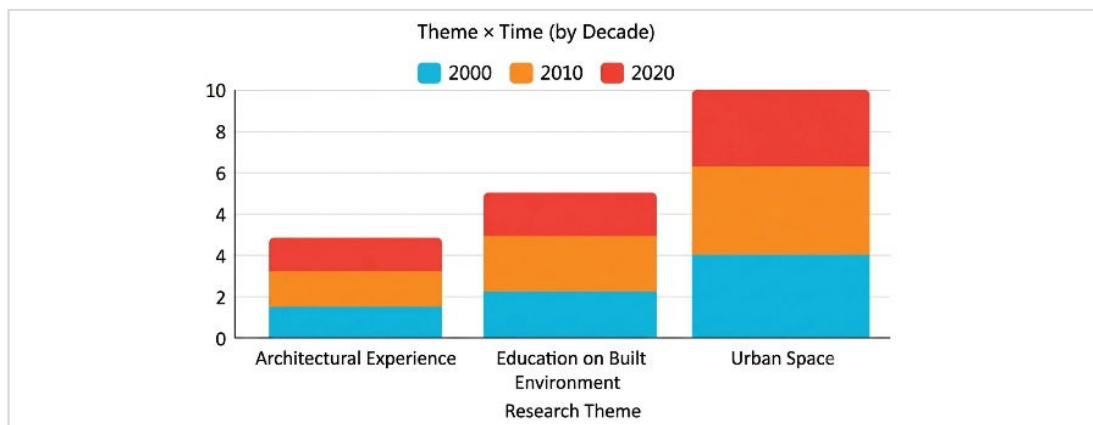


Figure 4. Cross-tabulation of research themes and publication periods, grouped by decade
 Note: Visualization created using AI; underlying data and interpretation are the author's own

The third stage involved screening the remaining 46 papers according to inclusion criteria requiring a consistent application of phenomenographic research procedures. Articles concerned with built environment education within formal institutional educational contexts were excluded so that the review could concentrate specifically on spatial experience, architecture, and related concepts. Although educational research was excluded from the principal corpus, learning-related dimensions remain relevant for understanding the ways individuals internalize concepts. Most of the reviewed papers were descriptive-narrative studies, which made systematic analytical comparison difficult. This screening process ultimately produced 14 articles that could be used to map thematic tendencies in phenomenographic research on the built environment (table 2).

The fourth stage selected three studies from the 14 identified articles. The selection was restricted to highly reputable peer-reviewed publications demonstrating comparatively rigorous applications of phenomenographic methodology and explicit construction of outcome spaces. These three studies were examined in greater depth to investigate how phenomenography and outcome-space construction have been operationalized.

The third phase consisted of a comparative examination of the three selected articles. Each article was reviewed comprehensively to determine how phenomenography was applied to its respective research topic and how the corresponding outcome space was constructed. The three principal phases of the literature review, together with the four stages of literature screening, are summarized in figure 5.

