

REFRAMING THE INCLUSIVE CLASSROOM AS A DESIGNED LEARNING ENVIRONMENT: AN INTEGRATIVE LITERATURE REVIEW

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ABSTRACT

Research on inclusive classrooms has developed across three domains: inclusivity, focusing on belonging and social participation; inclusive education, addressing pedagogy, leadership, and institutional practices; and inclusive design, which considers the spatial, material, and sensory conditions of learning environments. An inclusive learning environment is one in which learners are supported to access educational opportunities, participate meaningfully, and achieve learning outcomes. Although inclusion reflects broader philosophies, policies, and institutional commitments, the inclusive classroom is the site where these principles are enacted, translating inclusion into accessible spaces, equitable learning opportunities, and socially participatory practices. Despite growing scholarship in these areas, limited research integrates these perspectives, constraining the conceptualization of the inclusive classroom as a holistically designed learning environment that simultaneously addresses social, pedagogical, spatial, and institutional dimensions. To address this gap, this study conducts an integrative literature review of 34 studies, synthesizing interdisciplinary knowledge across the three domains. Using a thematic synthesis process involving initial coding, descriptive theme development, and analytical theme generation, the review examined how inclusive classrooms are conceptualised across disciplinary contexts. The analysis identifies four conceptualizations of the inclusive classroom: a value-based environment emphasizing social justice and belonging; a pedagogical and organizational space shaped by teaching practices and curriculum adaptation; a designed physical and sensory environment defined by spatial layout and accessibility; and a design system involving resources, technologies, and institutional supports. Through cross-domain synthesis, these conceptualisations were further integrated into four higher-order analytical framings: the Architecture of Capability, Technologically-Mediated Relationality, Proactive Ecosystemic Design, and Relational Systemic Enactment. The findings reconceptualise the inclusive classroom as a designed learning environment emerging through the dynamic interaction of social, pedagogical, spatial, and institutional dimensions. This integrative perspective contributes a conceptual framework that extends existing understandings of inclusive classrooms and provides a foundation for future research, educational practice, and the design of inclusive learning environments.

Keywords: Built Environment; Inclusive Classroom; Inclusive Design; Inclusive Education; Integrative Literature Review; Learning Environments.

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1. INTRODUCTION

Inclusion has become a central principle in contemporary educational discourse, reflecting broader societal commitments to equity, participation, and accessibility (Ainscow, 2020; Florian, 2014; Carney, 2022) foundational elements of inclusive educational environments. Within educational contexts, these elements collectively underpin inclusive education by ensuring that all learners, regardless of ability, background, or learning needs, can meaningfully access educational opportunities, participate in learning activities, and achieve desired outcomes (Altakhaineh et al., 2026; Díaz-Boladeras et al., 2025). The inclusive learning environment operationalizes these principles, functioning not only as a physical or pedagogical space but also as a socially, organisationally, and resource-mediated ecosystem that enables learners to engage fully and equitably (Carney, 2022; Florian, 2014). While inclusion encompasses broader philosophies, policies, and institutional structures, the inclusive classroom represents the primary site where these principles are enacted, translating inclusion into accessible spaces, equitable learning opportunities, and socially participatory practices.

Within this perspective, the inclusive classroom becomes a key setting where inclusive education principles are translated into everyday teaching and learning practices. As a localized component of the broader inclusive learning environment, the classroom represents the immediate context in which inclusion is experienced and enacted by learners. Research indicates that simply integrating students with diverse learning needs into mainstream classrooms does not automatically result in inclusive learning experiences (Cade, 2023; Polat et al., 2024). Rather, inclusive classrooms require intentional instructional strategies, adaptive resources, and supportive institutional structures that enable educators to respond effectively to diverse learner needs (Altakhaineh et al., 2026; Curry et al., 2024). As outlined above, inclusive classrooms are embedded within broader inclusive learning environments that influence the availability of resources, teacher preparation, and leadership support. When educational policies, institutional leadership, and classroom practices function cohesively, they create learning environments that support equitable access, meaningful participation, and improved learning outcomes for all students (Curry et al., 2024; Wang et al., 2025).

The concept of the inclusive classroom is frequently explored within existing literature. However, it is frequently explored through specific disciplinary lenses, such as social inclusion, pedagogical practice, and environmental accessibility, which can also be identified as three intersecting domains: inclusivity, inclusive education, and inclusive design, each emphasizing distinct aspects of inclusion (Altakhaineh et al., 2026). As a result, the inclusive classroom is often conceptualized through isolated dimensions rather than as a holistic learning environment shaped by the interaction of social, pedagogical, and spatial factors. This fragmentation creates challenges in understanding how different aspects of inclusion collectively influence learner participation, engagement, and educational outcomes.

