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UNPACKING COMMUNITY-BASED ARCHITECTURAL PEDAGOGY: A SYSTEMATIC REVIEW OF CURRENT SCHOLARSHIP

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Abstract:

Community-based architectural pedagogy encompasses a diverse range of practices – such as live projects, design-build studios, participatory design, and service-learning – yet the fragmented terminology and varying theoretical underpinnings pose challenges to understanding its broader educational impact. This systematic review examines ninety-five peer-reviewed and Scopus-indexed publications from 2014–2024 to explore how various approaches address student learning and community participation. Using a mixed-method approach, we combine a systematic quantitative literature review (SQLR) with qualitative thematic analysis to identify five pedagogical orientations: Community-Driven & Participatory Approaches, Experiential & Design-Build Pedagogy, Sustainability & Resilience, Digital & Interdisciplinary Innovation, and Culture, Heritage & Pedagogical Frameworks. While some papers prioritize student learning or community impact, the majority pursue a balanced synergy between both. Furthermore, the review also identifies six recurring pedagogical strategies employed in community-based design education: hands-on fabrication, collaborative design, place-based learning, digital engagement, sustainable and regenerative design, and community-driven engagement. However, limitations such as tokenism, scalability, and digital access persist. Findings reveal a Western-dominated field, characterized by a concentration of projects and scholarship in the U.S. and European regions with limited representation from non-English contexts, although there is growing global interest. Future models should be able to prioritize longitudinal impact, equitable power-sharing, and scalable hybrid models. This study advances discourse on balancing educational goals with meaningful community engagement.

Key words: **community-based pedagogy, architectural education, participatory design, design-build, service-learning.**

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1. INTRODUCTION

Community-based design and planning have been extensively discussed, researched, and implemented across various disciplines, including architecture and the built environment. This approach offers positive attributes such as promoting transparency of the process, user involvement, agency, contextuality, collaboration, knowledge exchange, and power distribution (Awan *et al*., 2013; Jones, 2005; Till, 2016). Particularly in diverse geographical contexts, community-based design has been linked to efforts in serving vulnerable and underprivileged communities, highlighting the idea of architecture of empowerment (Serageldin, 1997; Smith, 2008).

However, despite its advantages, community-based architectural pedagogy is not without critique. Scholars have raised concerns regarding the methodologies employed in participatory design, pointing to issues such as power imbalances, tokenism, and the challenge of achieving genuine consensus (Arnstein, 1969; Carpentier, 2016). Some critics argue that participatory design, when not carefully managed, can devolve into a performative exercise rather than a truly inclusive process. The participatory nature of community-based design can lead to unintended challenges, including power struggles and coercion, which some scholars describe as a form of 'tyranny' or even a 'nightmare' (Cooke and Kothari, 2001; Miessen, 2011). These concerns underscore the complexities of balancing stakeholder engagement with the realities of decision-making and implementation in architectural practice and education.

Understanding community-based scholarship is challenging, as the pedagogical terms vary widely, overlap, and are often interchangeable due to factors including political context, traditions, and theoretical underpinnings (Boyle, 2021; Pak and De Smet, 2022; Salama, 2016). However, it is important to know the trend of this pedagogy by considering its wider terms, as previous reviews have tended to focus on specific terms such as design build (Canizaro, 2012), live project (Smith *et al*., 2023) and participatory (Lee *et al*., 2024).

This paper aims to conduct a systematic review of community-based design in architectural education, focusing on its application and approaches. By examining established terminology commonly used in the discourse – such as live project in the British tradition and design-build in the American tradition (Pak and De Smet, 2022) – alongside broader terms like participatory design, service learning, and the emerging concept of urban labs (see Table 1), this study seeks to provide a comprehensive overview of current research, key trends, and critical insights in community-based architectural pedagogy.

This systematic review aims to provide a transparent, unbiased synthesis of existing scholarship addressing our research questions. To ensure methodological rigor, this paper followed the systematic quantitative literature review (SQLR) (Pickering and Byrne, 2014) as a method to quantitatively collect the papers, and qualitatively code the papers in order to systematically categorize and interpret the textual data, themes, and patterns (Creswell, 2012; Saldana, 2009). Considering the evolving trend of community-based architectural pedagogy globally, this study addresses two main research questions:

1. How do the objectives of community-based architectural pedagogy address student learning and community goals?
2. What practical approaches are commonly implemented in community-based architectural pedagogy?

By investigating these questions, this study aims to contribute to a deeper understanding of how community-based architectural pedagogy is taught and implemented – while also critically examining how community participation is conceptualized and addressed in current architectural scholarship.

2. RESEARCH METHODS

The paper adopts a mixed-method approach, integrating a systematic quantitative review of existing scholarly literature on community-based architectural pedagogy (Pickering and Byrne, 2014) with qualitative coding techniques to analyse textual data. This coding process involves three key stages – initial coding, focused coding, and theme development – to identify recurring patterns and themes (Creswell, 2012; Saldana, 2009). The study aimed to identify the last ten years of peer-reviewed publications between 2014 and 2024 that focused on architecture students' involvement in community-based architectural projects and design led by university pedagogy. This review focuses on Scopus-indexed, English-language publications due to their accessibility, tools to refine and filter the results, and established academic rigor. However, we acknowledge that excluding non-English sources may overlook important perspectives, particularly from regions where community-based architecture thrives but is documented in local languages. Future research should mitigate this limitation by integrating multilingual sources.