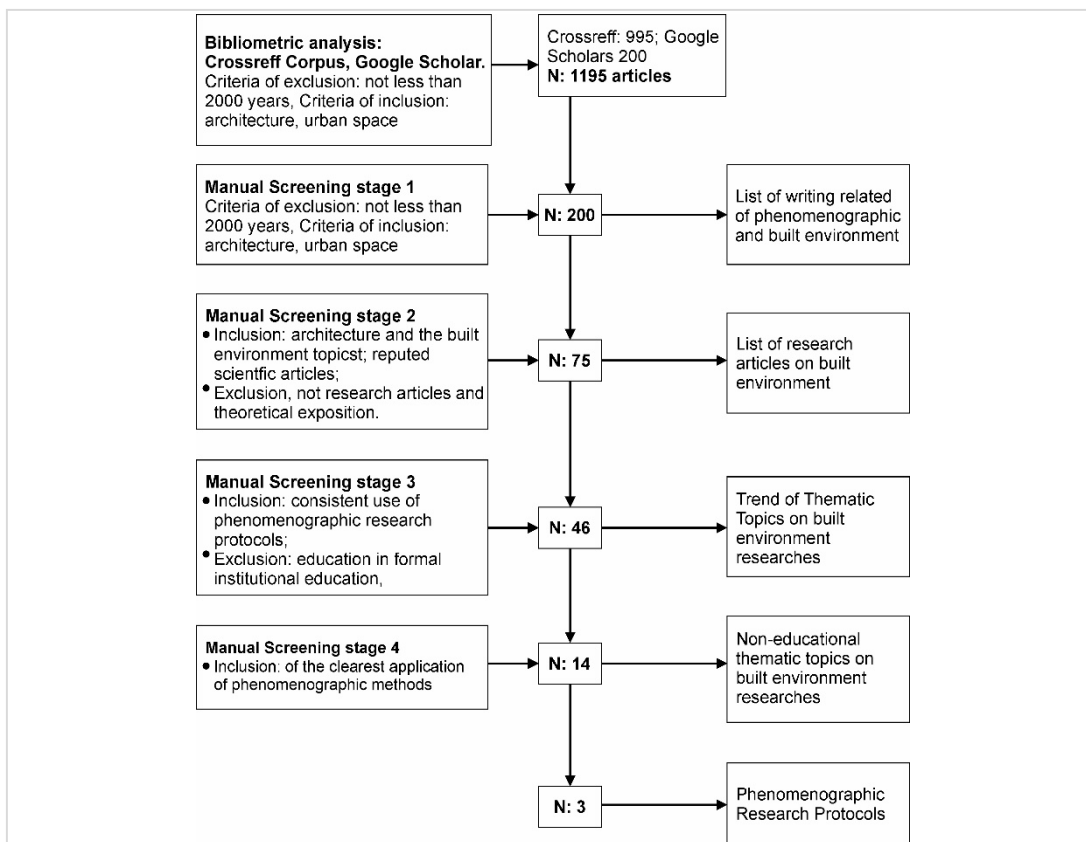


Figure 5. Systematic literature review research flow

Results and discussion

The evolution of phenomenographic methods in built environment research

The development of phenomenographic research can be traced through publication trends extending from 1981 to 2025 (figure 6). During the initial period from 1981 to 2000, publications employing phenomenography remained relatively limited and were primarily concentrated in educational research, although several studies achieved substantial academic influence. Between 2004 and 2010, the methodology began to extend beyond education into other disciplinary areas, including design. From the late 2010s onward, research concerned with urban space became increasingly prominent, encompassing diverse subjects such as learning experiences, spatial perception, and learning technologies.

Within architectural research, phenomenography has been associated with the *Neue Phänomenologie* tradition through approximately 1990. Around 2010–2011, the emphasis increasingly shifted toward studies of space and place, alongside developments in atmospheric theory (Griffero 2016). Interest in phenomenographic approaches increased further in 2019 following the publication of a thematic issue in the journal *Ambiances*, which emphasized spatial perception and urban spatiality. The development of this research trajectory reached a notable peak between 2022 and 2024, when the number of publications increased substantially. This growth further demonstrates the relevance of phenomenography to investigations of experience, collective memory, and urban spatial cognition.

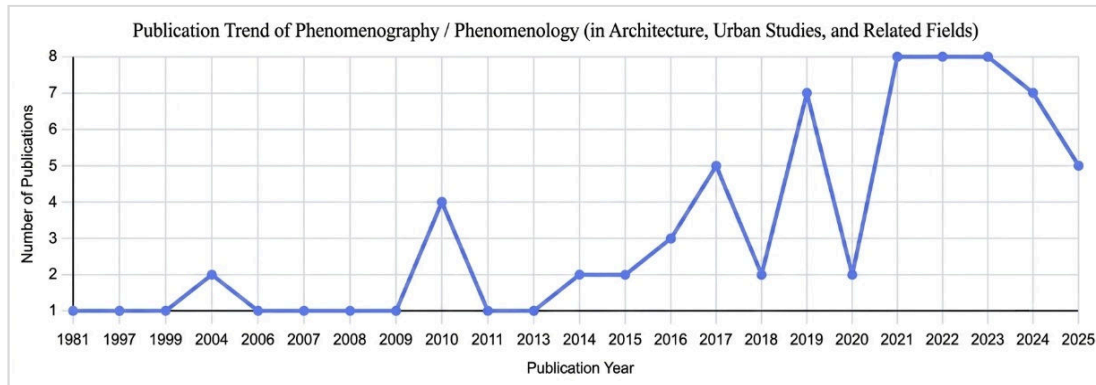


Figure 6. Publication trend of Phenomenography in architecture, urban studies, and related fields
Note: Visualization created using AI; underlying data and interpretation are the author's own

