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# Integrating Community Engagement in Architectural Education: A path to skill development

**Ida Marlina Mazlan[1,2]*, Noor Fatehah Mat So'od[1] , Ilyana Sujak[1], Nor Syawallina Azman[1], Nurhayati Zulkeply[1], Yakubu Aminu Dodo[3]**
**Corresponding Author*

[1] School of Architecture and Built Environment, UCSI University, Malaysia
[2] PhD. Candidate, Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia, Malaysia
[3] Architectural Engineering Department, College of Engineering,Najran University, Najran, Saudi Arabia

ida@ucsiuniversity.edu.my, fatehah@ucsiuniversity.edu.my, ilyana@ucsiuniversity.edu.my , syawallina@ucsiuniversity.edu.my , nurhayati@ucsiuniversity.edu.my, yadodo@nu.edu.sa
+60172323048

**Abstract**
This study examines the integration of community engagement in UCSI University's Diploma in Architecture program, focusing on its role in enhancing student learning and skill development. Fifty-two students participated in projects with local communities, NGOs, and industry professionals, applying academic knowledge to real-world challenges in design, construction, and documentation. Data from observations and surveys show significant improvements in technical and interpersonal skills. The study highlights institutional support's role in embedding community engagement into education, fostering holistic learning, professional growth, and social responsibility, and preparing future architects to tackle real-world challenges through community-driven design practices.

Keywords: Community Engagement, Hands-on Learning, Architectural Education, Student Skill Development.


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## 1.0 Introduction

In the 21st century, architects play a crucial role in shaping sustainable cities and communities. Beyond design and construction, they must be socially and ethically responsible, addressing environmental and urban challenges while enhancing the built environment. Their work extends beyond aesthetics and functionality to include social, cultural, and ecological considerations that contribute to urban resilience (Chansomsak & Vale, 2010). Architectural education has evolved significantly, from medieval apprenticeships to digital and fabrication labs. Institutions such as the École des Beaux-Arts, Bauhaus, and MIT Media Lab pioneered different approaches to integrating practice into learning. However, a gap remains between theoretical instruction and the professional competencies required to address real-world urban issues. Architecture graduates often struggle to bridge academic concepts with practical challenges, raising concerns about whether current curricula adequately prepare them for professional demands (Mazlan et.al., 2023; Karimi & Farivarsadri, 2024). One solution is integrating community engagement into architectural education, particularly to support SDG 11: Sustainable Cities and Communities. This approach allows students to engage directly with local communities, analyze urban challenges, and design solutions that promote sustainability, inclusivity, and resilience. Research highlights that such engagement enhances problem-solving, teamwork, and leadership while improving students' technical proficiency and understanding of urban dynamics (Montt-Blanchard et al.,

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2023). A study at UCSI University, Malaysia, examined the integration of community-driven projects in architectural education. Fifty-two students participated in initiatives involving local communities, NGOs, and industry professionals, applying their academic knowledge to real-world urban projects. This hands-on experience improved their ability to address sustainability challenges by refining their technical expertise in project management and design execution while strengthening soft skills like collaboration, communication, and leadership. Data collected through observations and student feedback revealed significant growth in both skill sets, demonstrating the impact of experiential learning (Mazlan et al., 2024). By embedding community engagement in architecture curricula, students gain valuable exposure to the complexities of urban development, fostering a deeper understanding of sustainable city planning, resource management, and community needs. This approach aligns with SDG 11 by equipping future architects with the skills and knowledge to design cities that are more inclusive, resilient, and sustainable. As the built environment faces increasing challenges—from climate change to urbanization—architectural education must shift from conventional methods toward more participatory and solution-oriented learning. By fostering real-world engagement, architecture programs can ensure that graduates not only possess technical expertise but also the awareness and adaptability needed to contribute meaningfully to the development of sustainable cities. Integrating community engagement into architectural education is a critical step toward producing architects who can drive positive change in urban environments and support the goals of SDG 11.

## 2.0 Literature Review

*2.1 Community Engagement in Architectural Education*

Community engagement has emerged as a transformative pedagogical approach in architectural education, fostering a deeper connection between academic learning and real-world challenges. The integration of community engagement in architectural education has evolved significantly over the past decade, shifting from ad-hoc outreach initiatives to structured, credit-bearing components of curricula. According to Brown and Smith (2021), this shift reflects a growing recognition of architecture's social responsibility and the need to equip students with skills to address complex societal issues. Similarly, García and López (2022) argue that this evolution aligns with global trends in higher education, which emphasize experiential learning and civic engagement as core pillars of academic excellence.