Within the inclusivity domain, the inclusive classroom is primarily conceptualized as a social environment that promotes belonging, participation, and supportive learning communities. 'Inclusivity' refers to the broader social and ethical principle of ensuring that all individuals are recognized, respected, and able to participate fully in social,

institutional, and educational contexts (Andić et al., 2024; Cade, 2023). In education, inclusivity emphasizes social interaction, belonging, and the development of supportive learning communities that accommodate varied identities, abilities, and learning needs. Understanding the inclusive classroom through the lens of inclusivity highlights the social and relational dimensions of learning environments. Inclusion is not achieved solely through structural adjustments or the placement of diverse learners in mainstream settings; rather, it requires cultivating classroom cultures that support interaction, collaboration, and the recognition of diversity. Consequently, examining inclusive classrooms within the domain of inclusivity provides important insights into how equity, participation, and accessibility are enacted through classroom practices, peer interactions, and collaborative learning structures.

Within the inclusive education domain, the inclusive classroom is primarily conceptualized as a pedagogical environment in which teaching practices, curriculum adaptations, and institutional supports facilitate participation and learning (Altakhaineh et al., 2026). “Inclusive education” refers to an educational approach that seeks to ensure that all learners, particularly those with diverse abilities, backgrounds, and learning needs, are able to access, participate in, and benefit from quality education (Altakhaineh et al., 2026; Díaz-Boladeras et al., 2025). It emphasizes the removal of barriers to learning and participation through supportive pedagogical practices, institutional policies, and professional collaboration (Altakhaineh et al., 2026; Florian, 2014).

Within the inclusive design domain, the inclusive classroom is primarily conceptualized as a spatial and material environment that supports accessibility, usability, and engagement. “Inclusive design” refers to the intentional process of designing environments, products, and systems that are accessible, usable, and meaningful for the widest possible range of users, regardless of age, ability, or background (Sewell et al., 2022). Within educational contexts, inclusive design emphasizes the creation of learning environments that remove physical, sensory, and cognitive barriers that may limit participation and engagement in learning activities (Altakhaineh et al., 2026). Rather than adapting spaces after barriers emerge, inclusive design promotes proactive planning in which accessibility and diversity are considered from the outset of the design process (Florian, 2014; Sewell et al., 2022). In this sense, inclusive design aligns closely with principles of universal access and equitable participation, ensuring that educational environments can support diverse learners without requiring extensive individual modifications. Understanding inclusive classrooms through the lens of inclusive design highlights that learning environments are not neutral settings; rather, they actively shape participation, engagement, and learning outcomes. Poorly designed classrooms may unintentionally create barriers that restrict mobility, communication, or access to learning resources. Conversely, thoughtfully designed classrooms can enhance interaction, support diverse learning styles, and promote equitable participation among students (Ntalindwa et al., 2022; Pasenidou, 2026a). Consequently, inclusive design contributes an important spatial and environmental perspective to the understanding of inclusive learning environments.

Although the three domains address the same classroom context, they are frequently examined as separate perspectives within the literature, with research often emphasizing either the social, pedagogical, or spatial dimensions of inclusion. This separation can result in a fragmented understanding of the inclusive classroom, limiting its conceptualisation as a localized component of the broader inclusive learning

environment. From a socio-cultural and relational perspective, inclusion is not a set of discrete features located within pedagogy, physical space, or social relationships, but rather an emergent process shaped through the dynamic interaction of these elements in everyday classroom practice (Booth & Ainscow, 2016; Black-Hawkins, 2014). When these dimensions are considered independently, the interdependent nature of inclusion becomes less visible, obscuring how social relationships, teaching practices, and spatial conditions collectively shape inclusive learning experiences. Consequently, inclusive practice risks being conceptualised in segmented rather than holistic terms, limiting a comprehensive understanding of how inclusive classroom environments are created and sustained (Florian, 2014).

Table 1: Conceptualization of the inclusive classroom across three domains

Domain	Focus	Key Concepts
Inclusivity	Social/ethical	Belonging, participation, identity
Inclusive Education	Pedagogical/institutional	Differentiation, curriculum adaptation
Inclusive Design	Spatial/environmental	Accessibility, usability, universal design

For example, inclusive pedagogical strategies such as differentiation or collaborative learning may be implemented; however, without corresponding attention to spatial arrangements, such practices may still limit participation for learners who require flexible or accessible learning environments. Similarly, even physically accessible classrooms may not fully support inclusion if interactional patterns or classroom cultures reproduce subtle forms of exclusion, such as unequal participation or cultural and linguistic marginalisation. These examples illustrate that access, participation, and belonging are co-constructed across multiple dimensions rather than achieved through any single element in isolation. Socially inclusive classroom cultures may therefore be constrained by inaccessible or inflexible physical environments, while well-designed environments may still fail to support participation if pedagogical practices and classroom relationships remain exclusionary. This highlights Booth and Ainscow's (2016) view of inclusion as a continuing process of identifying and removing barriers to participation and learning. Understanding how these dimensions interact is therefore essential for conceptualising the inclusive classroom as an integrated learning environment rather than as a collection of separate features.