Thematic analysis

Thematic analysis was conducted on the 14 selected articles through three stages of coding. During the open-coding stage, key terms were extracted from the article abstracts, producing six principal clusters: (1) *emotion, atmosphere, sensory experience*; (2) *sketches, photography, narrative*; (3) *action, participation, practice*; (4) *learning, understanding, cognition*; (5) *policy, power, inclusivity*; and (6) *time, history, memory, transformation*. During axial coding, these categories were subsequently organized into broader dimensions by examining the relationships among the six conceptual clusters across the four papers. Selective coding then synthesized the categories into core themes capable of explaining the broader phenomenon under investigation (see table 2).

1. *Sensory-Affective*: this dimension concerns the ways spatial experience is understood through atmosphere, perception, and sensory engagement. It represents the most extensively investigated theme within the reviewed literature.
2. *Representational*: This dimension addresses the mediation and communication of spatial experience through representational practices, including sketching, mapping, and imagery.

3. *Performative*: This dimension focuses on spatial meanings generated through everyday actions, uses, activities, and practices.
4. *Cognitive*: This dimension is particularly relevant to investigations of learning, pedagogy, and conceptual understanding within architectural and built environment education.
5. *Socio-Political*: This dimension examines variations in experience produced under different social conditions, emphasizing issues of power, formal and informal regulation, spatial porosity, and marginality.
6. *Temporal*: This dimension addresses spatial experiences that are conditioned by time, including processes of change, memory, continuity, and transformation.

A review of the fourteen articles further indicates that these core themes can function as dimensions of phenomenographic inquiry. Individual studies may incorporate more than one dimension of the phenomenon, although the degree to which each dimension is represented may vary considerably. This finding suggests that human experiences of architecture and space are inherently complex and cannot necessarily be reduced to a single experiential dimension.

Table 2. Phenomenographic research thematic matrix in architecture and space studies

Year	Author	Title	Strategy (Use of Phenomenography)	Unit of analysis	Sensory-Affective	Representational	Performative	Cognitive-Development	Socio-Political	Temporal
2025	Georgiadou, Mulholland, and Fitton (2025)	Social Value and CSR Through Inclusive Stakeholder	Identifying CSR social values (AEC) via representational practice	value and CSR in AEC			✓	✓		

Year	Author	Title	Strategy (Use of Phenomenography)	Unit of analysis	Sensory–Affective	Representational	Performative	Cognitive–Development	Socio Political	Temporal
		Engagement in the UK AEC Sector								
2025	Ahmad Hilmy et al. (2025)	Empowering Architectural Narrative Through Urban Sketching (Kuala Lumpur)	Auto phenomenography; post representational mapping	sketches		✓				
2023	Richard and Pai (2023)	Catching the Urban Atmosphere of Taichung, Taiwan	Photography as descriptive/affective practice for atmospheres	Text-description	✓		✓			
2022	Tomasella (2022)	Navigating Venice's Literary Nightscapes	Understanding child play in urban kampung	Narrative by the community		✓	✓			
2022	Matteis and Marchini (2022)	Atmospheric images: Photographic encounters in L'Aquila	Experiencing resilience in post earthquake urban settings	Photography	✓	✓				✓
2021	Erawati, Hayati, and Cahyadi (2021)	Exploring Informal Children's Play Space through a Phenomenography Study	Sensorics perception; auto ethnography of Berlin lived space	sketches			✓	✓		
2020	Morselli and Matteis (2020)	After the Ruins: An Affective Topography of Post Earthquake Cities	Resilience among individuals experiencing homelessness	xperiences	✓					✓
2019	Sumartojo, Edensor, and Pink (2019)	Atmospheres in Urban Light	Measuring atmospheric perception via neurophysiological response	Text-description	✓					
2019	Le Calvé and Gaudin (2019)	Depicting Berlin's atmospheres: Phenomenographic sketches	Children's indirect perception of nature (drawings/narratives)	sketches		✓				
2018	Shankar et al. (2018)	Phenomenographic exploration of resilience among individuals experiencing homelessness	Professional strategies for sustainable concepts in projects	Tex-description	✓			✓		
2019	Canepa et al. (2019)	Atmospheres: feeling architecture by emotions	Designers' meaning making through color use	Sensorics response	✓					
2012	Kalvaitis and Monhardt (2012)	The architecture of children's relationships with nature	Identifying CSR social values (AEC) via representational practice	painting and narrative			✓	✓		
2007	Mann, Dall'Alba, and Radcliffe (2007)	Using Phenomenography to investigate different ways of experiencing sustainable design	Auto phenomenography; post representational mapping	Tex-interview			✓	✓		
2003	Smith (2003)	Environmental coloration and/or the design process	Photography as descriptive/affective	Design expression	✓	✓		✓		

