

EXPANDING THE FRAMEWORK: RELATIONAL PRACTICE AND CONTEMPORARY SERVICE LEARNING IN LANDSCAPE ARCHITECTURE

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ABSTRACT

This paper re-examines service learning in landscape architecture through a novel tripartite framework: "At Service", "In Service," and "Of Service". "*At Service*" emphasizes ethical awareness and systems thinking through deep listening. "*In Service*" develops collaborative problem-solving and hands-on design/build skills through co-production with community partners. "*Of Service*" encourages long-term responsibility and reflective practice by engaging students in policy impact, monitoring, and sustained community relationships. It argues for a move beyond transactional models of professional practice towards a relational approach grounded in presence, attentive listening, collaboration, and co-creation with communities and ecosystems. The "Green Infrastructure in Action" course (LARC 4001/5001) at Texas Tech University serves as a case study to illustrate this framework and detail how students engaged in hands-on green infrastructure (GI) interventions in Lubbock, Texas, in collaboration with local residents, city agencies, and rural landowners.

Findings include measurable reductions in modeled runoff, broad community support for GI strategies, and the first signed municipal agreement permitting curb cuts in Lubbock County. The study also identifies critical limitations—including faculty transience, resource constraints, and the challenges of post-occupancy evaluation—that impact the durability of such efforts. By synthesizing pedagogical, ecological, and institutional insights, this paper offers a replicable model for integrating service learning into design education in ways that promote socio-ecological resilience, civic agency, and professional formation.

Keywords

Relational, Practice, Service Learning, Landscape Architecture

1 INTRODUCTION

Service-learning merges academic study with applied, community-based practice. While widely adopted across disciplines, its potential in landscape architecture remains under-theorized. Landscape architecture is traditionally framed as a professional service, often structured around transactional exchanges. While vital and valid, this predominant paradigm often constrains opportunities for deeper, place-based relationships with communities and ecosystems.

To cultivate more meaningful and lasting impacts, this paper proposes a relational approach to service learning. Rather than merely "learning by doing," relational service learning centers presence, listening, and co-creation with both human and non-human actors. The paper introduces a tripartite framework—"At Service," "In Service," and "Of Service"—to reframe the role of service learning in landscape architecture education.

The framework is explored through a case study of "Green Infrastructure in Action," a service-learning course taught at Texas Tech University in 2022 and 2023. This course formed part of a larger community-driven placemaking initiative known as *The Mesquite Mile*, focused on green infrastructure, urban forestry, and flood mitigation in the Heart of Lubbock (HOL) neighborhood.

1.1 Literature Review & Conceptual Framework

The tripartite framework builds upon recent calls to move beyond transactional engagement in design education (Angotti et al., 2011; Hou & Rios, 2020). Service learning is recast not as an add-on or method, but as a situated practice grounded in care (Deming, 2015), reciprocity, and long-term commitment (Darling & Gough, 2022).

Service learning in spatial design disciplines draws on pragmatic and constructivist theories, emphasizing learning as an active, socially embedded process (Dorsey, 2001; Stephenson, 2016). These frameworks foreground the reciprocal relationship between students and communities, fostering civic responsibility, ethical awareness, and design-thinking skills through authentic engagement. Instructional design patterns—including problem-solving, scaffolding, and reflection—are shown to enhance self-efficacy and professional identity in service-learning contexts (Gerholz et al., 2018; Batson-Magnuson et al., 2022; Maddrell, 2014).

"At Service" reflects an ethical orientation toward attunement and humility. "In Service" entails collaborative, embodied work with community partners. "Of Service" demands attention to sustained impacts and the ability to support lasting change. This model aligns with broader trends in landscape education that reimagine the designer as facilitator, listener, and long-term collaborator (Felson & Vemuri, 2020; Bennett & Sotoudehnia, 2023).

Service-learning pedagogies have evolved to include integrated design-build models and embedded partnerships that span multiple course levels and semesters (Hwang, 2019; Newton, 2022). These approaches allow for continuity, responsiveness, and capacity building within communities. They also offer landscape architecture students critical early exposure to larger social-ecological-spatial realities, and opportunities for interdisciplinary collaboration.

