

Āina-based Design Solution for Indigenous Communities in Hawaii: a Pedagogy Approach

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ABSTRACT: The objective of this endeavor is to develop, evaluate, and substantiate an integrative design methodology grounded in Āina, which is tailored to address the needs of indigenous populations in Hawai'i. This methodology is operationalized through a triad of courses at Chaminade University of Honolulu. These courses are designed to facilitate a collaborative learning environment that unites students, community stakeholders, and academics through hands-on design studios, mandatory thematic courses, and optional seminars. The practical application of this design approach is examined through two key initiatives: the refurbishment of the Maunaloa Fishpond Heritage Center and the conception of a modular shelter aimed at assisting the homeless and providing aid during disasters. The collaborative efforts are supported by a partnership between the Chaminade team, the Maunaloa Fishpond Heritage Foundation, and the Institute of Human Services in Hawaii, with a focus on discerning and fulfilling the community's specific requirements.

KEYWORDS: Āina-based Design, indigenous knowledge, native Hawaii, design process, aina-based

INTRODUCTION

The Hawaiian worldview embodies a unique philosophy of unity and harmony, especially in the context of land and culture. This perspective, deeply rooted in tradition, emphasizes a stewardship ethic—*kuleana*—towards the *aina* (land). There is a recognized cyclical relationship of give-and-take with the environment that is reflected in architectural practices; they not only utilize but also replenish the natural resources of the islands respectfully. The bond with the land transcends mere occupation; it forms an integral part of Hawaiian identity, a lineage and narrative that encompasses both collective joy and historical trauma. This profound connection acts as a unifying force for Hawaiians, including those in the diaspora, through shared cultural roots and experiences. Academic works by Kana'iaupuni and Malone provide a nuanced examination of Hawaiian identity, exploring its complexities through both historical and contemporary lenses (Kana'iaupuni & Liebler 2005, 693; Kana'iaupuni & Malone 2006).

However, climate change poses a significant threat to this intrinsic relationship with the environment. Hawaii faces escalating environmental challenges, such as rising sea levels, intensified hurricanes, and water contamination, which threaten coastal integrity, infrastructure, and freshwater sources (Finucane et al. 2013). The physical impacts are intensified by economic constraints, with spiraling insurance premiums and construction costs. The state's unique and fragile ecosystems are also at risk due to deforestation, land development, and invasive species (Spencer et al. 2020). For Native Hawaiians, the repercussions are profound, threatening traditional fisheries, agricultural lands, and leading to the displacement of communities. These developments sever cultural ties and create economic and health adversities.

The convergence of resource scarcity, climatic shifts, and environmental degradation burdens indigenous communities. These communities, which already encounter numerous adversities, are striving to preserve, restore, and rebuild their heritage and properties in culturally meaningful ways (Hu et al. 2023). The situation is a clarion call for urgent climate action and support for Indigenous communities that are disproportionately affected by these changes.

1.0 DESIGN NEEDS

Despite Hawaii's distinctive culture and environmental and social challenges, architectural and interior design education, influenced by Western pedagogical models, emphasizes theoretical knowledge over practical, real-world experience (Sanoff 2003; Seidel 1995). This approach often neglects the deep historical and social contexts crucial to architecture (Salama 2008). Traditional design education starts with a pre-design phase, where site visits, client interviews, and research lay the foundation for understanding the project. However, this research tends to be superficial, lacking the depth and thorough investigation needed for meaningful insight. A significant gap in this education is its focus on the physical aspects of the present rather than the narratives and knowledge of people, history, land, and community. Consequently, students may become disoriented, missing the chance to engage with the project's context critically. The tendency is for lectures to provide ready-made interpretations, which can limit students' critical thinking and comprehensive information processing (Salama 2008). Current teaching methods tend to promote only a superficial engagement with information rather than encouraging a deep connection with the project's essence, which should integrate the land's stories and the community's heritage (Fisher 2004; Groat 2000).

Hawai'i offers a wealth of knowledge and indigenous practices from which designers can learn. Moving away from Western-centric approaches in design education, there's a significant benefit in embracing Āina-based learning,

which incorporates the land's authentic information into design challenges. For indigenous communities, the respect for the land and people is crucial, and design education should provide students with experiences that place the land within its historical and cultural context.