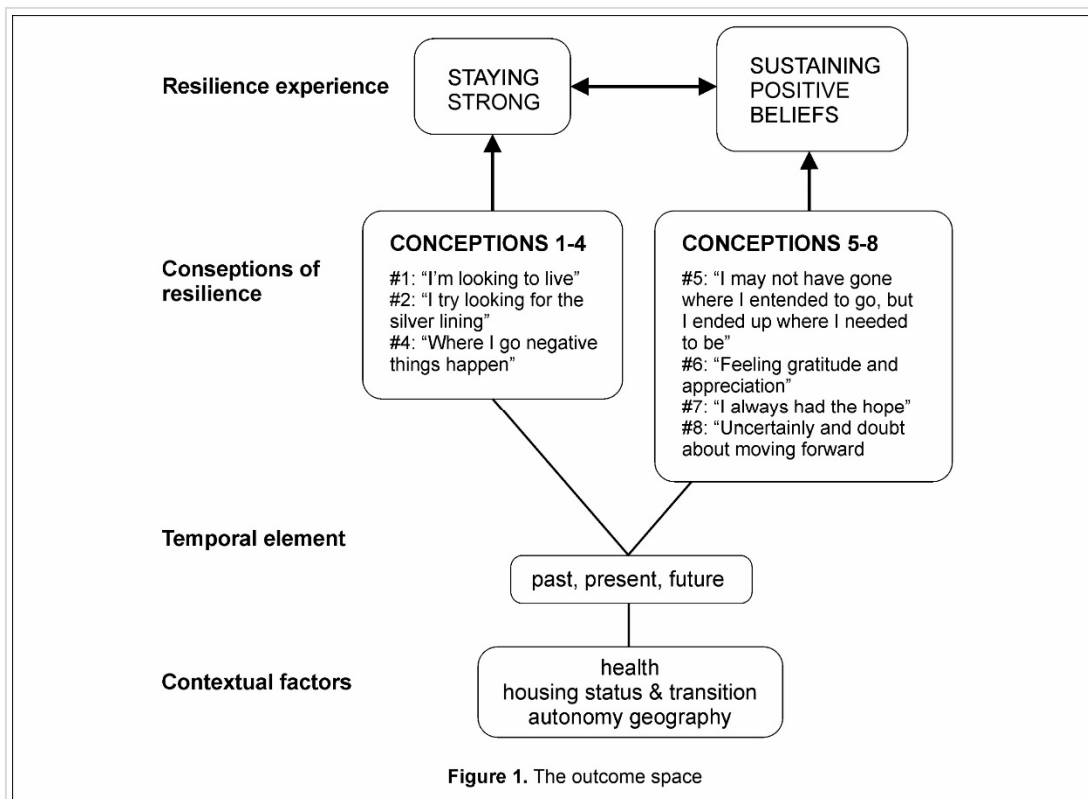


Figure 7. Presentation of outcome space of resilience in the context of homelessness by [Shankar et al. \(2018\)](#)

The study conceptualizes resilience as a dynamic and relational process in which urban shelters and living environments become associated with strength, hope, and vulnerability. Expressions of uncertainty, doubt, and exhaustion should not necessarily be interpreted as evidence of weakness. Rather, they constitute components of the broader experiential spectrum extending between vulnerability and resilience.