The inclusive classroom therefore represents the point where these three domains, inclusivity, inclusive education, and inclusive design, intersect. Inclusivity provides the ethical and social foundation for recognizing diversity and promoting participation, while inclusive education operationalizes these principles through teaching practices, curriculum adaptation, and institutional support mechanisms (Altakhaineh et al., 2026; Curry et al., 2024). At the same time, inclusive design ensures that the physical and material characteristics of the learning environment support accessibility and engagement for diverse learners (Pasenidou, 2026a; Sewell et al., 2022). When considered together, these domains reveal that inclusive classrooms are not only social or pedagogical environments but also designed systems in which social relationships, teaching practices, and spatial conditions interact to shape learning experiences. While previous studies have examined inclusivity, inclusive education, and inclusive design independently, limited research has synthesized these perspectives to understand how they collectively shape inclusive classroom environments. Consequently, the relationships and

interdependencies between social, pedagogical, and spatial dimensions of inclusion remain insufficiently explored within the literature.

This gap highlights the need for an integrative perspective that examines how inclusivity, inclusive education, and inclusive design collectively shape the inclusive classroom as a localized component of a broader inclusive learning environment. The aim of this study is to examine how these three domains conceptualize the inclusive classroom and to synthesize these perspectives in order to reconceptualize the inclusive classroom as a designed learning environment. Specifically, the study seeks to: (1) examine how inclusive classrooms are conceptualized within the domains of inclusivity, inclusive education, and inclusive design; (2) identify common themes and relationships emerging across these domains; and (3) synthesize these perspectives to develop an integrated conceptualization of the inclusive classroom as a designed learning environment. To achieve this, the study conducts an integrative literature review of 34 peer-reviewed studies, bringing together insights from education and built environment research to develop a more integrated understanding of inclusive classroom environments.

2. METHODOLOGY

This study adopts an Integrative Literature Review (ILR) methodology to examine how the concept of the inclusive classroom is understood across the domains of inclusivity, inclusive education, and inclusive design. To support this, the study examines how the inclusive classroom is conceptualised in existing literature, analyses how different domains emphasise distinct dimensions of inclusion within classroom environments, identify common themes and relationships emerging across these domains and synthesises insights across these perspectives in order to develop a more integrated conceptual understanding of inclusive classroom environments.

The integrative literature review (ILR) approach was selected because research on inclusive classrooms spans multiple disciplinary fields, including education, social sciences, design studies, and built environment research. Integrative reviews are particularly suited to synthesising diverse forms of evidence and knowledge across disciplinary boundaries, enabling a more comprehensive understanding of complex phenomena (Whittemore & Knafl, 2005). Accordingly, the ILR methodology provides an appropriate framework for examining how inclusive classroom environments are conceptualised across social, pedagogical, and spatial perspectives.

A comprehensive literature search was conducted across multiple academic databases to ensure broad interdisciplinary coverage of research related to inclusivity, inclusive education, and inclusive learning environments. The databases consulted included ERIC (Education Resources Information Center), Taylor & Francis Online, SpringerLink, ScienceDirect, and Google Scholar. ERIC was prioritised for literature related to inclusive education because of its extensive coverage of educational research, classroom practices, and educational policy. Taylor & Francis Online and SpringerLink were included to capture peer-reviewed scholarship within the social sciences and special education literature. ScienceDirect was used to identify studies related to learning environments and inclusive design, including research within design studies, environmental psychology, architecture, and educational facilities. Google Scholar was used as a complementary search platform to ensure broader interdisciplinary coverage and to identify influential theoretical and policy documents that may not be consistently

indexed across specialised databases. The search focused on literature published between 2016 and 2025 and was limited to sources published in English.

Literature was included in the review based on its relevance to the conceptual focus of the study. Priority was given to peer-reviewed journal articles, foundational theoretical and conceptual scholarship, and key international policy or guidance documents addressing inclusion within educational environments. Studies were considered relevant if they contributed to understanding inclusion in educational contexts, classroom practices related to participation and access, learning environments and spatial considerations, or design principles influencing usability, accessibility, and engagement within classroom environments. Literature from education, social sciences, design studies, and built environment disciplines was included where it contributed to the review objectives. These criteria ensured that the selected literature contributed directly to the study's objective of reconceptualising the inclusive classroom as a designed learning environment. The studies were excluded if they focused exclusively on clinical or medical models of disability, addressed subject-specific pedagogical issues without reference to classroom environments or resources, or lacked relevance to the social, pedagogical, or spatial dimensions of inclusion.

Search terms were developed in relation to the three conceptual domains that frame this study. The search strategy focused on identifying literature that explicitly or implicitly discussed the concept of the inclusive classroom within these three domains. The combinations of search terms used in the literature search are presented in Table 2.