The first quantitative step was identifying and carefully defining a specific topic within the overall type of research (Pickering and Byrne, 2014). Considering the wider variety of the community-based terms that are interchangeable (Salama, 2016) and overlapping (Anderson, 2017; Boyle, 2021; Canizaro, 2012; Forsyth *et al.*, 2000; Harriss and Widder, 2014), we decided to include several terminologies associated with community-based architectural pedagogy including live project, design build, service learning, practice-based, community-based, urban lab, and participation. Additionally, some of the terms also have variations such as the use of hyphens, extended noun phrases or related terms like practice-oriented, urban living, and participatory (see Step 1 - Table 1). The specific term 'architecture' was added to the keyword search to keep its relevance to the architectural context, as the community-based terms are widely used in another field of research. By using the Boolean searching technique, the first initial search yielded 2,780 articles.

Table 1. The systematic document selection process

INCLUSION and or Exclusion	STEP 1 Initial Article Screening using Boolean Search	STEP 2 Abstract Screening	STEP 3 Full-Paper Review, to match with the research questions	STEP 4 Final Reading, Irrelevant, Overlapping, Double Up Documents removed
("architect*") AND ("student*") AND ("live project")	75	31	19	10
("architect*") AND ("student*") AND ("design build" OR "design-build")	161	43	28	21
("architect*") AND ("student*") AND ("service learning" OR "service-learning")	113	33	19	16
("architect*") AND ("student*") AND ("practice oriented" OR "practice-oriented")	32	4	0	0
("architect*") AND ("student*") AND ("practice based" OR "practice-based")	173	9	4	2
("architect*") AND ("student*") AND ("community based" OR "community-based")	270	17	15	16
("architect*") AND ("student*") AND ("urban lab*" OR "urban living lab*")	16	2	2	2
("architect*") AND ("student*") AND ("participation" OR "participatory")	1940	78	45	30
Total number of articles	2780	217	132	**95**

These initial results were refined using several inclusionary and exclusionary steps that span from step two to step four. Starting from step two, all the screening and reviewing were done

manually to make sure that the selected papers were relevant to the research topic. Step two was done by reading the title, abstract and its keywords as we are aware that the research topic has layered meaning and various fields of study. For example, the term 'architecture' was sometimes used to refer to information technology or organizational systems, which did not align with the main research objective. Additionally, the term like 'participatory' was sometimes used to refer to students' involvement as users in architectural projects, rather than as the facilitator or main actor in the design, or architectural process like designing school together. Other conflicting terminologies were also related to student collaboration in architectural projects that involved multi-discipline to create a design build project rather than making a collaborative program with the community in a specific place.

After excluding irrelevant papers, 132 articles were thoroughly reviewed for relevance to our research questions. Finally, the last stage of the review focused on examining how each article related to actual community engagement. Papers that discussed community pedagogy in isolation – without addressing its impact on the community – were excluded as irrelevant. Additionally, any articles by the same authors were reviewed, and duplicates containing identical content were excluded. This resulted in a final 95 documents to be explored more, which can be accessed through the appendix. These were analysed using categorization and metadata in line with the research questions.

3. RESULTS

3.1 Prevalence and trend of research

Analysis of the metadata obtained from the documents can be illustrated to present an overview of the publications on community-based architectural pedagogy research. It is also worth noting that this review does not capture all community-based literature and publications. The results presented in this research only capture published peer-reviewed publication in English. Outside language limitation, it also became clear that many outputs of community-based pedagogy are not published in a written journal format.

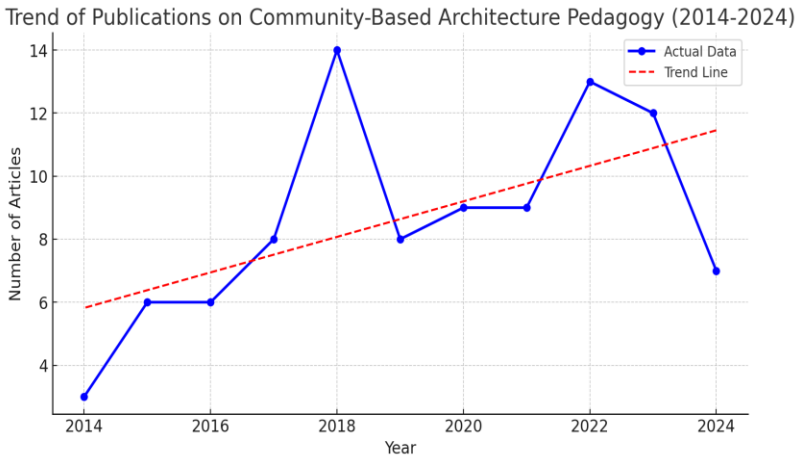

Figure 1. Trend Analysis of Community-Based Pedagogy in Architecture (Source: Authors, 2025)