- b) Ahmad Hakym Ahmad Hilmy, Khairul Aidil Azlin Abd Rahman, Azlan Ariff Ali Ariff*, Kamal Mohd Idris, Liyana Mahfuzah Mohd For, and Mujahid Nawazir) (2025)

[Ahmad Hilmy et al. \(2025\)](#), in their manuscript "Empowering Architectural Narratives Through Urban Sketching: A Symbolic Interaction Framework to Enhance Public Engagement in Kuala Lumpur's Built

Environment," investigate engagement with place through sketch-walk activities as a means of understanding the ways spatial narratives are produced and communicated. The authors developed an analytical framework to identify variations in engagement as manifested through participants' sketches, which subsequently served as the basis for defining the research "phenomenon."

The analytical process began with familiarization with the visual and verbal data, followed by identification of significant expressive units and observation of the drawing process. The units of analysis consisted of sketch-walk activities and the resulting sketches. These materials were subsequently summarized and organized to represent variations in experience through descriptive categories.

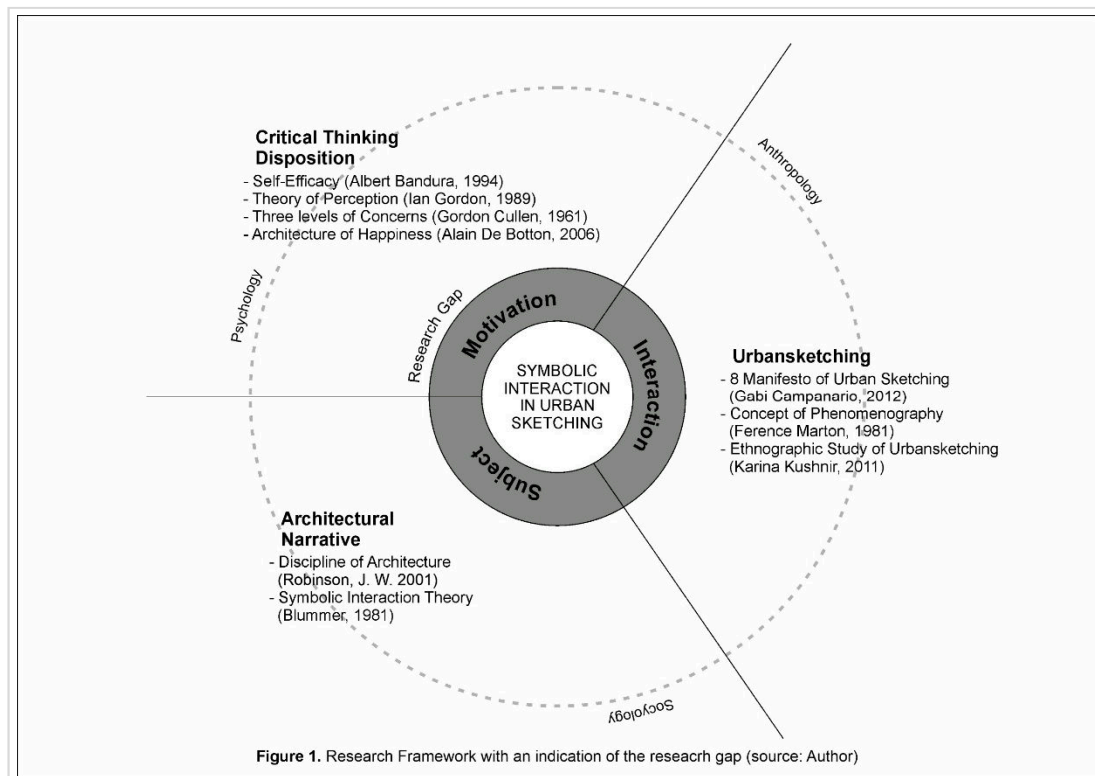


Figure 8. Presentation of research framework by [Ahmad Hilmy et al. \(2025\)](#)

Qualitative data were collected in accordance with the principles of symbolic interactionism and subsequently analyzed through categorization to identify recurring interaction patterns. These patterns were synthesized into conceptual categories, revealing differences in the ways participants experienced urban sketching practices and demonstrating how such experiences mediated perceptions of place within architectural narratives.