1.2 Objectives

The goals of the service-learning course, and the larger research effort include:

- **Enhance understanding of the theory and practice of green infrastructure** as it relates to urban hydrology and stormwater management.
- **Provide hands-on experience** in the construction, maintenance, and monitoring processes of green infrastructure by working with project managers, professional design/engineering teams, contractors, developers, and community stakeholders.
- **Facilitate interaction with various stakeholders** to understand the complexities of perception, policy, and upscaling of green infrastructure in urban environments, as well as the associated natural and social system functions, services, benefits, and costs.
- **Apply skills learned in the course to contribute to societal good** in the community of Lubbock, TX, and beyond through a hands-on service project.

- Develop skills in **critical thinking and creative problem-solving** in the context of landscape architecture.
- Promote **professionalism**, including active participation, teamwork, and accountability.
- Integrate **research into the design process**.
- Develop competency in **site engineering**, including stormwater design and principles of sustainability.

Among the many benefits of the service-learning model is bringing the resources and creative energy of a university into direct contact with local residents and the everyday challenges they face. To achieve this, the course operated in parallel with a larger creative placemaking initiative entitled "*The Mesquite Mile*." This initiative, which was conceived and managed by a diverse team of academic and non-academic practitioners, centered on transplanting mature Mesquite trees (*Prosopis glandulosa*) from rural areas (where they are considered pests) to urban residential sites to provide ecological benefits like stormwater management and community identity. While the larger initiative was focused on the broader questions of scalability, research and funding, the course focused on urban afforestation and stormwater management in a flood-prone, tree-poor neighborhood directly adjacent to the university campus in the heart of Lubbock.

The course met twice weekly, which offered an opportunity to reinforce skills and capacities both within and outside the classroom setting. For example, students might be attending class on a Tuesday learning the fundamentals of site grading in CAD software, and by Thursday they might be meeting on that site, digging out the same site grading with shovels and mini excavators, all within the span of the same week. This schedule and structure offered powerful multisensory opportunities for students to apply concepts that might otherwise prove to be overly abstract or theoretical (Figure 1).