The trend of publications on community-based architecture pedagogy from 2014 to 2024 shows fluctuations with an overall increasing interest in recent years (Figure 1). The number of articles published annually varied, with notable peaks in 2018 (14 articles) and 2022 (13 articles). After a slight dip in 2019 and 2021, publication numbers began rising again, reaching 12 articles in 2023. Notably, 2019 marked the onset of the Covid-19 Pandemic, affecting teaching methods in universities including in architecture, which were forced into online interaction (Grover and Wright, 2023; Metinal and Gumusburun Ayalp, 2024). While 2024 shows a slight decline (7 articles), this may be due to the incomplete dataset for the year. The general upward trend suggests growing academic engagement with the topic, particularly in the last five years, indicating an increasing recognition of community-based approaches in architectural education and practice.

Analysing geographical distribution, the comparison between project locations and author institutions in community-based architecture highlights significant geographical disparities (see Figure 2). American and European regions dominate the field, with 32 and 29 projects respectively, supported by a strong institutional presence (30 and 33 institutions). This suggests that these regions have well-established research networks and academic interest in community-based architecture. American institutions are known for their design build pedagogy, with the most popular example from Rural Studio, in Auburn (Canizaro, 2012; Mockbee, 2010). In the European context, especially in the UK, live projects pedagogy are dominating the discourse to date (Anderson, 2017; Harriss and Widder, 2014; Smith *et al.*, 2023). Asia follows with 16 projects and 14 institutions, indicating moderate engagement. Australia, despite having only 7 projects, has 9 contributing institutions, suggesting active research efforts that may not always lead to direct implementation. In contrast, Africa has the lowest representation, with only 2 projects and 2 institutions, reflecting limited academic and practical engagement in the field. Multi-region studies account for 9 projects and 7 institutions, highlighting cross-regional collaborations but on a smaller scale.

It is interesting that publications from the multi-regional locations or institutions usually give an in-depth and evaluative analysis of previous projects, such as an analysis of social quality of design-build project at the University of Stuttgart, Germany (Schreiber *et al*., 2022), the iterative aspect of design build program at Tulane School of Architecture, New Orleans (Passarelli and Mouton, 2021), and an evaluation on how design education can walk the talk outside the theoretical agenda (Charlesworth, 2018). Overall, the trend indicates that while community-based architecture is a global topic, research and implementation remain concentrated in developed regions. Therefore, study and publication about community-based pedagogy in other contexts is necessary, in order to have more understanding of its current scholarship.

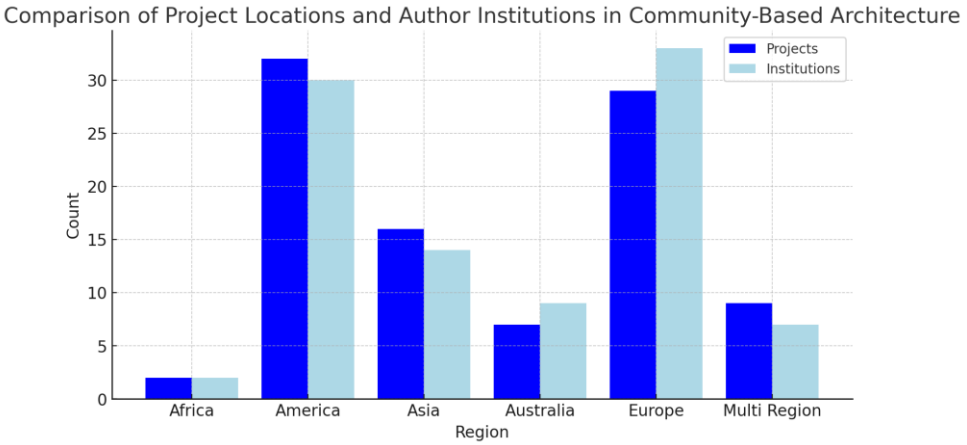

Figure 2. Comparison of Project Locations and Author Institutions
(Source: Authors, 2025)

Regarding the use of the term in the community-based architectural pedagogy, the metadata analysis indicated a broad, evolving landscape of the pedagogy, moving away from conventional toward collaborative, interdisciplinary, research-driven, and socially engaged models (Figure 3). The analysis of 95 pedagogical papers shows a strong concentration on Participatory Design (16 papers) and Design-Build (15 papers), making them the dominant themes in contemporary community-based architectural education. This indicates a pedagogical shift whereby students and community stakeholders could collaborate during the design process (Salama, 2021; Sara, 2011). Examples include Public Space Participatory Design (Haupt and Kazanecka-Olejnik, 2023) and Participatory Urban Design Education (Racoń-Leja, 2020), which highlight urban-focused, community-driven design approaches. Similarly, Material Reuse in Design-Build Education (Cohen *et al*., 2019) and Design-Build Education in Post-Disaster Contexts (Owen, 2017) emphasize real-world, construction-based learning experiences that help students translate theory into practice. The prevalence of these themes suggests that modern architecture and design pedagogy prioritizes practical engagement, social impact, and sustainability over purely theoretical instruction. It is resonance (Harriss, 2014) that highlights the potential of an architecture live project in developing practice-ready skills for the student.