Recent studies have documented diverse methodologies for integrating community engagement into architectural education. As noted by Chen et al. (2021), participatory design fosters mutual learning between students and community members, enabling the co-production of knowledge and solutions that are culturally and contextually relevant. Another prominent approach is the design-build model, which combines design education with hands-on construction experience. According to a study by Martinez and Thompson (2023), design-build programs not only enhance students' technical and practical skills but also instill a sense of accountability and empathy toward the communities they serve.

The outcomes of community engagement in architectural education are multifaceted, encompassing both academic and societal benefits. Research by Ahmed and Khan (2022) reveals that students who participate in community-engaged projects develop stronger critical thinking, communication, and teamwork skills compared to their peers in traditional studio settings. However, the impact of community engagement extends beyond immediate outcomes. As argued by Patel and Lee (2023), such initiatives foster long-term relationships between universities and communities, creating opportunities for sustained collaboration and capacity-building.

*2.2 Skill Development Through Community Engagement*

Community engagement in architectural education serves as a powerful catalyst for skill development, equipping students with the competencies needed to address complex societal challenges. Community engagement in architectural education cultivates a diverse range of skills, many of which are essential for professional practice. According to Ahmed and Khan (2022), students who participate in community-engaged projects demonstrate significant improvements in critical thinking, problem solving and communication skills. These skills are developed through iterative processes of dialogue, reflection, and collaboration with community members, enabling students to navigate complex design challenges and articulate their ideas effectively.

Additionally, collaboration and teamwork are emphasized in community-engaged projects, as students often work in interdisciplinary teams alongside peers, faculty, and community stakeholders. A study by Martinez and Thompson (2023) highlights how design-build programs, in particular, foster a sense of shared responsibility and collective problem-solving, preparing students for the collaborative nature of architectural practice. One of the most profound outcomes of community engagement is the development of cultural competency and empathy. Chen et al. (2021) argue that participatory design methodologies, which prioritize co-creation and mutual learning, are particularly effective in fostering these skills. Similarly, García and López (2022) emphasize the role of community engagement in challenging students' preconceptions and biases. Through immersive experiences, students learn to listen actively, respect diverse perspectives, and design solutions that are inclusive and equitable.

Community engagement also enhances students' technical and practical skills, bridging the gap between theoretical knowledge and real-world application. According to Martinez and Thompson (2023), students involved in such programs develop a nuanced understanding of construction techniques and logistical challenges, which are often overlooked in traditional studio settings. Furthermore, community-engaged projects often require students to adapt to resource constraints and innovate with limited budgets, and this fosters resourcefulness and creativity, as documented by Patel and Lee (2023).

Community engagement encourages reflective practice as students develop a deeper understanding of their roles as architects and the ethical implications of their work. Nguyen and Harris (2023) highlight the importance of structured reflection in community-engaged projects, noting that it helps students critically evaluate their assumptions, decisions, and impacts on communities. Furthermore, as students navigate complex power dynamics and ethical dilemmas, they develop a heightened sense of responsibility and accountability. O'Connor and Mendez (2021) argue that this ethical dimension is crucial for preparing students to address issues such as social justice, environmental sustainability, and cultural preservation in their future practice. Moreover, community engagement fosters leadership and entrepreneurial skills, as students often take on project management roles and navigate complex stakeholder relationships. This prepares them for leadership positions in the field of architecture and beyond. The skills developed through community engagement have long-term implications for students' professional development as recorded by Brown and Smith (2021).

Community engagement in architectural education, as a transformative pedagogy, integrates participatory design and design-build models to develop critical thinking, technical skills, and cultural empathy. Through collaborative, real-world projects, students gain ethical awareness, leadership competencies, and professional adaptability, bridging academia and societal needs while fostering sustainable community partnerships.

## 3.0 Methodology

This paper focuses on the development of practical skills—encompassing both soft and hard skills—through a practice-based learning experience, as opposed to a primarily theoretical approach. It examines feedback gathered from a collaborative, hands-on project involving students, NGOs, and industry experts, conducted as part of the Community Architecture course within the Diploma in Architecture program at UCSI University, Kuala Lumpur.