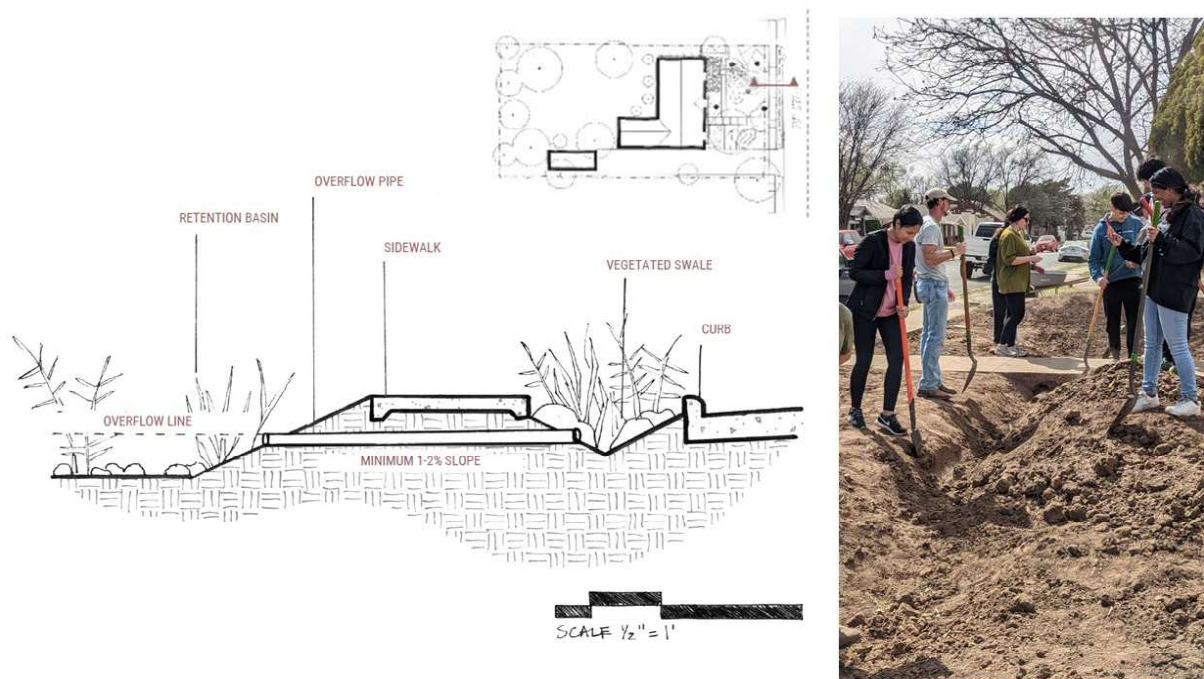


Figure 1. Student conceptual detail sketch (left), and students working on-site in the Heart of Lubbock (HOL) neighborhood, physically digging the condition depicted in the sketch (right). Photo: The Author Sketch by BLA student Nancy Harris

2 METHODS

2.1 Course Structure

"Green Infrastructure in Action" (LARC 4001/5001) was a 2-credit elective cross-listed between landscape architecture and civil/environmental engineering. Taught in Spring 2022 and 2023, it enrolled up to 15 students each term. The course integrated classroom instruction with fieldwork and community engagement.

2.2 Community Engagement

Students engaged with the HOL neighborhood through surveys, design-build activities, and regular meetings with residents and municipal decision-makers. Student recruitment occurred through flyers, pop-ups, and word-of-mouth. Partnerships were developed with the City of Lubbock and the HOL Neighborhood Association, and several preliminary meetings and discussions occurred in the months preceding the course to establish shared goals and schedules. Landowners and residents were solicited via Craigslist, an online classified ads service. Rural stakeholders were offered a free nuisance tree removal service, and residents in HOL were offered pro-bono landscape and tree planting services. The larger social-ecological-spatial goals of the project were not explicitly defined to either of these stakeholders in the interest of increasing adoption and participation amongst a predominantly conservative population in west Texas.

Students in the first offering of the course developed and distributed a community-wide survey of HOL residents using Qualtrics. They canvassed the neighborhood with leaflets and designed a colorful risograph poster soliciting participation in the survey. The survey questions were targeted at better understanding community sentiment and attitudes toward the existing greenspace in the neighborhood (Figure 2).



Figure 2. Student-designed community survey flyer. Questions were crafted into a Qualtrics survey targeting everyday residents to better understand local attitudes toward green spaces in the neighborhood. Students held pop-up coffee stands, flyered door-to-door, and printed colorful large-format posters like this one using an offset risograph printer. PHOTO: The Author

The long-term goal of the work includes the measurement of impact along four specific indicators: a) Hydrologic response b) urban biodiversity c) public sentiment d) social cohesion. Hydrologic response refers to how installed GSI features lower flood risk, mitigate contaminated runoff, and increase water

security (Figure 3). This can be measured both on the basis of individual sites as well as their cumulative impact at the scale of a neighborhood. Urban biodiversity refers to the measurable impact of these transformative efforts on urban tree canopy cover (%), vegetation health, and the overall species richness of the neighborhood. Public sentiment refers to HOL residents' attitudes toward greening efforts in the community. The (aforementioned) community survey provides a baseline assessment of public awareness of, and attitudes toward urban green infrastructure in their neighborhood. This baseline enables the assessment of shifts in public sentiment over time as the initiative continues to grow in scale and visibility. Social cohesion—a significantly more nuanced metric to quantify and therefore omitted from the present study—could be assessed in future research through annual or bi-annual semi-structured stakeholder interviews, as well as complementary qualitative methods such as participatory mapping, photo elicitation, and resident journaling. These approaches can help capture shifts in perceived neighborliness, place attachment, and belonging over time (Lydon et al., 2011; Manzo & Perkins, 2006).