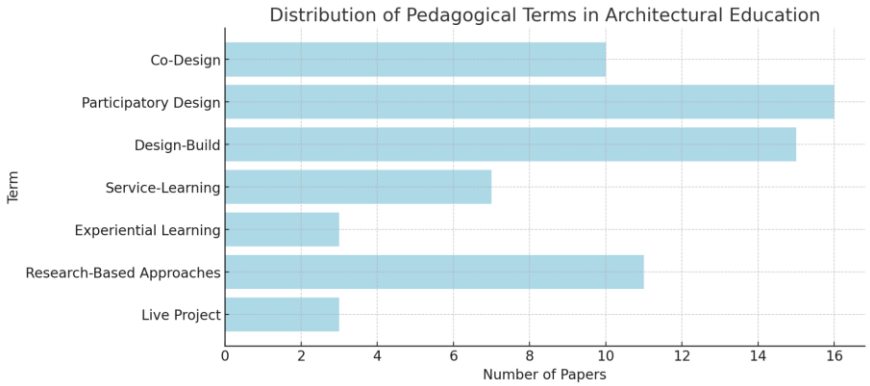

Figure 3. Pedagogical Terminologies in Community-Based Architecture
(Source: Authors, 2025)

Additionally, Co-Design (10 papers) and Service-Learning (7 papers) further reinforce the idea that collaboration and community involvement are essential components of architectural education today. Papers like Inclusive Co-Design (Cifter *et al.*, 2023) and Games-Based Co-Design (Peng *et al.*, 2024) introduce innovative community-based architectural methods, demonstrating how interdisciplinary and interactive approaches enhance the learning process. Meanwhile, Service-Learning in Urban Design (Kelsch *et al.*, 2017) and Service-Learning in Territorial Planning (Ņitavska *et al.*, 2016) showcase how students actively contribute to real-world projects while acquiring practical experience. The relatively smaller number of Experiential Learning (Antonini *et al.*, 2021; Rodriguez, 2018) and Live Project papers (Abrahams *et al.*, 2021; Anderson, 2017; Denicke-Polcher, 2022) suggests that while these approaches are present, they may not yet be as widely implemented or known as participatory, service-learning, and design-build models. These findings not only indicate a strong shift towards socially responsible, participatory, and applied education, but also state that community-based architectural pedagogy can be applied and understood in diverse pedagogical terms. This is especially evident in the remaining 30% of less frequently mentioned pedagogical terms, which include concepts such as citizen science (de Paula *et al.*, 2024), radical co-creation (Ortiz, 2022), urban mentoring (Goledzinowska and Kostrzewska, 2019), collaborative experimentation (Belova and Schofield, 2022), and co-production (Udall *et al.*, 2015), all of which highlight alternative approaches to community-based learning.

3.2 Thematic Insights on Balancing Learning Goals and Community Objectives

The thematic findings related to the objective of the pedagogy can be organized into five overarching categories – Community-Driven & Participatory Approaches, Experiential & Design-Build Pedagogy, Sustainability & Resilience, Digital & Interdisciplinary Innovation, and Culture, Heritage & Pedagogical Frameworks – each of which strikes a unique balance between enhancing student learning and ensuring meaningful community participation. These themes answer the implicit research question: How do the objectives of community-based architectural pedagogy address student learning and community goals?

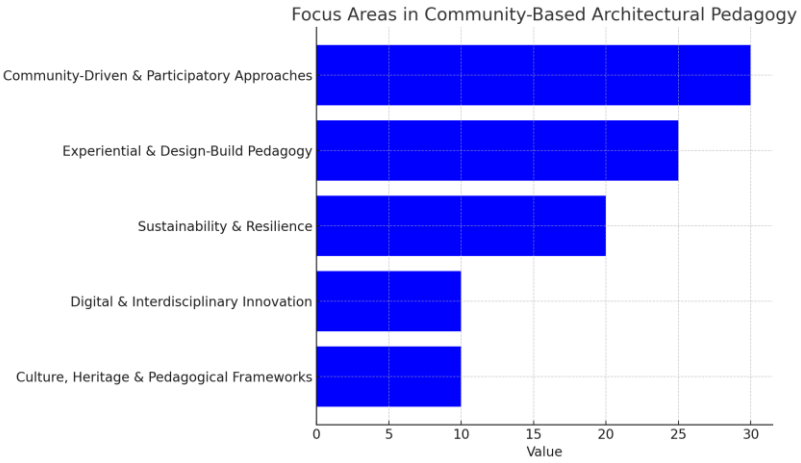

Figure 4. Focus Areas on Community-Based Architectural Pedagogy Scholarship (Source: Authors, 2025)

When the result is projected in a bar chart (Figure 4), these five themes reveal a distribution whereby most studies highlight either community engagement or experiential, hands-on teaching models as central to architectural education, with a substantial number also addressing environmental imperatives, technological innovation, or cultural and heritage dimensions. Although the exact numerical breakdown may vary depending on one's coding and grouping decisions, the aggregated evidence from these 95 sources provides a broad picture of how authors formulate their pedagogical objectives in relation to student learning agenda, societal needs and local stakeholder involvement. A closer inspection of individual papers shows how each theme manifests, as well as which side – student skill development or community-focused outcomes – tends to predominate in different contexts.