Understanding Āina means recognizing the land's past, present, and future, and Āina-based pedagogy encourages students to explore these dimensions through the Hawaiian concept of Welina—a practice of inclusion and welcoming (Chun 2006). This approach emphasizes the importance of integrating local community partners and cultural experts into the educational process, allowing students to access indigenous knowledge and connect with the land's history and stories. Community members become co-creators in the design process, bringing invaluable insight from their lived experience and knowledge of the land's resources. Such integration fosters interactive and dynamic learning, enriching the design process and enabling students and instructors to collaborate on more meaningful design solutions that are informed by a deep connection to the land and its people.

2.0 ĀINA-BASED DESIGN APPROACH

2.1. Definition

In Hawai'i, the principle of Aloha 'Āina (appreciation of the land) symbolizes the profound connection between land, nature, and people, forming a foundational element of Native Hawaiian strength. To the indigenous ancestors, or kupuna (ancestor), the land, imbued with the spiritual essence or mana, was synonymous with life itself. For Kānaka Maoli (Native Hawaii), the land is cherished not only for sustaining life but also as the resting place of their ancestors, making it an extension of family and a source of gratitude. The relationship with the land transcends mere ownership; it is a reciprocal bond where the land nurtures as it is nurtured, respected, and cared for. This is embodied in the concept of Mālama (To take care) 'Āina—stewardship of the land—which reflects the kuleana (responsibility), or responsibility, of Native Hawaiians to sustain and manage the land's resources with care.

Āina-based design diverges from conventional, sustainable, and environmentally friendly methods primarily in two ways. It harnesses traditional knowledge for material use, spatial planning, symbolic representation, and climate adaptability. The design process also follows building typologies that are rooted in timeless concepts rather than contemporary market trends. As Robert Jan Van Pelt and William Westfall outlined, a building is considered a timeless type that symbolizes its purpose—the essence of what the structure represents and serves within its community. This typology is evident across different kinds of structures, where the design and layout reflect their intended function, as with a temple designed for communal gatherings and celebrations, embodying the spiritual and social activities that take place within (*van Pelt & Westfall 1991*).

2.2. Design principles

As illustrated in Figure 1. An Āina-based design approach comprises three pillars: community (Native Hawaii) participation, student-participation and research-engagement. Community participatory design is crucial for creating inclusive, effective, and sustainable solutions that address real-world challenges and have a positive impact on the lives of the people they serve. It fosters collaboration, understanding, and shared ownership, ultimately leading to better outcomes for everyone involved. Research-driven teaching, or evidence-based teaching, is crucial for improving student learning outcomes, promoting engagement and motivation, tailoring instruction to individual needs, and fostering continuous improvement in the education system (Figure 1). Using evidence-based practices, educators can create more effective, inclusive, and equitable learning environments that benefit all students. An Āina-based design approach has three fundamental principles: bioclimatic design, cultural symbolism and design within means (materials, resources). The study explores the design parameters of natural ventilation, material, space layout, natural view, and lighting.

Student participation is through service-learning, a teaching and learning strategy that integrates community service with academic instruction. It involves engaging students in meaningful community service activities directly related to the course content they are learning and addressing identified community needs. Through service-learning, students can apply their classroom learning to real-world situations and develop skills and knowledge that are valuable both academically and personally. Service-learning also fosters a sense of civic responsibility and encourages students to become active and engaged members of their communities.

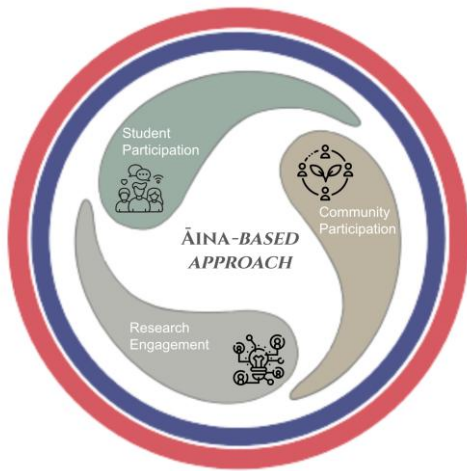


Figure 1: Three pillars of Aina-based approach. Source: (Author 2023)

2.3. Learning from vernacular architecture

The genesis of Hawaiian vernacular architecture can be traced back to a synthesis of the Hawaiian islands’ natural bounty and traditional building methods originally introduced by the earliest known settlers from the Marquesas Islands (Randall 1987). These settlers adapted the designs of their Polynesian kin into their construction, leading to the prevalence of rectangular floor plans in the architecture across Polynesia, which includes regions like Hawai’i, Fiji, Tahiti, New Zealand, and New Guinea.

