

Transformation in the Age of Climate Change: Reflecting on the Gulf Coast DesignLab

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The power of good design is its ability to change lives. This transformation begins with the designers themselves, as the creative process and its outcomes become a record of altering perspectives and priorities. The Gulf Coast DesignLab (GCDL), a program of the University of Texas at Austin School of Architecture, seeks to awaken students to the world around them and instill a thoughtfulness in their work. This paper studies the approach of the GCDL, using design / build education as a vehicle to engage the climate crisis and environmental education. The pedagogical intent and process of the program’s director / founder, Coleman Coker, is highlighted, paired with analysis of a completed project and alumni reflections.

INTRODUCTION

The power of good design is its ability to change lives. This transformation begins with the designers themselves, as the creative process and its outcomes become a record of altering perspectives and priorities. To an extreme, our current age calls us all into a time of transformation, challenging designers to take on a new ethos that deeply reflects our relationship to the natural world and engages with the climate crisis.

A fuller understanding of how our work shapes us will catalyze new approaches to design and the reimagining of architectural practice to meet pressing global needs. Seeking models from current practice and education, this paper probes the Gulf Coast DesignLab (GCDL) and the development of an ecologically-focused design process to further environmental education. Led by architect and veteran educator Coleman Coker, GCDL is the first long-running ecologically-based architectural educational program that fosters environmental education for the field of design and for the public. Based at the University of Texas at Austin School of Architecture, the program seeks to awaken students to the natural world through a process of engagement with context and client throughout the design process. The program has completed 14 design / build projects in 8 years, yielding a breadth of work and over 150 alumni that have transitioned into practice. As Coker explains, “The architectural product becomes a residue of the process . . . The process is trying to get students to grow - and be wed to the condition

they are working with. Architecture becomes the vehicle for environmental education.”¹ Conversations with Coker, analysis of a completed project, and reflections from GCDL alumni point to the program’s successes and potential for designers to adopt tailored approaches to environment within their own practices.

BACKGROUND

“The world will not evolve past its current state of crisis by using the same thinking that created the situation in the first place.”

— Albert Einstein

While scientists have long warned of the coming changes, in 2019, we are seeing increased signs the architecture community is collectively preparing to act in response to the climate crisis. Architectural Education Declares, a self-organizing group of architecture students from 8 colleges and universities in the United Kingdom, issued an ‘Open Letter to the Architecture Community: A Call for Curriculum Change’ that has been signed by over 2100 (as of January 2020). “We are concerned that at present our education does not give sufficient weight to the inherently ecological and political basis of architecture, not to our responsibility to meet our uncertain future with socially and environmentally informed practice.”² At the AIA National Convention in March, members took a historic vote to adopt the AIA Resolution for Urgent and Sustained Climate Action. The resolution aims “to exponentially accelerate the ‘decarbonization’ of buildings, the building sector, and the built environment.”³ These collective moves indicate the profession’s changing priorities – but - we must not forget about the deep learning and individual transformation required to achieve these larger goals.

Many designers see this transformation as a facet of our ethical responsibility to global society and local community. As Thomas Fisher, Professor and former Dean of the University of Minnesota School of Architecture explains in his book *The Architecture of Ethics*, “When people talk about the power of architecture, they frequently refer to its physical characteristics – its space, form, and materials – but its power also lies in its ethical qualities: its ability to provide benefits for people far beyond its immediate users, be they passersby, future occupants, other species, or



Figure 1. Completed in Spring 2016, FLOAT is a remote campsite within Sea Rim State Park that accommodates four visitors with 2 tents. Image credit: Gulf Coast DesignLab.

the public in general.”⁴ At the present time, our response to the climate crisis aligns with our ethical responsibility to serve the public, both present and future. And as we shift attention to the natural environment, our other priorities must be assessed and adjusted, balancing our immediate or personal concerns with the concerns of the public over the long-term. According to Fisher, “While architects may serve individual clients, their role as a profession – like any profession – has to put the community first, prioritizing the public good over private goods.”⁵