Numerous studies classified under Community-Driven & Participatory Approaches, typically intertwine student learning with community empowerment, with objectives that emphasize co-creation, stakeholder workshops, and service-learning. An example of this is a speculative design studio in post-mining regions (Spurr and Carrasco, 2024); while it highlights the ability of students to develop empathetic and future-focused design proposals, it also discusses how local residents are actively involved in imagining new post-extraction scenarios, gaining a voice in what such transitions could look like. Haupt and Kazanecka-Olejnik (2023) focus on whether architecture students are adequately prepared to design public spaces through both top-down and bottom-up approaches, underscoring the role of end-users in shaping urban design. In a similar spirit, Murphy and Brisotto (2022) examine how working with migrant communities can foster a deeper sense of social justice among students, stressing that such engagement becomes a powerful mechanism for students to grasp spatial inequalities and challenge them through co-design processes. Although most of these participatory papers seek a balanced outcome – students gain knowledge and real-world collaboration skills as communities receive more tailored solutions – some studies caution against superficial or short-lived engagement. Charlesworth warns that "walking the talk" can be compromised if universities parachute into neighbourhoods without building lasting relationships, effectively benefiting students more than local constituents (Charlesworth, 2018). Still, most objectives in this category propose iterative, inclusive processes that enhance learning outcomes and simultaneously empower stakeholders.

Many authors grouped under Experiential & Design-Build Pedagogy frame construction-based teaching as an avenue for both practical skill development and community uplift. A paper by Passarelli and Mutton (Passarelli and Mouton, 2021), for example, outlines iterative design-build processes that focus on affordable housing, reporting that students gain competencies in project management, hands-on assembly, and the negotiation of real-world constraints such as budgets, materials, and municipal codes. In parallel, the families or groups involved in that housing project receive direct benefits – new dwellings or amenities that reflect user input throughout the construction process. An example from Lebanon shows how a design-build approach addresses social and environmental challenges simultaneously, indicating that design-build tasks can bring students face-to-face with the complexities of real construction sites, local regulations, and community expectations, thereby improving both practical knowledge and empathy (Mohareb and Maassarani, 2018). In the interior architecture context, Zingoni (2018) highlights student-led design-build as a form of social agency, and draws attention to how physically constructed outcomes can help

marginalized communities see immediate improvements, from small-scale public furniture to more ambitious structures like pavilions or resource centres. On the other hand, some authors, such as those in the post-occupancy testing (Hardin, 2018) explored certain design-build initiatives that inadvertently prioritize the final product – and student portfolios – over sustained community engagement, thereby risking a lopsided scenario in which the university collects accolades for "impactful" designs without ensuring robust community ownership. Nonetheless, the broad consensus remains that experiential pedagogy of this type can marry both practice-readiness for students and real-world relevance for communities, particularly when the latter are invited to shape the design-build process from inception to completion.

The Sustainability & Resilience theme unites another group of authors who emphasize ecologically and socially responsible design as integral to architectural education. With the rise of global crises such as rising temperature, flooding, or social inequalities, it is important to have a pedagogy that can foreground climate change and act as living laboratories (de Paula *et al*., 2024; Kiers *et al*., 2020; Solis *et al*., 2022). The objectives in these papers often emphasize the importance of embedding environmental issues into real-world studio projects, occasionally incorporating aspects such as occupant behaviour. For example, Hardin (2018) shows the influence of occupant behaviour on energy efficiency in hot climates or local biodiversity – students exit the program with advanced ecological literacy, and communities acquire tangible pathways for future-proofing their neighbourhoods. This approach also fosters co-learning: communities contribute their contextual knowledge about local ecological patterns, while students apply theoretical frameworks that can refine everyday sustainable practices.

With fewer total papers but still a clear presence, Digital & Interdisciplinary Innovation underscores the emerging use of augmented reality, virtual reality, digital fabrication, and interdisciplinary collaborations in community-based work. Collaborative projects that incorporate digital mapping or online platforms can foster wider collaboration with different backgrounds and disciplines also with external collaborators like municipalities (Paragliola *et al*., 2024; Racoń-Leja, 2020). Interactive digital platforms could also potentially replace traditional critiques with public feedback mechanisms, suggesting that real-time user input fosters more iterative and inclusive design cycles, though it may also be limited by local digital literacy levels or technology access (Guaralda *et al*., 2015). Hence, digital innovation often amplifies design possibilities, but it can also amplify inequalities if hardware or digital literacy is scarce. Across these papers, the impetus for interdisciplinary work is to deepen students' problem-solving abilities and to anchor design proposals in a broad knowledge base, though in practice, some projects remain more "tech demonstration" than genuine user-led transformation.