Table 2: Search terms used for literature retrieval

Domain	Keywords
Inclusivity	"inclusive classroom" AND inclusivity
Inclusive Education	"inclusive classroom" AND "inclusive education"
Inclusive Design	"inclusive classroom" AND "inclusive design" & "inclusive classroom" AND "universal design"

This alignment between the conceptual framework of the study and the search strategy helped ensure that the literature retrieved was relevant to the study's aim of examining how inclusive classrooms are conceptualised across different disciplinary contexts. A structured screening process was applied to identify relevant studies. The initial database search was conducted using predefined filters, including a publication time range (2015–2015), English language restriction, and full-text availability. This search generated 876 records. These records were imported into the screening process, and duplicates were first identified and removed ($n = 6$), resulting in 870 unique records. The remaining studies were then screened based on their titles and abstracts to assess relevance to inclusivity, inclusive education, inclusive design, and classroom environments. Studies that were clearly unrelated to the review focus were excluded at this stage, leaving 44 studies for full-text assessment. Full-text screening was then conducted, resulting in the exclusion of 8 studies in accordance with the predefined inclusion and exclusion criteria. In addition to database searching, 2 further relevant studies were identified through supplementary Google Scholar searching to enhance coverage of inclusive design literature and address potential limitations in database indexing and retrieval. Following full-text screening and supplementary inclusion, a total of 34 studies were retained for final synthesis in the integrative review.

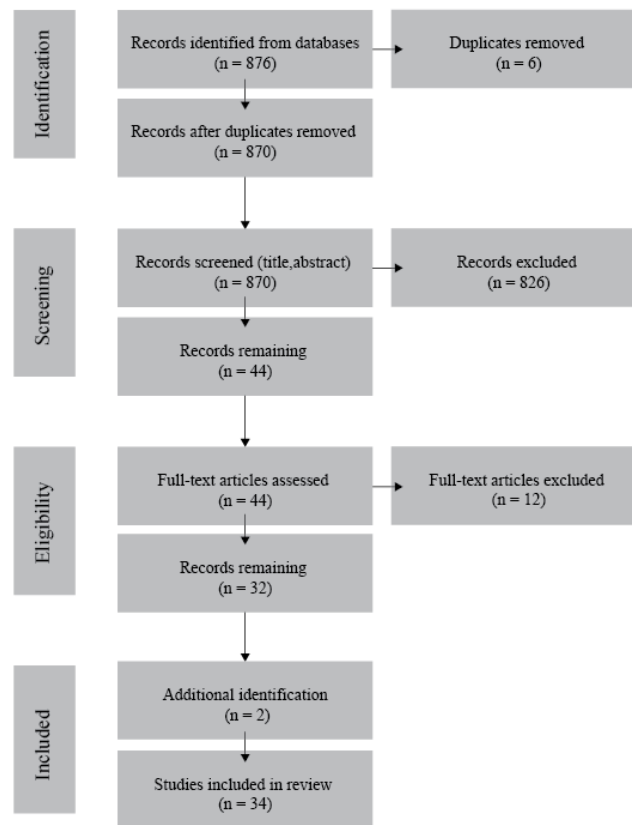


Figure 1: Flow diagram for the process of article selection

The selected studies were subsequently analysed using a thematic synthesis approach. The analysis followed an iterative, inductive–deductive coding process involving repeated reading, constant comparison, and cross-domain mapping of concepts across the inclusivity, inclusive education, and inclusive design literature. Codes were progressively refined and clustered to develop higher-order analytical themes that captured convergences and divergences in how inclusive classrooms are conceptualised. Through this process, themes were developed that captured dominant ways in which inclusive classrooms are conceptualised in relation to social participation, pedagogical practice, and spatial or environmental conditions. This thematic synthesis enabled the integration of insights from education and built environment scholarship, culminating in a cross-domain synthesis that informs a more holistic conceptualisation of the inclusive classroom as an interdependent social, pedagogical, and spatial system. The analytical process was conducted in five stages. First, initial coding was undertaken to identify recurring concepts related to inclusion within the selected studies. Second, similar codes were grouped into descriptive themes reflecting common patterns across the literature. Third, these descriptive themes were further synthesised into higher-order analytical themes that captured broader conceptualisations of the inclusive classroom. Fourth, relationships, tensions, and synergies between themes and domains were examined through cross-domain comparison. Finally, insights from these analyses informed the development of an integrated conceptual framework reconceptualising the inclusive classroom as a designed learning environment.

3. RESULTS

The thematic synthesis began with the identification of recurring concepts across the selected studies. These initial codes represent the key elements used to conceptualise inclusive classroom environments.