The resulting framework consisted of interconnected experiential categories organized around three principal dimensions: symbolic events, self-dispositions, and the tendency of the lifeworld to establish connections with others. Together, these dimensions identify fundamental practices of urban sketching through which architectural narratives are constructed while simultaneously fostering spatial affinity.

The outcome space identifies five phases of understanding: symbolic observation and deconstruction, visual reflective engagement, observer-artist communicative outcomes, and iterative processes of reciprocal feedback. The relationships among these phases generate a range

of experiences extending from initial observation toward generative processes of meaning-making.

Because the study focused on a single community, validity was established through analytical depth rather than statistical generalization. Visual practices functioned as a medium through which participants responded to and engaged in architectural practice. In the context of urban sketching, the contribution of phenomenography lies in its capacity to connect spatial experiences with design strategies, thereby extending the understanding of architecture as a social practice grounded in human interaction with space.

c) Llewellyn Mann, Gloria Dall'Alba, and David Radcliffe (2007)

[Mann, Dall'Alba, and Radcliffe \(2007\)](#) article, "Using Phenomenography to Understand Different Ways of Experiencing Sustainable Design," provides a comprehensive example of a phenomenographic research procedure. The study sought to identify gaps in professional understanding associated with personal and cultural influences by developing a conceptual framework for professional development based

on variations identified within the empirical data. The resulting framework functioned as an

analytical instrument rather than as a tool for collecting data (see figure 9).

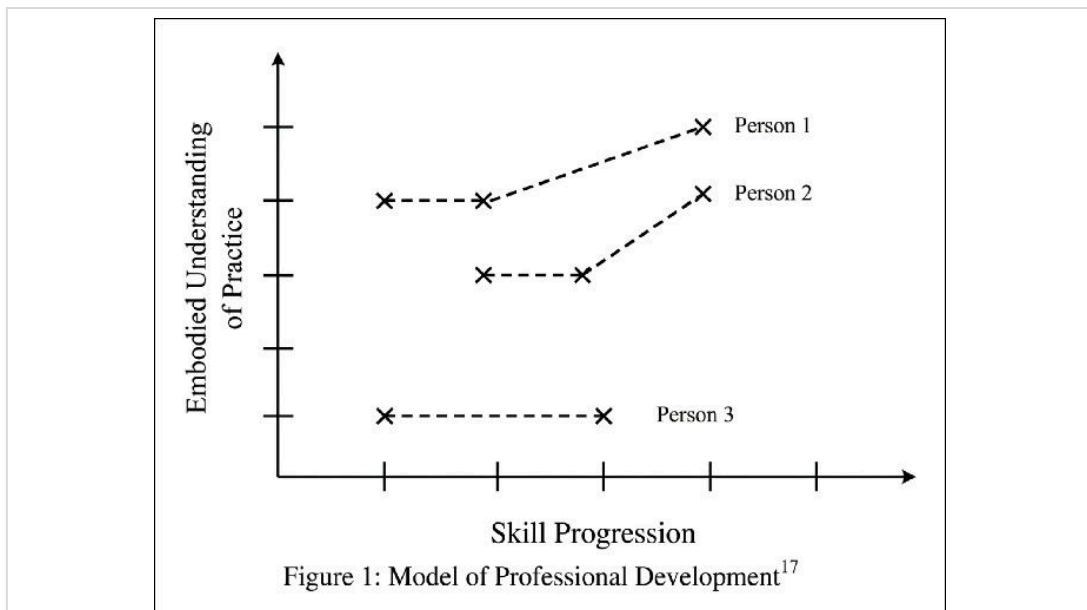


Figure 9. Presentation of model of professional development by Mann, Dall’Alba, and Radcliffe (2007)

The phenomenon was conceptualized as “sustainable design in professional practice,” with the investigation focusing on how engineers and non-engineers experienced and understood the concept. Data were collected through in-depth interviews with 22 practitioners and semi-structured focus groups. The resulting material was transcribed and coded. The analytical procedure incorporated familiarization with the empirical material, limited quantification, and tabulation of patterns of variation.

The resulting outcome space demonstrates different ways in which sustainable design is internalized, producing conceptions such as

solution-seeker, reductionist problem-solver, holistic, social network-based, and “way of life” (see figure 10). The variation map was organized hierarchically, allowing it to perform both diagnostic and reflective functions for practitioners and educators.