Finally, Culture, Heritage and Pedagogical Frameworks speaks to the subset of objectives that emphasize cultural identity, vernacular traditions, or theoretical scaffolding in teaching. Gajendran *et al*. (2022) discuss merging Indigenous and Western pedagogies for work-integrated learning, explaining how architecture students learn to appreciate different epistemologies, while Indigenous communities can guide the design to reflect intangible heritage or local cultural practices. It can be done by addressing non-morphological factors

such as social and historical contexts (Qiu *et al*., 2023) and integrating methods like semantic ethnography (Cranz *et al*., 2014); to heighten cultural sensitivity, educators can prepare students for deeper, more empathetic site analyses that go beyond superficial morphological standards. Authors in this category typically assert that architectural pedagogy is at its best when it recognizes the built environment as a nexus of culture, history, power, and community identity. This leads to projects that respect local knowledge and cultivate a sense of shared purpose.

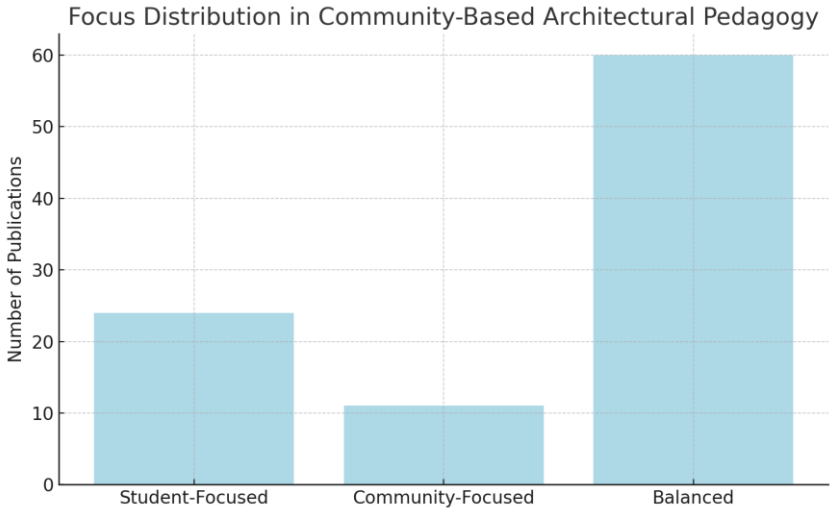

Figure 5. Focus Objective on Community-Based Architectural Pedagogy Scholarship (Source: Authors, 2025)

Across all five themes, the question of whether the objectives weigh more toward student learning or community benefit does not have a single uniform answer. However, after looking back to the coding mechanism across the 95 papers, the research found that 24 primarily emphasize student-focused objectives, 11 are largely community-focused, and the remaining 60 aim for a balanced synergy between both (See Figure 5). The student-focused category (Brown and Camilli, 2023; Dragutinovic *et al*., 2023; Qiu *et al*., 2023) typically underscores how immersive workshops, design-build activities, or digital innovations sharpen students' technical and reflective abilities without giving equal weight to stakeholder leadership in the process. Meanwhile, the community-focused group (Belčič and Eloy, 2023; Denicke-Polcher, 2022; Lawanyawatna and Schoch, 2023) centres on tackling local challenges – such as prison architecture or rural depopulation – where students' educational gain is a byproduct of meeting urgent or deeply rooted community needs.

The largest segment, however, is balanced – some 60 papers articulate objectives that explicitly entwine student learning with genuine community participation. In these, authors detail how students develop professional competencies only through real co-creation, user feedback, or participatory research. de Paula, Paragliola and Magnussen (de Paula *et al*., 2024; Magnussen and Hod, 2023; Paragliola *et al*., 2024), for instance, describe resilience planning, inclusive construction, and green-space renovation where local stakeholders shape the process alongside students, thereby ensuring that the educational benefits go hand-in-hand with tangible outcomes for residents. This distribution suggests that while

many educators still concentrate on enhancing students' skill sets, a substantial portion of the literature recognizes that robust academic growth and meaningful local impact can – indeed, should – occur in tandem. Overall, most papers do treat the synergy of learning and serving as essential to community-based pedagogy: authors typically highlight that the best educational outcomes arise from working with genuine community partners who can articulate local realities, critique naive assumptions, and ensure that projects have a functional afterlife.