Table 3: Initial coding matrix: Core concepts and conceptual definitions for the inclusive classroom

Initial Code	Conceptual Definition	Sources
Social reciprocity & peer interaction	The quality and frequency of relationships between students with special educational needs (SEN) and their peers.	(Soto-Icaza et al., 2025; Andić et al., 2024; Cade, 2023)
Universal design for learning (UDL)	A proactive framework for curriculum and instructional design that assumes diversity from the outset.	(Sewell et al., 2022; Almutairi & Alsuwayl, 2023; Efstathiou & Varvarigou, 2025)
Technological mediation	The use of immersive tools (VR, AR), 3D printing, and AI as "enabling bridges" for learning and social connection.	(Molloy & Farrell, 2024; Andić et al., 2024; Ntalindwa et al., 2022)
Architecture as "meaning-making"	The concept that school space communicates values of who is an "insider" or "outsider"	(Pasenidou, 2026; Buchner, 2021)
Teacher agency & efficacy	The confidence and competence of educators to re-organize space and instruction	(Wang et al., 2025; Olsson & Hansson, 2026)
Acoustic & visual "noise"	Physical environmental stressors (overcrowding, lighting, sound) that act as barriers to engagement	(Pasenidou, 2026; Olsson & Hansson, 2026)
Transformational leadership	The role of school leaders in "setting the tone" and fostering an inclusive school climate	(Wang et al., 2025; Pasenidou, 2026)
Child-centered pedagogy (GPBL)	Guided play-based learning as a strategy for holistic development	(Cade, 2023)

The initial codes were subsequently grouped into four descriptive themes representing social, pedagogical, spatial, and systemic dimensions of inclusive classroom environments.

Table 4: Descriptive themes

Descriptive Theme	Associated Initial Codes	Representative Sources
Value-based environment	Belonging, peer reciprocity, social interaction, worldview diversity	(Andić et al., 2024; Bartz & Bartz, 2018; Bature et al., 2016; Cade, 2023; Chiu & Lim, 2020; Curry et al., 2024; Dere, 2018; Kocaj, 2025; Lindner & Schwab, 2025; Olsson & Hansson, 2026; Polat et al., 2024; Salas García & Rentería, 2024; Soto-Icaza et al., 2025)
Pedagogical and organisational space	UDL, differentiated instruction, guided play, immersive technology	(Bakogiannis, 2025; Efstathiou & Varvarigou, 2025; Moustache & Makhoba, 2024; Schnepel et al., 2020; Sewell et al., 2022; Tveitnes & Hvalby, 2024; Wang et al., 2025; Zeedyk et al., 2024)
Designed physical environment	Architecture, flexible furniture, acoustics	(Lundqvist, 2021; Pasenidou, 2026b)
A design system	Transformational leadership, school climate, teacher efficacy, policy	(Almutairi & Alsuwayl, 2023; Altakhaineh et al., 2026; Andić et al., 2024; Deb et al., 2018; Diken et al., 2025; Molloy & Farrell, 2024; Ntalindwa et al., 2022; Özergün-Köse & İmer-Çetin, 2025; Sanger, 2020)

The four conceptual categories were derived through iterative comparison of descriptive themes across the included studies. During coding, concepts related to belonging, participation, and diversity consistently clustered together, forming the category of the

inclusive classroom as a value-based environment. A second cluster centred on teaching strategies, curriculum adaptation, and classroom organisation, leading to the pedagogical and organisational space category. Concepts relating to architecture, accessibility, environmental conditions, and spatial organisation formed the designed physical environment category. Finally, studies emphasising leadership, policy, technology, and institutional support revealed a broader systemic dimension that extended beyond the classroom itself, resulting in the design system category. These categories were retained because they represented conceptually distinct yet interdependent dimensions that recurred consistently across the three domains.

3.1 INCLUSIVE CLASSROOM AS A VALUE-BASED ENVIRONMENT

Across the inclusivity domain, the inclusive classroom is primarily conceptualised as a value-based environment that promotes equity, belonging, and participation among learners. In this perspective, inclusion is not limited to physical placement within mainstream classrooms but involves creating learning environments in which all students feel respected, supported, and able to participate meaningfully in educational activities. Several studies emphasise that inclusive classrooms should remove barriers to participation and foster equitable learning opportunities for students with diverse backgrounds and abilities. Literature frequently highlights the importance of developing classroom cultures that recognise diversity as a valuable element of learning rather than as a challenge to be managed. Inclusive environments therefore encourage collaboration, peer interaction, and mutual respect among students (Anđić et al., 2024b; Cade, 2023; Curry et al., 2024; Lindner & Schwab, 2025; Olsson & Hansson, 2026; Salas García & Rentería, 2024; Soto-Icaza et al., 2025). Research also indicates that inclusive classrooms support learners' sense of belonging by integrating culturally responsive teaching practices and flexible participation opportunities. Such practices enable students to contribute through different modes of communication and engagement, reinforcing the principle that educational systems should adapt to learners rather than expecting learners to conform to rigid instructional structures (Curry et al., 2024; Díaz-Boladeras et al., 2025). Within this framing, the inclusive classroom is understood as a socially constructed environment shaped by shared values, relational trust, and supportive interactions. Inclusion is therefore achieved not only through structural arrangements but also through classroom cultures that promote equity, recognition of diversity, and collective participation. This perspective highlights that inclusive classroom design must consider social and relational aspects of learning environments. Spatial arrangements that encourage interaction, visibility, and collaboration may therefore play a role in supporting the values of belonging and participation emphasised in inclusivity literature.