The project focused on designing and constructing a pavilion and grandstand for the local community at SkateBowl Langkawi, involving 54 students from the Diploma in Architecture and Interior Architecture programs. The initiative spanned two months of planning and five days of on-site construction, emphasizing the development of practical skills through real-world engagement. Bamboo construction experts played a key role: Arkitrek and SEAD Build guided the design phase, while Ir. Major Mazlan, Iramo Bamboo, and Bamboo Shapers Langkawi supervised the construction phase, providing hands-on insights into material properties, construction techniques, and community-based challenges. Their mentorship allowed students to gain knowledge often absent in the classroom.

Student feedback was gathered using a refined version of the Student Course Engagement Questionnaire (SCEQ), which assessed cognitive, behavioral, and emotional engagement. The results revealed significant improvements in technical proficiency, problem-solving skills, teamwork, and leadership, demonstrating the effectiveness of practice-based education in fostering professional competencies for architectural students.

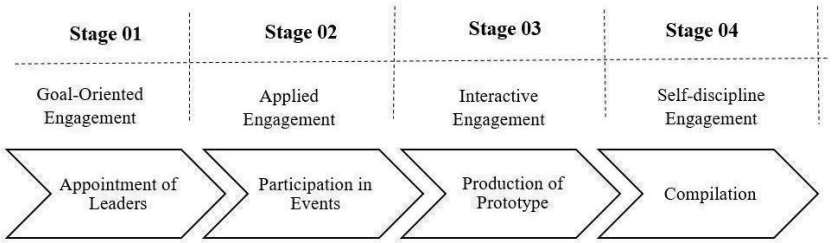


Fig. 1: Stages involved in Community Architecture course, Diploma in Architecture, UCSI University
*(Source: Author, 2023)*

This paper specifically focuses on Stage 2 (Participation in Events) and Stage 3 (Prototype Production) of the project, as these stages most directly reflect students' engagement and skill development. **The primary aim is to analyze students' feedback and reflections on the soft and hard skills gained through active involvement in this community-based architectural project.** The data gathered through surveys highlights a notably high level of student involvement during Stage 2, where interactive, real-time community activities facilitated the development of soft skills such as communication, teamwork, and leadership. These experiential interactions proved more engaging than traditional learning, reinforcing the value of hands-on, collaborative education.

Stage 3 further enhanced students' hard skills through the actual construction of the pavilion and grandstand. Working directly with tools, machinery, and materials—under the mentorship of professionals in bamboo construction—students improved their technical proficiency, problem-solving abilities, and adaptability in real-world conditions.

**However, the study has several limitations.** It focuses solely on a single initiative within one course at a single institution, without comparative analysis across other projects or educational contexts. **This limits the generalizability of the findings** to broader academic environments or programs. Despite these limitations, the project demonstrates the potential of community-based, practice-oriented education to bridge academic learning with professional readiness. The collaboration with NGOs and industry experts offered students a richer, more meaningful learning experience and serves as a model for integrating community engagement into architectural education.

## 4.0 Finding

In this study, 54 students participated—35 from Architecture (64.8%) and 19 from Interior Architecture (35.2%). The research examined the impact of a real-life community project on students' development of soft and hard skills, using both qualitative reflections and quantitative data gathered through a 5-point Likert scale (5 = strongly agree/high participation; 1 = strongly disagree/low participation).

Stage 2: *Participation in Events* required students to engage in design development, conduct tutorials, and determine appropriate construction methods. A significant component involved interaction with professionals such as Ir. Major Mazlan and experts from Malayan Bamboo, Iramo Bamboo, and Bamboo Shapers Langkawi. These engagements enhanced students' understanding of bamboo construction and encouraged critical thinking and problem-solving. Quantitative results showed that **38 students (70%) strongly agreed** they gained **confidence in critical thinking and problem-solving** during this stage. These outcomes were supported by structured events—such as design reviews and material workshops—which helped bridge theoretical knowledge with hands-on experience. Qualitative feedback reinforced that direct interaction and collaboration with professionals were key factors in boosting students' engagement and soft skill development.