Figure 3. Before (upper left) and after (lower left, right) student-built landscape interventions on a residential site in the Heart of Lubbock Neighborhood. Mature trees and companion plants were translocated from surrounding rural landscapes, stormwater curb cuts and basins were added to aid in establishing new planting regimes with a minimum of supplemental watering inputs. Photo: The Author

2.3 Institutional Support

The university's commitment to service learning was evident through programs designed to equip faculty with the necessary pedagogical knowledge. Participation in a *Service Learning Faculty Fellows (SLFF)* Program provided a foundational learning experience. This 2-day workshop format underscored the institution's structured approach to fostering service-learning expertise among its faculty. Participation in the program was compensated with a modest honorarium to cover the time invested in professional development workshops and course-planning, and the program also offered connections to valuable

resources and potential future funding opportunities. For those with scheduling conflicts, program applications were typically available in subsequent years as well.

A pivotal step in establishing the service-learning course was the application for the official "S" designation, a formal recognition by the university. This designation affirmed the course's integration of academic study with meaningful community engagement and critical reflection. The application process involved submitting comprehensive documentation for review.

A key aspect of institutional support was the requirement for a letter of support from the department chair. This departmental endorsement signaled administrative commitment to the development and teaching of the "S" designated course. The subsequent review of the application, guided by a detailed rubric, further illustrated the institution's quality assurance measures for service-learning. This rubric assessed various aspects of service-learning integration within the course design. Achieving a passing score on this review was necessary for the course to receive the "S" designation.

The university's support extended beyond the approval process. Participation in the SLFF program could also include an *Instructional Diagnosis*, a mechanism for gathering student feedback to continuously improve the learning experience. Furthermore, upon successful completion of the program and course designation, opportunities for funding became available, which could support teaching/research assistants or enhance the service-learning experience through project funding.

The course earned the university's "S" designation for service learning and was supported by the Service-Learning Faculty Fellows (SLFF) program. A signed MOU with the city enabled curb-cut interventions, which were carried out by students and faculty manually with the help of a battery-operated concrete saw.

2.4 Assessment & Reflection

The course included various assessment tools such as quizzes, examinations, oral presentations, written assignments, and regular exercises in sketchbooks or journals. Service Learning reflections became a significant component, accounting for 15% of the total grade. Reflection is fostered through bi-monthly peer and self-assessments and discussion prompts at different stages (Before, During, and Post-project). The course was designed to be iterative, with each offering building upon insights gained from previous ones. The final review took the form of a public presentation at City Hall in the presence of key municipal decisionmakers. This served to build connections and understanding between academia and local government and mutual awareness of local opportunities and alternative strategies for urban greening. These modes of engagement, taken together, are focused on preparing undergraduate and graduate students to be more responsive, grounded, and compassionate practitioners who can bridge technical skills with civic responsibility and ecological stewardship.

3 RESULTS

The results section focuses on the results of the community survey, and the quantifiable metrics of intervention to date.

3.1 Community Survey Outcomes

A total of 73 HOL residents participated in the community-wide survey. Key findings included low satisfaction with existing public green space and a preference for private yard improvements. Less than 15% of residents report any level of satisfaction with the quality of existing green spaces, and most prefer to spend time in their front/back yards instead of using the two public parks, citing concerns about safety and lack of amenity. The poor condition of HOL alleyways was indicated as particular concern to respondents (Figure 4), with 58% reporting being "very unsatisfied" (18% reported being "very satisfied"). 93% of respondents express support for installing rain barrels either on their property (38%) or in the HOL neighborhood (55%). 96% of respondents reported being supportive of installing rain gardens either on their property (22%) or in the HOL neighborhood (71%). 86% of respondents would report support for installing curb cuts either on their property (19%) or in the HOL neighborhood (67%). Among the benefits of GI, respondents rated "reduced flooding" (29%) as being the most important, followed by "establishing natural beauty" (21%), "benefits to insects/other species" (16%), "growing food" (11%), "reducing utility bills" (10%), "increasing home value" and "cool shade during the summer heat" (7% respectively).