EXPANDING OUR PERSPECTIVE

Developing new approaches to design will require an expansion of our perspectives on the natural world and its diverse residents. Instead of greener buildings, cheaper housing, or bigger technological fixes, designers need a new ethos that reimagines our relationship to the world and expands our perspective on the impending crisis. As Fisher explains, “. . . ‘ecological’ psychologists have revealed the sometimes superficial or ineffective ways in which architects have addressed environmental problems, tacking on sustainability as if just one more feature of a building. At the same time, this research suggests that we must see human behavior in its largest possible context – the natural as well as the built environment – if we are to understand not only how we behave, but the effects that our behavior has on others, humans and nonhumans alike.”⁶

Investigating the value of perspective from another angle, Cognitive Psychologist and Professor Barbara Tversky explores the benefits of toggling between an on-the-ground view of a situation and a distant, more abstract perspective. She refers to these views as ‘egocentric’, shaped by a singular body or view from within,⁷ and ‘allocentric’, shaped by an ego-less view that can be more distant. Similar to map making, an allocentric perspective requires the conception and compilation of information from many sources and views.⁸ In her book *Mind in Motion: How Action Shapes Thought*, Tversky confirms that efforts to take on multiple perspectives and toggling between



Figure 2. Completed in Summer 2016, INHABIT provides shaded gathering space within Galveston Island State Park. Image credit: Gulf Coast DesignLab.

them not only improves our spatial thinking, but increases our ability to adapt. “Making sense of mixed perspectives might be difficult but ultimately has benefits: it makes our own thinking more flexible.”⁹ Embodying these contrasting, yet complementary, perspectives allow us to consider a range of human concerns and the well-being of flora, fauna, and natural systems. By making a concerted effort to view the world through the eyes of others, we can broaden our understanding and develop design approaches that address these issues.

GULF COAST DESIGNLAB¹⁰

The Gulf Coast DesignLab at the University of Texas at Austin School of Architecture seeks to awaken students to the world around them and instill a thoughtfulness in their work. The program is the first long-running, ecologically-based design / build studio that fosters environmental education within the field of design and for the public. Nested within a hands-on approach to civic engagement, the needs of coastal communities are addressed by students designing and building places that inspire and awake others to the natural environment.

GCDL creates spaces for ecologists, biologists, and naturalists to teach and research, and for the public to learn and experience the Gulf Coast first hand. Since 2012, DesignLab has completed fourteen built projects (thirteen currently in use and one destroyed by Hurricane Harvey) with participation from over 150 architecture, interiors, and landscape architecture students from UT Austin (Figure 1 and 2). These projects were completed in collaboration with a range of stakeholder clients, all committed to environmental education and our land owners, including the Texas Parks and Wildlife Department (State of Texas Agency), Camp Aranzazu, the Coastal Heritage Preserve / Artist Boat, and University of Texas Marine Science Institute. Clients provide a majority, if not all, of the funding for these design / build projects, matched by students’ time, tools and construction equipment owned by GCDL, and travel support from UT Austin.



Figure 3. GCDL students explore the boardwalk at Sea Rim State Park. Image credit: Gulf Coast DesignLab.

Geography impacts the program's approach and semester schedule. Located in Austin, students are a minimum 3-hour drive from the Texas coast. Through secondary research and field trips, the mix of fourth / fifth year undergraduate and second / third year graduate students become immersed in the landscape, flora, and fauna to understand where and with who they will work (Figure 3). As one GCDL alumni studio describes, "The landscape of the Gulf Coast materialized in so many different forms over the course of the studio... guided tours at the UT Marine Science Institute to understand the usefulness of oysters, sitting in the dirt for an hour to document my perceptions, my discomfort through sketching and writing, sliding down sand dunes and waking up in a sand storm on the national seashore, swimming in bioluminescent plankton and then trudging through a sulfury marsh . . ."11

Over the first half of the semester, students work collaboratively to produce a conceptual design with rounds of feedback from the client and other consultants, often a structural engineer. Upon completion and approval from the client, students begin construction / fabrication documents and fabricating components on campus for the future build. Limited timeframes on-site at the end of the semester add an additional layer of creativity and planning, challenging students to componentize elements for pre-assembly and transport from Austin to the site. Dependent on the specific design, students often pre-assemble deck and ramp components, welded screens, and components that will speed the assembly process on-site.