3.2 INCLUSIVE CLASSROOM AS A PEDAGOGICAL AND ORGANISATIONAL SPACE

In contrast to the inclusivity perspective, literature within the inclusive education domain emphasises the pedagogical and organisational dimensions of the inclusive classroom. In this body of research, the classroom is viewed as a structured learning environment where teaching strategies, curriculum design, and institutional practices are intentionally adapted to support diverse learners. Several studies highlight the importance of differentiated instruction, curriculum flexibility, and collaborative learning strategies in enabling inclusive educational practices (Sewell et al., 2022; Tveitnes & Hvalby, 2024; Wang et al., 2025). These pedagogical approaches aim to address differences in learning

pace, learning styles, and cognitive needs while maintaining shared participation in classroom activities. For example, teachers may modify teaching methods, adjust instructional pacing, or provide individualized feedback in order to accommodate diverse learning profiles. The literature also emphasises that inclusive classrooms often rely on collaborative practices such as peer-assisted learning, group work, and cooperative problem-solving. These strategies enable students with and without special educational needs to learn together, supporting both academic development and social integration (Zeedyk et al., 2024). However, several studies highlight challenges in implementing inclusive pedagogy, particularly when teachers lack adequate training, resources, or institutional support. Teachers frequently report difficulties adapting curricula or addressing the diverse needs of students in mainstream classrooms, suggesting that effective inclusive education requires coordinated support across multiple levels of the education system (Moustache & Makhoba, 2024; Schnepel et al., 2020). Taken together, this body of literature conceptualises the inclusive classroom as a pedagogically designed environment where instructional strategies, classroom organisation, and teacher practices are adapted to support diverse learners. These findings suggest that classroom environments must be adaptable to support varied instructional strategies such as group work, differentiated instruction, and collaborative learning. Flexible spatial layouts and adaptable furniture may therefore be necessary to enable pedagogical approaches associated with inclusive education.

3.3 INCLUSIVE CLASSROOM AS A DESIGNED PHYSICAL ENVIRONMENT

The inclusive design domain introduces a spatial and environmental perspective to the understanding of inclusive classrooms. In this perspective, the classroom is conceptualised as a designed physical environment in which spatial arrangements, architectural features, and material resources influence participation and learning. Several studies emphasise that classroom design can either enable or constrain inclusion. Flexible classroom layouts, accessible circulation paths, and adaptable furniture arrangements are often identified as key design elements that support interaction and collaboration among students (Lundqvist, 2021; Ntalindwa et al., 2022; Pasenidou, 2026b). In addition to spatial layout, the literature highlights the role of environmental resources such as visual supports, sensory tools, and assistive technologies in facilitating participation. Visual schedules, pictograms, and structured classroom displays help students understand routines and expectations, thereby supporting engagement and reducing anxiety in learning environments (Deb et al., 2018; Diken et al., 2025; Ntalindwa et al., 2022). Research also suggests that classroom spaces can communicate institutional values and influence students' experiences of belonging. Architectural design and environmental organisation may therefore shape how students interact, move, and participate within learning environments (Díaz-Boladeras et al., 2025; Lundqvist, 2021; Pasenidou, 2026a). From this perspective, the inclusive classroom is not merely a setting in which learning occurs; rather, it is an actively designed environment that can enhance accessibility, interaction, and engagement for diverse learners. This perspective indicates that spatial design is not merely supportive but actively shapes how inclusive practices are enacted. Classroom layouts, circulation paths, and environmental resources can either enable or constrain the implementation of inclusive pedagogical strategies.

3.4 INCLUSIVE CLASSROOM AS A DESIGN SYSTEM

A further insight emerging from the literature is that inclusive classrooms function as part of a broader design system that includes institutional structures, policies, technologies, and professional practices. In this framing, the classroom is not viewed as an isolated environment but as a component within a wider network of educational supports. Several studies indicate that the successful implementation of inclusive classrooms depends heavily on institutional leadership, teacher training, and access to specialised resources (Almutairi & Alsawayl, 2023; Altakhaineh et al., 2026; Molloy & Farrell, 2024). Many contexts, educators report limited access to assistive technologies, professional guidance, and specialised personnel, which constrains their ability to fully implement inclusive practices. (Deb et al., 2018; Diken et al., 2025; Ntalindwa et al., 2022). Similarly, research highlights gaps between inclusive education policies and classroom practice, suggesting that inclusion often remains accommodation-focused rather than design-oriented. Structural challenges such as limited training, resource constraints, and inconsistent policy implementation may therefore hinder the development of fully inclusive learning environments (Almutairi & Alsawayl, 2023; Molloy & Farrell, 2024; Sanger, 2020).