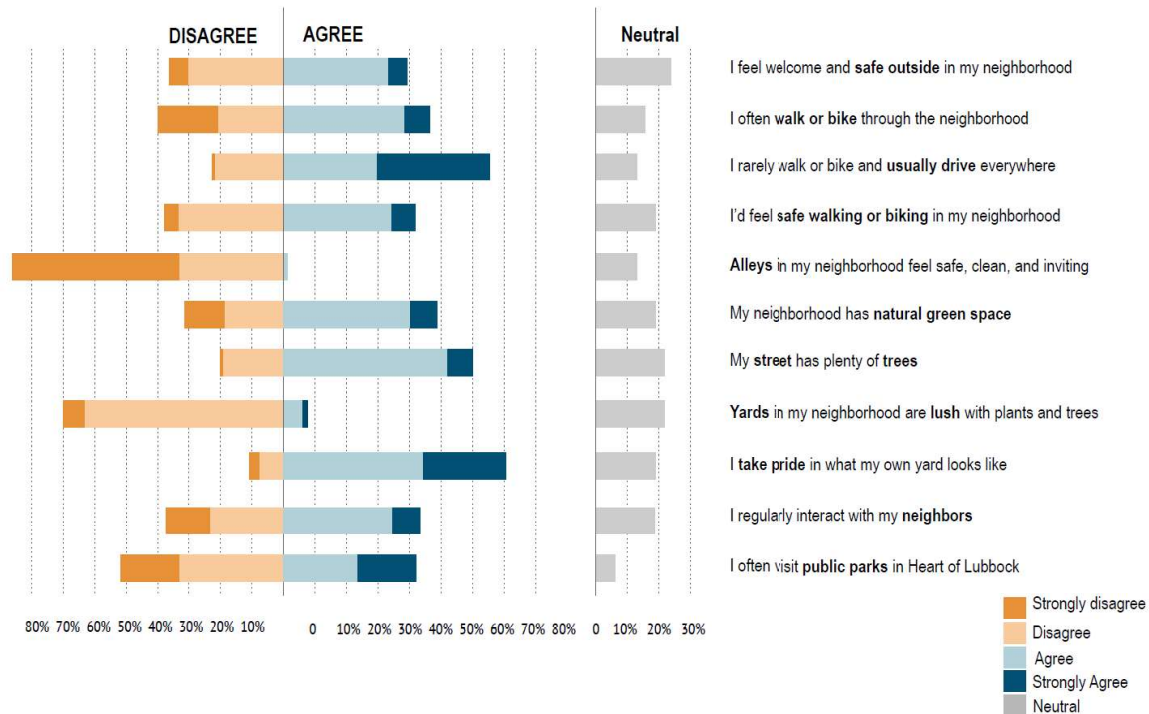


Figure 4. Selected results of a community (Qualtrics) survey (N=73) designed and administered by students in LARC4001/5001 (“Green Infrastructure in Action”). Reports levels of agreement with a range of statements about the quality of greenspace in the Heart of Lubbock (HOL) neighborhood in west Texas, USA. Neutral responses are set aside to highlight distinctions in positive/negative sentiment. Figure design and layout by Erin Charpentier for *The Mesquite Mile*

3.2 Intervention Metrics

Over 3 acres of residential lawns were converted to more water-wise biodiverse landscapes in the first two years of the initiative, occurring across 6 residential properties. Numerous additional plans were drafted by students in anticipation that additional funding would become available. In the Spring of 2024, our team received a notification for a successfully funded grant from the National Endowment for the Arts (NEA) in the amount of \$30,000 to continue to construct local pilot sites but was shortly thereafter rescinded due to a federal funding freeze. 5 mature mesquite trees were transplanted using truck-mounted tree spades, and 15 Mesquite saplings were planted. 6 bioretention basins and 3 curb cuts were implemented, and an MOU with the city was signed to legitimize the practice of curb cuts countywide. Preliminary modelling studies suggest an estimated yearly reduction in stormwater runoff (via SWMM model): of up to 10% in targeted neighborhoods. Upscaling the study to the neighborhood suggested that even with moderate adoption of GI interventions could reduce the maximum flooding depth for a simulated 10 year storm event from 6.2 feet to 4.1 feet.