3.3 Unveiling Practical Strategies in Community-Engaged Architectural Education

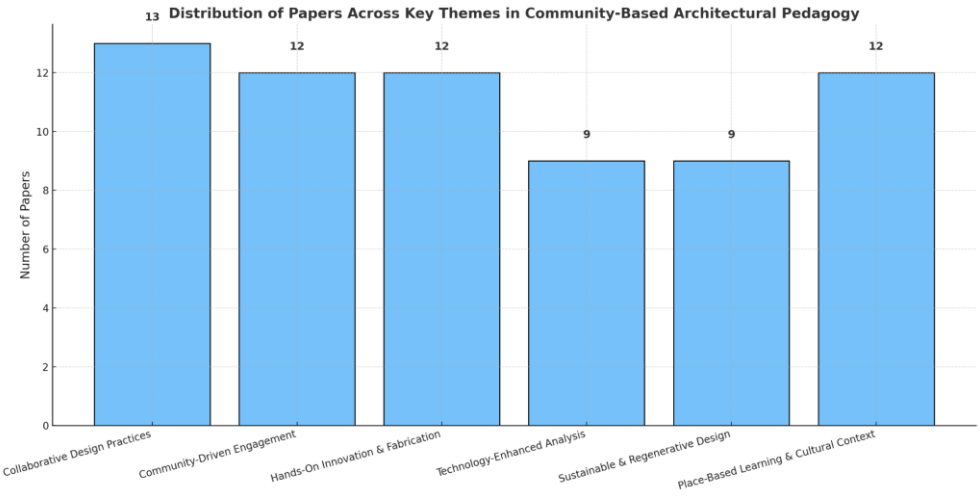

Figure 6. Thematic Findings from Methods and Approaches in Community-Based Architectural Pedagogy (Source: Authors, 2025)

Community-based architectural education bridges classroom learning with real-world application, cultivating practical skills and social responsibility in students through direct interaction with communities (Harriss and Widder, 2014; Pak and De Smet, 2022). This thematic analysis of 95 papers uncovers six commonly implemented strategies – collaborative design practices, community-driven engagement, hands-on innovation and fabrication, technology-enhanced analysis, sustainable and regenerative design, and place-based learning with cultural context – that define how students are trained to address community needs outside conventional studio settings (See Figure 6). By exploring specific examples this critical narrative examines these strategies' prevalence, effectiveness, and limitations, while proposing future methodological enhancements to answer the second research question: What practical approaches are commonly implemented in community-based architectural pedagogy?

A standout strategy is collaborative design practices, where co-creation serves as a dynamic teaching tool. Studios like co-design workshops for inclusive decision-making and co-Design with NGO representatives (Cifter *et al*., 2023; Paragliola *et al*., 2024) immerse students in partnerships with NGOs, residents, or policymakers, fostering immediate, hands-on

collaboration. Targeting diverse groups also hones students' ability to navigate varied perspectives (Murphy and Brisotto, 2022; Scott *et al*., 2018), while innovative methods like game-based co-design (Peng *et al*., 2024) make participation engaging and accessible. Frequently applied outside conventional architectural pedagogy studios (Jabeen *et al*., 2021; Schreiber *et al*., 2022), this approach delivers real-time feedback, yet its educational depth falters without scrutiny of power dynamics. The lack of insight into how student-led efforts (Belčič and Eloy, 2023) balance academic and community goals suggests a risk of superficiality, urging a need for critical reflection to teach negotiation and empathy beyond process.

Closely aligned, community-driven engagement positions students as facilitators of community voices, embedding real-world interaction into learning. Examples like citizen science and participatory quantifiable frameworks (de Paula *et al*., 2024; Kuo and Lee, 2024) train students in grassroots techniques – surveys, exhibitions – to capture community needs, while formal consultations such as stakeholder interviews (Shanthi Priya *et al*., 2020) and public workshops (Racoń-Leja, 2020) deepen participatory skills. Widespread across papers this strategy aligns with service-learning ideals, teaching adaptability and listening. However, its practical edge dulls with top-down tendencies, where students refine rather than redefine designs, limiting their agency. Repetitive consultation can turn formulaic, raising doubts about whether students gain critical insight or just procedural know-how, especially without longitudinal evidence of impact. Hands-on innovation and fabrication offer a tangible alternative, integrating design-build into the curriculum for experiential learning. However, its resource intensity – time, materials, expertise (Salazar Ferro *et al*., 2020; Schreiber *et al*., 2022) – limits its scalability within academic constraints. While effective in small-scale contexts and products like tiny homes (Johnson, 2018), it risks prioritizing product over reflective process, a critical pedagogical gap despite its popularity.

Technology-enhanced analysis brings digital tools into the mix, blending innovation with community engagement. The use of remote sensing and GIS Mapping means to help better understanding of the context while also proposing data driven approach (de Paula *et al*., 2024; Mehan and Dominguez, 2024), while participatory digital mapping foster student and community involvement during the process (Alba *et al*., 2023; Ortiz, 2022). This dual focus on technical skill and collaboration shines in tech-forward settings, but reliance on advanced tools could raise accessibility barriers, potentially sidelining students or communities without technological resources or knowledge. Sustainable and regenerative design infuses ecological responsibility into pedagogy, preparing students for community-relevant challenges.

Place-based learning and cultural context anchor education in local realities, fostering community connection. Ethnographic fieldwork and place based research (Daneshyar and Keynoush, 2023; Dragutinovic *et al*., 2023) trains students in immersive research, while cultural narratives by embedding indigenous and local perspectives, enriched by storytelling create a fundamental process and understanding on where the knowledge is practiced and explored (Ortiz, 2022; Rodgers *et al*., 2020; Spurr and Carrasco, 2024). Prevalent in context-focused studios, this authentic approach builds cultural sensitivity, but its intensity and

specificity could also limit scalability, risking a narrative focus over practical skills unless balanced.