Table 1. Level of soft skills BEFORE/AFTER for the real-life project with the community

| Soft skill | Confident (Before/After) | Average (Before/After) | Less confident (Before/After) |
|---|---|---|---|
| Leadership | 17 (31%) / 25 (46%) | 31 (57%) / 24 (44%) | 6 (11%) / 5 (0.09%) |
| Communication | 25 (46%) / 33 (61%) | 28 (51%) / 16 (29%) | 1 (0.01%) / 5 (0.09%) |
| Critical & problem-solving | 33 (61%) / 38 (70%) | 17(31%) / 15 (27%) | 4 (0.07%) /1 (0.01%) |
| Work ethic | 32 (59%) / 41 (75%) | 20 (37%) / 12 ( 22%) | 2 (0.03%) / 1 (0.01%) |

*Feedback Survey (Google Form) (Source: Author, 2025)*


(a) (b)

Fig. 2: Event Participation by the students (a) Sharing session of bamboo by Ir Major Mazlan, (b) Bamboo Factory visit at Malayan Bamboo, Hulu Langat, Selangor

*(Source: Author, 2024)*

In **Stage 3: Prototype Production**, students collaborated closely with construction professionals, including **Ir. Major Mazlan**, **Iramo Bamboo**, and **The Bamboo Shapers Langkawi**, gaining practical knowledge in material selection, cost estimation, and managing real-world site challenges such as weather and resource limitations.

This stage emphasized hands-on learning, where students were required to operate tools, coordinate tasks, and support team efforts during the construction of the pavilion. As shown in **Table 2**, **45 out of 54 students (83%) agreed** that their ability to use construction tools improved significantly after the project. In comparison, only **35 students (63%)** reported feeling confident in using construction tools **before** the project. This **20% increase** in confidence illustrates the direct impact of experiential learning on students' technical skill development. The data also reflect gains in **soft skills** such as teamwork, communication, and adaptability—developed through working with peers and professionals in a high-engagement, real-world setting—highlighting the value of integrating expert-led, practice-based activities into architectural education.

Table 2. Level of hard skills 'Before/After' for the real-life project with the community

| Hard skill | Confident (Before/After) | Average (Before/After) | Less confident (Before/After) |
|---|---|---|---|
| Basic Construction Techniques | 34 (62%) / 43 (79%) | 15 (0.09%) / 10 (18%) | 5 (0.09%) / 1 (0.01%) |
| Tool Proficiency | 35 (64%) / 45 (83%) | 17 (31%) / 8 (14%) | 2 (0.03%) / 1 (0.01%) |
| Technical Drawing & Blueprint | 25 (46%) / 31 (57%) | 25 (46%) / 22 (40%) | 4 (0.07%) / 1 (0.01%) |
| Ability to Differentiate Materials | 24 (64%) / 40 (74%) | 28 (51%) / 13 (24%) | 2 (0.03%) / 1 (0.01%) |

*Feedback Survey (Google Form) (Source: Author, 2025)*

(a) (b)

Fig. 3. Construction of prototype by the students (a) Building foundation (b) Construction of structure, assisted by Bamboo Shapers Langkawi *(Source: Author, 2024)*

Fig. 3 and Fig. 4 illustrate the interactive engagement between students and expert builders, emphasizing the role of collaboration and professional feedback in the learning process. This phase not only strengthens students' technical and creative skills but also deepens their understanding of bamboo properties in construction. Through this hands-on experience, students learn to incorporate diverse perspectives, refining their designs to ensure they are both practical and safe for the community.

Fig. 4: Students acquired proficiency in operating various types of tools on-site, enhancing their technical skills and hands-on experience in a practical construction environment.
*(Source: Author, 2024)*

In conclusion, all stages of the project emphasized the importance of self-discipline and commitment, as students consistently ensured tasks were completed in an organized and structured manner. This dedication was crucial to successfully completing the project in its final stage. Table 3. shows that 45 students (83.3%) actively participated in the leader selection process (Stage 1), highlighting the significance of strong leadership in guiding the project and ensuring its successful delivery.

Table 3. Factors of Students Involvement in Community Project

| Reasons | Stage 1 | Stage 2 | Stage 3 |
|---|---|---|---|
| Gaining experience in university life | 45 (83.3%) | 42 (77.8%) | 39 (72.2%) |
| Putting effort to complete tasks & achieve good grades | 32 (59.3%) | 30 (55.6%) | 24 (44.4%) |
| Self- initiative to make sure tasks are completed without any force | 28 (51.9%) | 25 (46.3%) | 27 (50%) |
| A commitment to team / willingness to help to accomplish tasks | 32 (59.3%) | 30 (55.6%) | 28 (51.9%) |
| Not involved | 1 (1.9%) | 3 (5.6%) | 1 (1.9%) |

*Feedback Survey (Google Form) (Source: Author, 2025)*

The successful completion of the pavilion construction demonstrated the cognitive, behavioural, and affective aspects of student engagement. Throughout the process, students showcased their ability to apply knowledge, effectively manage projects, and discover their interests in both soft and hard skills, culminating in a comprehensive and fulfilling learning experience

## 5.0 Discussion

The findings of this study strongly support the literature on community engagement as a transformative approach in architectural education. Students showed significant improvement in both soft and hard skills through real-world applications, confirming findings by

Ahmed and Khan (2022) that experiential learning fosters critical thinking and communication. In the realm of soft skills, key areas such as Leadership, Communication, Critical Problem-Solving, and Work Ethic showed notable progress. Specifically, Critical Problem-Solving skills improved from 61% to 70%, reflecting increased confidence and problem-solving ability through hands-on experience.