4 DISCUSSION

4.1 Relational Practice Framework

The relational practice framework in service learning, as elaborated in this paper, positions service learning not simply as “learning by doing,” but as a form of engagement rooted in presence, attentiveness, and co-creation with human and non-human communities. This approach resonates with critical shifts in landscape architecture education over the past decade, where the role of the designer has increasingly moved from that of expert to facilitator, listener, and long-term collaborator (Felson & Vemuri, 2020; Bennett & Sotoudehnia, 2023).

Recent scholarship has urged educators to move beyond transactional models of community engagement and adopt pedagogical methods that are reciprocal, inclusive, and transformative (Angotti, Doble, &

Horrigan, 2011; Hou & Rios, 2020). In this expanded context, service learning becomes not just a method for integrating theory and practice but a situated and ethical mode of professional formation.

The proposed framework—"At Service," "In Service," and "Of Service"—invites a more robust conceptualization of service learning in landscape architecture, with relevance to other spatial design and ecological engineering domains.

4.2 At Service: Attunement and Ethical Orientation

To be "*at service*" emphasizes a readiness to respond to place-based needs. It denotes an ethical posture of humility and presence, in which students and educators begin by listening rather than prescribing. This aligns with what Deming (2015) has described as a "design ethic of care," where being present and attentive becomes the precondition for responsive design.

This orientation is also mirrored in the work of Cooper Marcus & Francis (2013), who emphasize the designer's responsibility to understand the lived experiences of site users. In the context of service learning, this phase includes early conversations with community members, contextual analysis, and a willingness to let go of preconceived design agendas.

In this work, being at service was seen in the use of spatial datasets and design thinking skills to deeply analyze urban systems and prioritize afforestation opportunities throughout the HOL neighborhood. To achieve this, we leveraged the latest GIS-based tools and workflows, drawing upon Lidar Point Cloud (LPC) data to identify gaps in tree canopy cover on each block. Furthermore, a deep understanding of urban hydrology was developed through the creation of a Digital Twin Hydrological model of the entirety of the neighborhood using the Environmental Protection Agency's Stormwater Management Model (SWMM). We found that 25% of parcels in the HOL neighborhood were in the 100-year FEMA floodplain, and were home to many of the neighborhood's most vulnerable populations. In developing a strategic plan for implementation, we targeted sites within and upstream of the floodplain to reduce runoff to these flood-prone downstream properties.

4.3 In Service: Co-Production and Situated Practice

When students are actively "in service," they engage in processes of co-production with local communities—designing, building, planting, and negotiating in real time. This approach echoes the pedagogical ethos of Design-Build programs (Anderson & Priest, 2017), where hands-on collaboration fosters a deep understanding of material, social, and ecological systems.

Felson and Vemuri (2020) describe this as a "learning ecosystem" in which students develop both technical proficiency and relational sensitivity. Working in the field, students encounter complexity, resource constraints, and ambiguity—factors that are often abstracted in conventional studio education. These experiences challenge traditional hierarchies between designer and client, inviting students to become co-learners and co-makers (Figure 5).

The emphasis on action also aligns with ideas of landscape performance, as discussed by Landscape Architecture Foundation scholars like Bentrup et al. (2016), who call for performance-based design processes that are adaptive, iterative, and grounded in community need.

Throughout this work our team recognized a unique opportunity to bridge rural and urban stakeholders, meeting the needs of both simultaneously. *The Mesquite Mile* project does this by facilitating the strategic relocation of mature mesquite trees and companion plants from the rural, agricultural, peri-urban context (where they are considered undesirable) into the urban context where they provide multifunctional benefits and value (including solar cooling, urban biodiversity, minimizing flood risk, contributing to a more vibrant pedestrian experience, and ultimately a more distinct neighborhood identity).