These strategies – collaborative co-design, community engagement, hands-on fabrication, digital analysis, sustainable design, and place-based learning – form a practical toolkit, widely implemented across 95 papers, signalling a shift toward experiential, community-engaged education. However, several challenges remain: collaborative and engagement methods risk becoming tokenistic without clear power dynamics; hands-on and technological tools often struggle with issues of scalability and equity; and sustainability or place-based approaches require significant resources and contextual specificity, which can hinder their broader applicability.

Critically analysing the themes, future development of this pedagogy must address these gaps. Longitudinal assessment, which involves tracking outcomes over time beyond individual projects, is essential and can be strengthened through mixed-method or multi-method evaluation approaches to more effectively validate the impact on both students and communities. Power-sharing frameworks, inspired by participatory action research, could deepen co-design and engagement, and teach students to negotiate authority and counter tokenism. Scalable hybrid models – merging digital tools with low-resource fabrication and outputs – could give a more iterative aspect of the pedagogy that could not be seen in a short period of time. The absence or limited use of these methods in the findings analysis highlights a missed opportunity to enhance practicality and equity, which are crucial for fostering community-engaged education that truly empowers both learners and communities.

4. CONCLUSION AND BEYOND

This systematic review of 95 Scopus-indexed studies from 2014–2024 illuminates the evolving landscape of community-based architectural pedagogy, revealing its ambitions, achievements, and shortcomings in addressing student learning and community participation. In response to our first research question – how objectives balance these dual goals – our analysis identifies five pedagogical orientations: Community-Driven & Participatory Approaches, Experiential & Design-Build Pedagogy, Sustainability & Resilience, Digital & Interdisciplinary Innovation, and Culture, Heritage & Pedagogical Frameworks. Of these, 60 studies aim for synergy, integrating student skill development with community benefits, as seen in projects blending co-creation with real-world outcomes (e.g., Passarelli and Mutton, 2021). Meanwhile, 24 papers prioritize student learning, focusing on technical or reflective gains (Qiu *et al*., 2023), whereas 11 focus more explicitly on community impact, addressing local challenges like rural depopulation (Denicke-Polcher, 2022). This uneven distribution exposes a central tension: despite the rhetoric of mutual benefit, pedagogical design often prioritizes academic objectives, risking superficial engagement or "parachute" interventions that fade post-project realities (Charlesworth, 2018).

For the second question – what practical approaches are implemented – six strategies dominate: collaborative design, community-driven engagement, hands-on fabrication,

technology-enhanced analysis, sustainable design, and place-based learning. These methods are exemplified by co-design workshops (Cifter *et al*., 2023) and GIS mapping (de Paula *et al*., 2024), and other pedagogical shifting approaches toward experiential and socially engaged practice. However, their effectiveness is curtailed by persistent challenges: tokenism in participatory efforts, resource-intensive fabrication limiting scalability (Schreiber *et al*., 2022), and also digital divides that exclude less-resourced communities (Guaralda *et al*., 2015). The field's Western dominance – 32 US and 29 European projects versus 2 in Africa – further skews the narrative, sidelining non-Western contexts where community-based design may thrive outside English-language scholarship (Salama, 2016). Publication trends show growing interest, peaking at 14 articles in 2018, yet disruptions like Covid-19 (Metinal and Gumusburun Ayalp, 2024) suggest fragility in research momentum.

Critically, the minimal amount of longitudinal evidence weakens claims regarding lasting impact. Many studies offer snapshots – semester-long projects – rather than tracking how skills translate to practice or how communities sustain benefits (Harriss, 2014). This gap, paired with a reliance on peer-reviewed journals, overlooks grey literature or local documentation, particularly from underrepresented regions. The field's promise – to educate practice-ready architects while empowering communities – remains aspirational without rigorous validation and broader inclusivity.

Looking beyond, transformative steps are essential. It is important to recognize that community-based architectural pedagogy is one of several new pedagogical approaches emerging in architectural education as a response to complex contemporary challenges. Other fields such as sustainable development, resilience, and climate change research are actively developing transformative learning models to address these global issues. Future research in community-based architectural pedagogy could significantly benefit from integrating insights and methodologies from these related domains, thereby broadening its scope and impact. Longitudinal assessments, spanning years rather than terms, should employ mixed methods to measure student competencies (e.g., empathy, collaboration) and community outcomes (e.g., social cohesion, built assets), building on calls for evidence-based pedagogy. Equitable power-sharing frameworks, rooted in participatory action research, must replace tokenistic consultation, positioning communities as co-designers and teaching students to negotiate power dynamics critically. Finally, multilingual reviews, incorporating non-English sources from Asia, Africa, or Latin America, would decolonize the discourse, aligning with global calls for inclusive and pluriversality scholarship (Escobar, 2018). By embracing these shifts, including learning from adjacent fields tackling sustainability and resilience, community-based pedagogy can move beyond fragmented promises to deliver architects equipped for practice and communities empowered through co-creation, fulfilling its dual mission with rigor and equity.

Appendix

All reviewed articles can be access through this link https://s.id/ninetyfiveslr

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