For hard skills, improvements were also evident. In Tool Proficiency, for instance, students saw an increase from 64% to 83%, demonstrating enhanced hands-on experience with construction tools. Other areas like Basic Construction Techniques, Technical Drawing & Blueprint, and Ability to Differentiate Materials also saw positive changes, reinforcing the value of experiential learning. These results echo Martinez and Thompson's (2023) findings that design-build programs foster technical proficiency and teamwork. Furthermore, interactions with industry experts and community members during the design and construction phases reflect a co-production of knowledge, supporting Chen et al.'s (2021) argument on the benefits of participatory design. The post-project confidence and skill levels indicate not just improved competencies but also greater self-awareness and motivation, aligning with O'Connor and Mendez's (2021) emphasis on ethical and reflective practice in design education.

However, the study also identifies a gap in pre-project readiness and structured reflection. Unlike Patel and Lee's (2023) long-term community engagement model, this project was confined to a single-semester time frame. This highlights the need for continuous engagement throughout the curriculum, as suggested by Nguyen and Harris (2023), to ensure that ethical reflection and critical thinking become integral to students' ongoing learning.

## 6.0 Conclusion and Recommendations

This study demonstrates that integrating community engagement into architectural education, specifically through UCSI University's Community Architecture course, significantly enhances both soft and hard skill development among students. The findings validate the research objective by showing that hands-on, community-based learning effectively bridges the gap between academic theory and professional practice. Students exhibited improved leadership, communication, construction proficiency, and problem-solving capabilities—skills crucial for future architectural professionals navigating real-world challenges.

These results align with literature supporting participatory design, design-build methodologies, and reflective practice, affirming the pedagogical value of community engagement. Moreover, the findings support Sustainable Development Goals (SDG 4 and SDG 11), positioning architecture education as a driver for both quality education and sustainable communities.

However, the study acknowledges several limitations. As it focuses on a single course within one institution, the results may not be generalizable across other contexts. The absence of a comparative study across semesters or institutions limits the depth of analysis on long-term impact. Additionally, while students demonstrated growth, areas such as pre-project readiness and ethical reflection require further attention.

To address these gaps and enhance future implementations, several strategies are recommended. First, structured reflection activities such as journaling, group debriefs, and reflective reporting should be incorporated to cultivate critical thinking and ethical awareness. Pre-project preparation in the form of workshops on leadership, teamwork, and construction techniques can also be introduced to boost student readiness and confidence. Establishing long-term partnerships with communities and NGOs will help deepen engagement and ensure project continuity beyond a single semester. Furthermore, interdisciplinary integration with faculties such as engineering and social sciences can provide a more holistic perspective on sustainable design challenges. Lastly, implementing robust evaluation frameworks—using rubrics and surveys aligned with Program Learning Outcomes (PLOs) and SDG indicators—will allow institutions to track student development and project outcomes more effectively**.**

By adopting these recommendations, architectural programs can ensure that community engagement becomes a robust, impactful, and sustainable element of architectural education, producing graduates who are technically competent, socially conscious, ethically grounded, and ready to lead in shaping resilient urban futures.

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## Paper Contribution to Related Field of Study

This study contributes to the discourse on **experiential and community-driven architectural education** by providing empirical evidence on the impact of real-world engagement in **diploma-level programs**. It demonstrates how **community-based projects** effectively develop both **technical** and **interpersonal skills**, bridging the gap between academic learning and professional practice.

The research offers a **replicable model** for incorporating live projects into architectural curricula, aligning with **Sustainable Development Goals (SDG 4: Quality Education and SDG 11: Sustainable Cities and Communities)**. By integrating **community**

**engagement** into the learning process, the study highlights how architectural education can promote **social responsibility**, **sustainability**, and **civic participation**.

Additionally, the findings inform **curriculum development**, emphasizing the importance of hands-on collaboration with **NGOs** and **industry professionals** in enhancing students' learning experiences and reinforcing the role of higher education in fostering **professional competencies**.

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