The relationship between the research focus and identified variations was repeatedly examined to establish validity and reliability. The final findings emphasize that sustainability education must transform the ways students translate sustainability concepts into actual design practices (figure 11).

Table 2: Outcome Space for Sustainable Design	
Category Name	Description
Solution Focused	
Category 1 Solution Finding	Sustainable design is finding a solution, either a product or process(es), to satisfy a client's declared requirements while decreasing the associated environmental, social and economic impacts.
Problem Focused	
Category 2 Reductionist Problem Solving	Sustainable design is the process of identifying and solving a client's problem by taking a reductionist approach to making decisions that each decrease the associated environmental, social and economic impact.
Category 3 Holistic Problem Solving	Sustainable design is the process of identifying and solving a client's problem holistically on a systems level, to increase the environmental, social and economic value of the solution.
Social Network Focused	
Category 4 Social Network Problem Solving	Sustainable design is the process of identifying and solving a client's problem as part of a network of wider problems facing society to increase the environmental, social and economic value of the solution to both the client and society.
Category 5 A Way of Life	Sustainable design is a way of life where all design problems, professional and personal, are solved to increase the environmental, social and economic value of the outcome to both the individual and society.

Figure 10. Presentation of outcome space for sustainable design by Mann, Dall'Alba, and Radcliffe (2007)

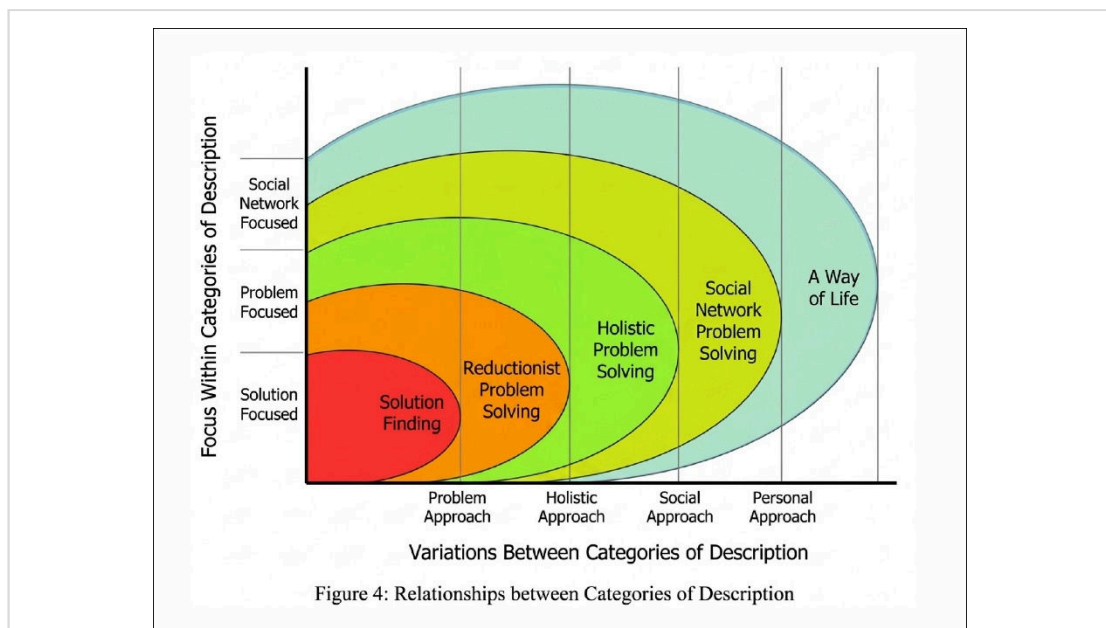


Figure 11. Presentation of relationship between categories of the outcome space by Mann, Dall'Alba, and Radcliffe (2007)

Conclusions

From a comparative perspective, phenomenography should be understood as more than a descriptive research approach; it also

provides an analytical framework capable of: (1) revealing variations in spatial experience and cognition; (2) generating an outcome space that functions as a relational framework applicable to architectural design, pedagogy, and policy; and

(3) complementing technically oriented investigations by incorporating an inclusive dimension grounded in social practices and communal cognition. In addition, phenomenography broadens conventional approaches to data collection by incorporating visual media, including sketching, photography, and video, as meaningful sources of experiential evidence.