This body of literature suggests that inclusive classrooms should be understood as socio-technical systems in which social values, pedagogical strategies, spatial environments, and institutional supports interact. Effective inclusion therefore requires coordinated design across these dimensions rather than isolated interventions at the classroom level. This systems perspective highlights that inclusive classroom depend on coordination between spatial design, institutional policy, technological resources, and teacher capacity. Inclusive learning environments therefore emerge not from isolated interventions but from integrated planning across educational and built environment systems. While the literature conceptualises inclusive classrooms through social, pedagogical, spatial, and systemic perspectives, the thematic synthesis revealed that these dimensions rarely operate independently. Instead, the findings suggest that inclusive classroom environments emerge through dynamic interactions between social relationships, pedagogical practices, spatial conditions, and institutional supports. Through analytical synthesis, four higher-order conceptual framings were developed that extend beyond individual domains and provide a more integrated understanding of the inclusive classroom as a designed learning environment.

Table 5: Analytical themes and reconceptualization of the inclusive classroom

Analytical Theme	Reconceptualization Of the Classroom	Core Data Indicators
The Architecture of Capability	Space is viewed as a material force that validates a student's "right to be present" rather than a neutral container (Pasenidou, 2026b).	Barrier removal, "pedagogical places," and the rejection of spatialized ability grouping (Pasenidou, 2026b).
Technologically-Mediated Relationality	Digital tools act as "relational catalysts" that reverse traditional power dynamics between SEN students and peers (Andić et al., 2024).	3D printing, VR/AR, "co-creator" status, and social pride (Andić et al., 2024; Molloy & Farrell, 2024).
Proactive Ecosystemic Design	A shift from "retrofitting" accommodations to strategic, anticipatory design where diversity is the baseline for space and curriculum (Sewell et al., 2022).	Universal Design for Learning (UDL), flexible seating, and cognitive accessibility (Almutairi & Alsawayl, 2023; Sanger, 2020; Pasenidou, 2026).
Relational Systemic Enactment	Inclusion is a top-down and bottom-up flow where leadership acts as an "invisible hand" fostering teacher efficacy (Wang et al., 2025).	Transformational leadership, school climate, and psychological safety for educators (Wang et al., 2025).

Although the four conceptualisations emerged from different disciplinary traditions, cross-domain comparison revealed important distinctions and complementarities. The inclusivity domain primarily emphasises social belonging, participation, and recognition of diversity, positioning inclusion as a relational and ethical process. In contrast, the inclusive education domain focuses on pedagogical and organisational mechanisms through which participation is enabled, including curriculum adaptation, differentiated instruction, and teacher practices. The inclusive design domain extends these perspectives by highlighting the role of spatial, sensory, and material conditions in shaping participation. While all three domains share a commitment to equitable access and participation, they differ in the primary mechanisms through which inclusion is enacted. Together, these perspectives demonstrate that inclusive classrooms cannot be understood solely through social, pedagogical, or spatial dimensions, but through the interaction of all three. Table 6 explores the "friction" where dimensions conflict and the "synergies" where they work in harmony, directly addressing the fragmented understanding of inclusion

Table 6: Tensions in the inclusive classroom ecosystem

Tension	Evidence From the Literature
Pedagogical Intent vs. Spatial Rigidity	Teachers advocate for child-centered, play-based learning (GPBL), but are physically restricted by factors like "overcrowding," "visual noise" from classroom displays, and "background noise" that negatively impacts concentration (Pasenidou, 2026; Olsson & Hansson, 2026).
Legal Presence vs. Social Reciprocity	Inclusion policies (IDEA/LRE) guarantee physical placement, but "integration rooms" and a "spatialized version of ability grouping" often construct students as "outsiders" who are physically present but socially isolated from their peers (Pasenidou, 2026; Tveitnes & Hvalby, 2024).
Policy vs. Environmental Implementation	Inclusion is "approved and valued" in high-level policy, but yet remains unimplemented because the materiality of the classroom (e.g., stairs, inaccessible washrooms, or inflexible seating) remains hostile to diversity, a state of being "just not right here" (Pasenidou, 2026).

Cross-domain analysis revealed that the three domains do not always operate harmoniously. While all advocate inclusion, they often prioritise different aspects of the classroom environment, creating tensions in practice. For example, inclusive education promotes differentiated and collaborative pedagogies, yet inclusive design literature demonstrates that rigid classroom layouts and environmental barriers may restrict the implementation of such approaches. Similarly, policies supporting inclusion may guarantee access, while learners continue to experience exclusion through social or spatial barriers. These contradictions highlight the limitations of viewing inclusion through a single disciplinary lens and reinforce the need for a more integrated understanding of inclusive classroom environments.