During fall / spring semesters, students travel to the coast over 3 to 4 long weekends for construction, while balancing travel with their additional classes. Over the summer, students have ten to twelve concurrent days to complete the build in the hot Texas sun.

Projects stem from clients' specific needs and the potential of these small-scale projects to bolster environmental education. Shade is a common request from clients, as the Texas sun makes it challenging to learn and work when guests are exposed and uncomfortable. Projects are sited with respect to the natural conditions and users' needs, such as adjacency to a school bus drop off area, elevated views of flora and fauna, and distance from the water's edge. Construction budgets must accommodate hot-dipping steel structural components to combat rust's effects and increase the lifespan of the structure. Material palettes and construction techniques are carefully considered, balancing maintenance, material properties, cost, and color, for deployment into delicate conditions. Creating functional and low maintenance projects is a priority, knowing from the beginning these projects will receive little upkeep once deployed.

To follow, STORE, a project completed in Spring 2017, is described in detail to convey a typical project and process for the student designers. The project story, paired with images of the built work, provides a more holistic understanding of the GCDL approach and outcomes, both tangible and intangible.

STORE¹²

Located on Galveston Island, the Coastal Heritage Preserve is a 605-acre conservation area, one of the largest single-owner, contiguous pieces of land on the Island. Within the Preserve, Artist Boat, the non-profit owner, provides environmental education, including guided walks, bird watching, and kayak excursions, while working to protect and restore the undeveloped track sandwiched by development. With a focus on educating middle and high school students from Houston's inner-city neighborhoods, kayak excursions provide an immersive experience for participants and have become central to their youth programming. Artist Boat was in need of shaded gathering and storage space to accommodate the growing number of student groups participating. In Spring 2017, Artist Boat collaborated with GCDL to design its first structure within the Preserve, centered on equipment storage and gathering space for the kayak excursions.

While only a short 45-minute drive from the Texas coast, many Houston-based students experience the ocean for the first time on Artist Boat excursions. Their 3-hour kayak trips provide hands-on adventure, incorporating arts, science, and the environment. Students traverse through the wetlands with extended stops to hear from biologists, ecologists and master naturalists about carbon sequestration, the effects of climate change, pollution, and sea-level rise. While experts share



Figure 4. Students participate in a wetlands tour off Galveston Island.. Image credit: Gulf Coast DesignLab.

information verbally, the students watercolor what they see. Free from distraction, the students look (really look) at their surroundings and capture creatively. The experience is centered on observation, rather than artistic techniques, with beautiful outcomes for all who participate.

As the program continues to grow, Artist Boat needed a more permanent place within the grasslands to store equipment and serve as a meeting place for student groups before and after the adventures. Artist Boat asked GCDL to design a secure storage area suited for sixteen tandem kayaks, life-vests, paddles, water-coloring kits, and educational tools. The structure also needed to accommodate student groups of twenty-five to gather in shade and share their experiences. Outside of the area controlled by the Army Corps of Engineers, Artist Boat selected a site within a few yards of a small channel previously dredged for nearby residents and within 250' of the channel. It was the typical spot for students to circle up and learn how to kayak on land, before plunging in.

On their first visit to the Preserve, GCDL students spent time with Carla Clay, President of Artist Boat's Board of Directors, and Preserve staff by walking the site and surrounding landscape. Led by the client, GCDL students took a kayak excursion of their own (Figure 4), becoming familiar with the wetland environment and the educational experience designed for the middle and high school age participants. Later in the semester, Carla traveled to Austin to provide feedback before students returned to Galveston to present their final design to the Artist Boat Board of Directors, local preservation groups, environmentalists, Friends of Artist Board and the public. "Getting real questions is always helpful to our process," commented Coker as he shared a story from the event. Coleman describes a community member asking a question about rust and how the steel will weather over time. As the students explained their hope for the coloring, the community member pointed out the rust would provide much needed iron to the grasses and be beneficial, an additional benefit the students had not realized.¹³