The relevance of phenomenography has become increasingly apparent in discussions of spatial atmospheres, and the approach has itself emerged as a specific subject within academic publications. [Shankar et al. \(2018\)](#), for example, critically advances this discussion by examining the marginalization experienced by people experiencing homelessness. Within the Indonesian context, phenomenography is particularly valuable for investigating the tensions, negotiations, and potential reconciliation between formal planning norms and everyday spatial practices, including forms of informality.

In conclusion, a phenomenographic research protocol applicable to architectural and built-environment studies can be organized into the following four principal stages:

A. Preparation:

1. Establishing the phenomenon to be investigated as the central focus of the study, such as concepts, sense of place, spatial atmosphere, or values.
2. Identifying potential variations in participants' experiences without imposing any preliminary classification.
3. Formulating the specific focus and direction of the research.
4. Determining the unit of analysis for examining differences in experiences, which may include statements, sketches, photographs, or narratives.
5. Developing an appropriate qualitative research design.

B. Data Collection and Analysis

Data are collected through interviews and participants' expressions of experience, while the analytical process proceeds iteratively to identify qualitative variations. [Shankar et al. \(2018\)](#) refer to this stage as low-level analysis. The identified variations are subsequently organized by examining the structural relationships among the descriptive categories, thereby enabling the construction of an outcome space, which [Shankar](#)

[et al. \(2018\)](#) describe as high-level analysis. In addition to interviews, sketches have increasingly been employed as field notes and visual representations of concrete bodily perceptions and experiences ([Ahmad Hilmy et al. 2025](#); [Le Calvé and Gaudin 2019](#); [Tomasella 2022](#)).

Analysis proceeds as follows:

1. *Introduction*: Repeatedly reviewing the collected material to develop a comprehensive understanding of its context, significance, and meaning.
2. *Condensation*: Selecting significant statements that effectively capture the essential characteristics of participants' experiences.
3. *Comparison*: Examining the collected expressions to identify similarities and differences in participants' understandings.
4. *Grouping*: Organizing statements that share common characteristics as a basis for formulating descriptive categories.
5. *Articulation and Labeling*: Formulating the essential meaning of each group and assigning an appropriate label to establish a descriptive category.
6. *Contrast between categories*: Comparing the resulting categories to clarify their distinctions, interrelationships, and underlying variations.

Phenomenography constitutes a qualitative approach situated within the interpretive paradigm. Nevertheless, some studies, including [Mann, Dall'Alba, and Radcliffe \(2007\)](#), employ limited forms of quantification to demonstrate the distribution of participants across categories and to provide contextualization for the resulting outcome space. Such quantification remains relatively uncommon in phenomenographic research concerned with architectural understanding and perception, where investigations are predominantly descriptive and analytical. By contrast, quantitative representations are more frequently encountered in phenomenographic studies addressing architectural education and professional practice.

C. Interpretation and Implications:

Phenomenographic findings are interpreted to develop conceptual understandings and practical implications for architecture, with these findings subsequently organized and represented within an outcome space. The fundamental principle of this method lies in constructing an outcome space as a relational structure that makes visible the patterns,

distinctions, and logical relationships among different forms of understanding. The outcome space can generally take two principal forms:

- 1) Thematic: Establishes categories of conceptual variation by emphasizing the distinctions and differences among the identified categories.
- 2) Diagnostic: Extends beyond thematic classification by developing an analytical structure that is relational, interconnected, and operational for purposes of evaluation.

Indonesian urban space represents a complex phenomenon at the micro-scale that frequently extends beyond the explanatory and analytical boundaries of normative design theory. Because urban space is continuously shaped by the collective experiences and practices of society, phenomenography can serve as an effective instrument for investigating micro-scale experiences while simultaneously providing a critical perspective on normative and technocratic assumptions underlying the planning and design of the built environment.

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Author(s) contribution

Achmad Syaiful Lathif contributed to the development of research concepts, the design of methodologies, and the preparation of literature reviews.

Iwan Sudradjat contributed to the editing and refinement of the manuscript.

Indah Widiastuti contributed to the analysis of the literature reviews.

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