In the Hawaiian tradition, various hale, or structures, were constructed, each with a distinct function. As illustrated in Figure 2, the hale heiau was a sacred space for worshipping Hawaiian deities like Lono, Ku, and Madame Pele. The hale *Mua* served as a men-only sleeping quarters, with strict kapu (taboo) laws enforced under penalty of death. The hale *Noa*, in contrast, was a communal family sleeping area. Women had their designated eating area in the hale *Aina*, while men were excluded. Food preparation took place in the hale *Kahumu*. Women’s crafts, such as mat weaving, were performed in the hale *Kua*, and the hale *Wa’a* was used for storing canoes. Despite their varied uses, all hale shared a commonality in their foundational design, utilizing the same underlying structure, tools, and materials, a testament to the ingenuity and resourcefulness of traditional Hawaiian architecture.

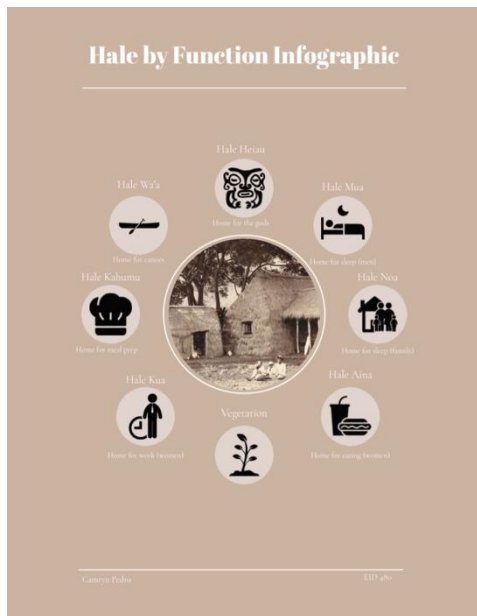


Figure 2: Hale by function infographic. Source: (Camryn Pedro 2023)

Each Hale, a traditional Hawaiian structure, was crafted from materials gathered from the local environment. The construction primarily utilized three materials: wood for the framework, rope for binding, and leaves for thatching. The structural framework, including posts and rafters, was fashioned from the unprocessed trunks and branches of hardwood trees. Premier hale construction often employed hardwoods like Naio, Uhiuhi, Kauila, Mamane, and Koa, with koa being preferred for canoe making. Lesser quality structures sometimes used ohia lehua, while hale dedicated to deities were made with lama wood.

Today, if one were to construct a hale, suitable hardwoods such as ironwood, Kiawe, eucalyptus, strawberry guava, ohia, and mangrove would be chosen, as these are readily available in the Hawaiian Islands. The roofs and walls traditionally consisted of grass or leaves, typically pili or coconut leaves. In contemporary construction, materials

like Pili, Kualohia, Pueo, Kawelu, sugarcane leaves, and ti leaves would be appropriate choices, aligning with traditional practices.

3.0 OVERALL COURSE DESIGN

The educational goals are woven into a pair of courses overseen by two instructors: EID 271, which focuses on Materiality in Interior Design Studio, EID 471 for Senior Studio with a commercial slant, and EID 480 dedicated to Independent Study. Here, students delve into spatial designs that empower individuals to shape their surroundings. These personal spaces are crafted to foster a sense of place based on reciprocal respect and sustainability (Godbolt & Hoho 2006). Additionally, the curriculum encourages the thoughtful selection of materials and the incorporation of natural elements, cultivating a sense of belonging and comfort. These principles align with the values upheld by Marianist teachings and Native Hawaiian traditions.

3.1. EID 271: Materiality in interior design

The studio project embraces an Āina-based design methodology, which is informed by the three pillars depicted in Figure 2. It centers on an Āina-inspired design for an emergency/homeless shelter, a choice motivated by the acute housing crisis affecting many native Hawaiian communities. These communities face a disproportionate lack of housing options, a situation exacerbated for low-income indigenous groups and predicted to worsen with climate change impacts (Callies 2010). In response to a request from the Institute of Human Services (IHS), a non-profit organization, the second-year design studio course EID 271: Materiality in Interior Design took on this project for a semester. The task set for students was to consider the living quality of people under severe stress and to conceptualize design solutions that would align with the needs of these communities and the values of Marianist education. The project aimed to delve into the essence of Āina-based design within the context of Hawai'i, examining ways to uphold human dignity and safety amidst the crisis faced by the shelter's temporary inhabitants.