Table 7: Synergies in the inclusive classroom ecosystem

Synergies	Evidence From the Literature
Flexible Space & Differentiated Pedagogy	High accessibility to "group rooms" (breakout spaces) and flexible furniture acts as a prerequisite for differentiated lessons, empowering teachers to move from teacher-centered to "accessible pedagogies" that support student agency (Pasenidou, 2026; Olsson & Hansson, 2026).
Digital Scaffolding & Shared Pride	3D printing and immersive VR create "enabling spaces" where students with disabilities shift from being knowledge "consumers" to "co-creators". This reverses traditional power

Synergies	Evidence From the Literature
	dynamics, fostering social pride and allowing students to lead peer interactions (Andić et al., 2024; Molloy & Farrell, 2024).

The "friction" identified in the literature suggests that when pedagogical goals are pursued without corresponding spatial adaptations, the result is often teacher burnout and student disengagement. For instance, even when inclusive values are held by staff, a "chaotic and unsafe" physical structure can undermine the development of a supportive learning community. Conversely, the identified "synergies" demonstrate how technology and architecture can act as relational catalysts. Ultimately, these interactions prove that access, participation, and belonging are co-constructed across the social, pedagogical, and spatial dimensions. The diagram in the Figure 2 serves as the culmination of the thematic synthesis, visually mapping the interdependencies between the social, pedagogical, spatial, and institutional dimensions of the inclusive classroom.

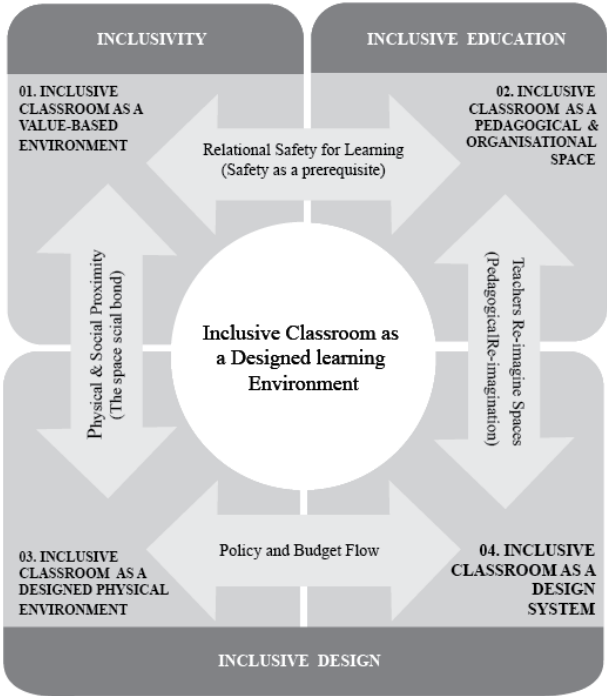


Figure 2: Illustrates the integrated conceptual framework developed through the literature synthesis

Figure 2 presents the integrated conceptual framework developed through the thematic synthesis. The framework positions the inclusive classroom as a designed learning environment emerging through the interaction of four interdependent dimensions: social, pedagogical, spatial, and institutional. The social dimension reflects belonging, participation, and relational engagement; the pedagogical dimension encompasses teaching practices, curriculum adaptation, and learning support; the spatial dimension relates to accessibility, environmental design, and material resources; and the institutional dimension includes leadership, policy, technology, and organisational support. The framework illustrates that inclusive classroom environments are not produced by any single dimension in isolation. Rather, inclusion emerges through the dynamic relationships between these dimensions, where strengths or weaknesses in one area influence the effectiveness of the others. The model therefore provides a holistic representation of how inclusive classroom environments are created and sustained.

4. CONCLUSIONS

This study examined how the inclusive classroom is conceptualised across the domains of inclusivity, inclusive education, and inclusive design. Through an integrative literature review of 34 studies, four conceptualisations were identified: the inclusive classroom as a value-based environment, a pedagogical and organisational space, a designed physical environment, and a design system. The thematic synthesis further integrated these perspectives into four higher-order analytical framings: Architecture of Capability, Technologically-Mediated Relationality, Proactive Ecosystemic Design, and Relational Systemic Enactment. Collectively, these framings demonstrate that inclusive classrooms are best understood as designed learning environments shaped through the interaction of social, pedagogical, spatial, technological, and institutional dimensions. The study contributes an integrated conceptual perspective that moves beyond fragmented disciplinary understandings of inclusion. The findings have practical implications for multiple stakeholder groups. For educators, the framework highlights the importance of aligning pedagogical strategies with opportunities for participation, collaboration, and learner diversity. For designers and built environment professionals, the findings emphasise that classroom layouts, environmental conditions, accessibility features, and spatial flexibility should be considered integral components of inclusive practice rather than supplementary design considerations. For policymakers and school leaders, the framework underscores the need for coordinated investment in teacher development, assistive technologies, institutional support systems, and inclusive design standards. The proposed framework may also serve as an evaluative tool for examining existing classroom environments or as a guide for the planning and development of new learning spaces. Future research should apply and test the framework within real educational settings to examine how interactions between social, pedagogical, spatial, and institutional dimensions influence learner participation, engagement, and educational outcomes.

5. REFERENCES

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