Figure 5. Translocation of mature trees was facilitated by truck-mounted tree spades (left) on loan from Texas Tech University. Students prepared sites using hand tools and mini excavators to increase the stormwater storage capacity of residential sites (right). Interventions included engagement with and excavation of median strips as a transitional zone between private and public space. PHOTOS: The Author

4.4 Of Service: Sustained Engagement and Measuring Impact

To be “of service” signals an enduring commitment to a community or place. It raises critical questions about the longevity of design interventions and the mechanisms through which their outcomes can be measured, adapted, and sustained. Scholars such as Lister and Brock (2014) and Musacchio (2015) argue that the impact of landscape architectural work is often slow to emerge and may only become visible through longitudinal, interdisciplinary monitoring.

In this model, impact is not limited to immediate visual or ecological changes but includes shifts in community capacity, governance relationships, and long-term resilience. Institutions have a role to play here by supporting post-project engagement, cultivating alumni networks, and integrating service learning into broader place-based research agendas.

Moreover, this dimension calls for critical reflection. As Darling and Gough (2022) note, service learning must remain open to the possibility of unintended consequences. Reflection, both individual and collective, becomes essential for evaluating whether one’s work has been truly “of service” in the deeper sense—enabling communities to thrive with or without continued professional involvement.

Being “of service” also involves helping communities and municipalities craft policies and procedures to empower homeowners to implement green infrastructure independently. The MOU with the city enabled the implementation of the first curb cuts in the entirety of the county. This action demonstrates a commitment to long-term impact by laying the groundwork for future GSI projects and potentially informing the development of broader city policies that can be adopted by others. By proactively creating an MOU, the service-learning initiative moved beyond short-term interventions to establish a formal agreement with the municipality, fostering the potential for sustained green infrastructure development within Lubbock.

5 CONCLUSION

Relational service learning offers a deeper, more ethical model of engagement in landscape architecture. By framing service through the lenses of readiness, co-production, and sustained impact, educators can better prepare students for collaborative, long-term work with communities and ecosystems.

Key findings from this case study include: a strong student interest in embodied and community-centered work, significant early-stage support from residents for GI installations, and the formalization of novel GSI policy through the creation of an MOU with the City of Lubbock. The project also demonstrated the feasibility of transplanting mesquite trees from rural to urban contexts as a low-cost afforestation strategy, with demonstrated stormwater and cooling benefits.

While this work was deeply contextual, its framework is transferable. The tripartite model—"At Service," "In Service," and "Of Service"—can be applied in other institutions and disciplines seeking to center reciprocity, embeddedness, and ethical responsibility in service learning. Its integration with municipal processes, cross-sector partnerships, and long-term monitoring objectives offers a replicable path for impact-driven pedagogies elsewhere.

Future directions include the continued development of metrics and methods for long-term evaluation of hydrologic, ecological, and social outcomes. Greater integration with city planning departments, long-term alumni engagement, and interdisciplinary collaboration may help scale the model's reach and efficacy.

However, several limitations should be noted. The sample size of the community survey (N = 73) limits the generalizability of attitudinal findings, and our inability to conduct full post-occupancy evaluations (POE) restricted our capacity to track long-term outcomes in hydrology, biodiversity, public sentiment, and social cohesion. These gaps point to a need for additional institutional support and resources to sustain the work across multiple semesters or funding cycles. As of this writing, all members of the original interdisciplinary research team have since relocated to new institutions, underscoring the reality and limitations of academic transience in sustaining longitudinal, place-based research and community partnerships.

Relational service learning thus calls for a culture shift in landscape education: from project to process, from expertise to listening, and from short-term intervention to long-term care. This framework moves us beyond episodic interventions and toward a more situated, enduring practice rooted in empathy, accountability, and care. It asks us to train designers not simply to build, but to belong—to engage with humility, rigor, and reciprocity in the places they serve. Among the three dimensions of the framework, *Of Service* remains the most elusive and aspirational, calling for durable structures of support and commitment that extend beyond the academic calendar. Yet it is precisely this long view—of stewardship, of adaptation, of sustained solidarity—that may hold the greatest promise for transforming both communities and the discipline itself.

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