In this course, students scrutinize how design concepts are manifested through materiality, with a keen focus on weaving suitable materials, finishes, and products into the fabric of interior spaces. The studio scrutinizes 'materiality' as a pivotal factor in the development of interior spaces, assessing how the integration of materials influences spatial quality. From the outset, community members and Hawaiian cultural experts were engaged to provide valuable feedback throughout the design process, from the initial concepts to the design development phase. During the pre-design phase, in-depth discussions on Hawaiian vernacular design and the application of indigenous knowledge in selecting interior building and finishing materials were facilitated with literature and insights from in-house cultural specialists and the director of the Maunaloa Fishpond Heritage Center (MFHC). Students were then tasked to interpret and integrate the insights gleaned from these discussions, as well as the readings, to underscore the significance of the historical, social, and cultural contexts relevant to the design challenges presented within the project, as illustrated in Figure 3 and 4.



CREDIT: TINA-MARIE DUST, 2023



CREDIT: JAZLYNNE WILLIAMSON, 2023

Figure 3 and 4: Student work: concept development based on cultural reflection; integration of indigenous pattern work with functional use. Source: (Tina-Marie Dust 2023) and (Jazlyne Williamson 2023)

3.2. EID 471: Senior design studio

Grounded in the Āina-based design philosophy, this capstone studio course is dedicated to the redesign of the Maunaloa Fishpond Heritage Center (MFHC), which is the steward of the Kānewai Spring site, ensuring its management, preservation, and protection for the benefit of Hawai'i's community and residents. The course represents an advanced integration of academic learning with professional application. It challenges students to apply their cumulative knowledge from the interior design curriculum, requiring them to employ comprehensive problem-solving skills, technical expertise, theoretical insight, and research acumen throughout the semester-long project.

The studio operates under the Āina-based design framework, anchored by three key principles as depicted in Figure 2. The project partners with MFHC, a non-profit organization co-founded by Chris Cramer and Jeannie Johnson in 2007 to safeguard the heritage of Hawaiian fishponds, detailed in Figure 4. The organization was instrumental in the enactment of Act 210 in 2010, securing protection for Hawaiian fishponds across the state. The Kānewai Spring, integral to this project, is one of Honolulu's last significant natural springs, delivering around 840,000 gallons of fresh water daily to the coastal ecosystems, from Kānewai Fishpond to Paiko Lagoon Wildlife Sanctuary and ultimately into Maunaloa Bay.

The course design incorporates service-learning modules, threading leadership and community engagement opportunities throughout the semester. Students are expected to lead these initiatives, fostering community ties and dialogue. Their work with the Maunaloa Fishpond Heritage Center will demonstrate their grasp of the Āina-based design approach, an educational journey illustrated in Figure 5.



Figure 5: Student work: balance between outdoor and indoor environment; integration of traditional construction methods and materials. Source: (Camryn Pedro 2023)

CONCLUSION

The Āina-based design approach is the genesis of a design process that is sustainable and inclusive, prioritizing the historical, social, and cultural significance of the land rather than just the geographic location. This method transcends the realm of design education, extending into professional practice and various fields, driven by the pillars of community engagement, leadership through student participation, and a commitment to research. This philosophy cultivates a collaborative environment where ownership of projects is collective and learning is an interactive experience. Through this process, students immerse themselves in research, engage in substantive dialogues with community members, and reflect critically on the insights gained, integrating them into their broader comprehension.

Although this concept originated in Hawai'i, with its deep reverence for the land—Āina—it advocates for an educational focus that fosters a more effective, inclusive, and equitable learning environment beneficial to all students. Contrasting with Western educational models that often position humans at the center of the built environment, this approach advocates for a design ethos where the significance of the land's history and ecosystem is paramount.

As the world faces increasingly drastic climate changes, the land serves as a poignant reminder of our transient stewardship over it. We are reminded that we do not, and never will, own the land. This awareness must be re-integrated into educational systems, empowering students, educators, and community members to co-create futures that are socially responsible, historically aware, environmentally sound, and culturally rich, ensuring sustainability for generations to come.

ACKNOWLEDGEMENTS

This project was supported by Chaminade University of Honolulu.

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