At 950 square feet, STORE is a simple, rectangular form intended to complement the horizontal landscape, while providing security and shade (Figure 5). A galvanized frame supports a solid wood overhead with EPDM roof membrane. Beneath the solid roof, the west end is enclosed to create storage space, while the east end opens up to the landscape. The covered volume is wrapped by a dynamic screen of number 4 rebar meticulously welded by the GCDL students on-campus for later transport to the site. The screen texture is tight where security is needed on the west end and more porous to the east creating sweeping views of the prairie. The array of linears is reflective of the native grasses in winter, which take on shades of grays and reds similar to the rusting steel. Sheets of corten steel wrap the outer three faces of the fully enclosed storage space, composing a solid, western facade. A welded rack system supports the 16 kayaks and is secured by two sliding doors which divide the project in half. A fully shaded, elevated deck provides a seating area for students and frames the distant sunset on the horizon.

STORE continues to receive regular use from visiting groups and has become integral to the kayak excursion support. The project's success has led to two subsequent projects with Artist Boat, OBSERVE and FRAME, to further the organization's environmental education mission.

REFLECTIONS ON THE PROCESS

Exemplified by STORE, GCDL's process and approach sets forth a replicable model for ecologically-focused design that engages with context, meets clients' needs, and supports growth of the designers through the process. While the built projects serve as a tangible record of their learning and insights about the natural environment, the written reflections of GCDL alumni speak to their subsequent transformation and the impact of the studio experience on their personal lives and professional careers.

As part of larger efforts to understand how environmental education leads to transformation, student alumni were surveyed about impact of GCDL on their educational experience, perspective on the natural environment, and knowledge of



Figure 5. Within the Coastal Heritage Preserve, STORE provides shaded teaching space and storage for kayaks and other supplies for Artist Boat’s educational programs. Image credit: Gulf Coast DesignLab.

the climate crisis. As one alumni explains, “GCDL helped me to approach the ongoing climate crisis with a helpful, productive mindset that is neither defeatist nor naive. GCDL taught me that, in the face of (seemingly) impending doom, the only response that passes muster is to just roll up your sleeves and keep working hard.” This attitude is one we can embody in our own teaching and practice. A like-minded response emphasized a positive perspective on the future: “I felt more empowered to talk about climate crisis with others after the studio, and it also made me a bit more hopeful . . .”

When asked about how the design process impacted their perspective of the natural environment, one student responded: “Profoundly and fundamentally. I look at “nature” through a completely different and fantastically more nuanced way.” Another explained, “The Gulf Coast DesignLab allowed me to come to know a landscape that I had never thought of as both incredibly beautiful and so very fragile. During each of our visits to the Gulf . . . we were learning our landscape through the senses. I came to find that the most stunning characteristics of the gulf were often the most harsh and inhospitable, at first touch.” A third student described their personal transformation: “Sitting alone for an hour in the shade of a Mesquite tree in that coastal salt marsh and observing the surrounding

landscape transformed it from ‘setting’ into ‘subject.’ This was the first time I had truly looked at a natural environment and focused my attention to its inherent components, forces, and character. That which you pay attention to, you begin to love.”

CONCLUSION

The examples of transformation are abundant within the work of the Gulf Coast DesignLab. As students gain insight through the design process, clients benefit from the use of well-designed structures. At the same time seeking benefits for the environment, the program embraces the Texas Coast as its inspiration and testing ground to further environmental education for students and the public. As a replicable model, the program exhibits how careful engagement with the landscape can produce design work grounded in local conditions.

Modeled on Coker’s philosophy: “Once we begin to know our environment, we will want to nurture and protect it”, the program has achieved great successes in design and the growth of its participants. One tangible measure is the numerous design awards bestowed on the program and projects, including ArchDaily’s 2017 and 2018 Best Student Design-Build Project Worldwide, local and state AIA awards, and the Build Project Worldwide, local and state AIA awards, and the 2018-2019

ACSA Design Build Award. Another measure is the preceding quotations from GCDL alumni, providing first-hand accounts of learning and transformation. With design as the vehicle for environmental education, Coker and the Gulf Coast DesignLab remain focused on the natural environment and the long-term potential for architects to make a positive impact on the planet.

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Endnotes

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