

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

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**Keywords:** Indigenous knowledge, native Hawaii, design process, aina-based

**The goal of the project is to propose, test, and validate an integrated Āina-based design approach that is intended to serve indigenous communities in Hawai'i. The testing platform is a package of courses offered in Chaminade University of Honolulu students, community, and faculty, including design studio, required seminar courses and student independent study courses. The tested design outcome: Maunalua Fishpond Heritage Center (MFHC) and the Institute of Human Services (IHS) Homeless Shelter serve as demonstration of such design solutions.**

## 1. BACKGROUND AND MOTIVATION

### 1.1 Cultural identity

The island of Hawai'i embraces an unfamiliar sense of unity and harmony amongst one another, their land and its sacredness. Native Hawaiians, especially those who practice traditional Hawaiian culture, believe it is their kuleana (responsibility) to care for the aina (land) as it does for them. What we see in traditional Hawaiian architecture encapsulates that very idea, utilizing every natural material that has been cultivated within our soil and being sure to replenish it. We are NOT the owners of this land. Rather we are temporary beings placed upon this soil as a means to live in harmony with nature.

The importance of land /place to Hawaiian identity is powered not only by ancestral genealogy, but also by the collective memory of a shared history. Hawai'i, the place, connects the Hawaiian diaspora through "social relations and a historical memory of cultural beginnings, meanings and practices, as well as crises, upheavals and unjust subjections as a dispossessed and (mis)recognized people" (Kana'iaupuni & Liebler 2005, 693; Kana'iaupuni & Malone 2006).

### 1.2 Climate Change Impact on the Indigenous Communities

Hawaii is facing a number of environmental challenges related to climate change, including rising sea levels, more frequent and intense hurricanes, and water contamination. Sea level rise

is particularly pressing issues in Hawaii, it can lead to coastal erosion, damage to infrastructure and housings, and increased salinization of freshwater resources (Finucane et al. 2013). In addition to physical damage, climate change is also affecting the affordability of and availability of housing in Hawaii. As insurance premiums rise in response to the increased risk of natural disasters, many building owners are having difficulties to secure affordable coverage as the building materials cost is on the rise. Moreover, Hawaii's unique and fragile ecosystems are also being impacted by other forms of environmental degradation, including deforestation, land development, and the introduction of non-native species (Spencer et al. 2020).

Native Hawaiians are among the populations most vulnerable to the impacts of climate change. As an island community with a rich cultural heritage, they are deeply connected to the natural resources and ecosystems that are being threatened by the changing climate. One of the most significant ways that Native Hawaiians are being impacted by climate change is through the loss of important cultural and natural resources (Spencer et al. 2020). For example, rising sea levels are causing damage to traditional fishing and agriculture sites, which are critical to the survival and well-being of many Native Hawaiian communities.

Another way that Native Hawaiians are being affected by climate change is through displacement and relocation. As sea levels rise and the risk of flooding and coastal erosion increases, many Native Hawaiian communities are being forced to abandon their homes and move to higher ground. This can lead to the loss of community and cultural ties, as well as to economic hardship and health problems.

Taken together, the challenges from natural resources scarcity, climate change effects and ecosystem degradation is making it harder for the indigenous communities that have already faced the hardship to maintain, repair and rebuild their properties while maintaining cultural relevance (Hu et al. 2023). Overall, the impacts of climate change on Native Hawaiian communities highlight the importance of taking action to reduce the causes of climate change and to support communities that are at the forefront of its impacts.

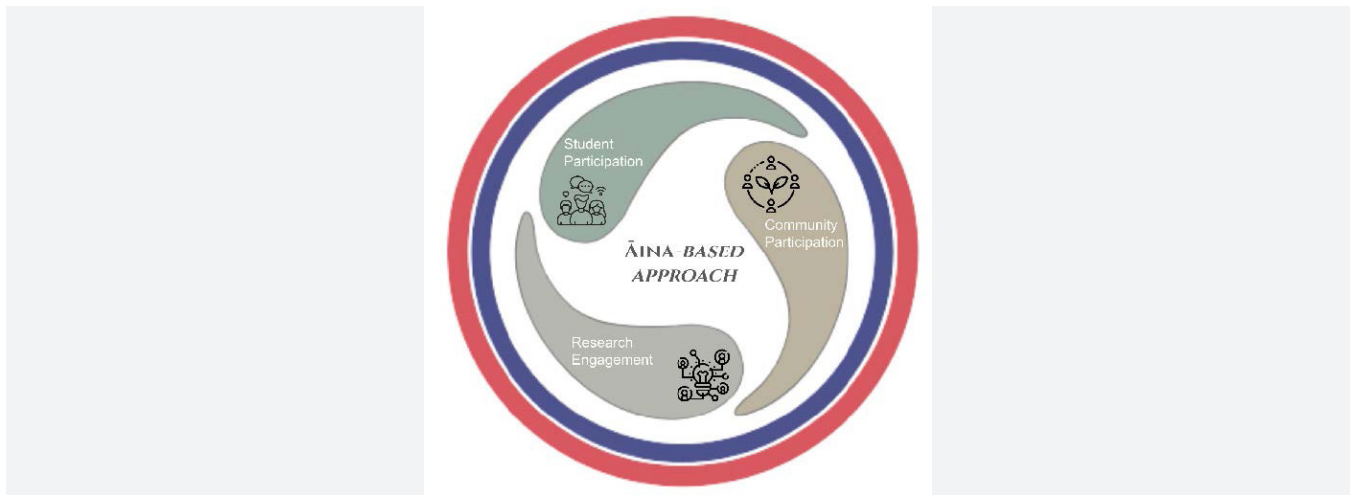


Figure 1. . Āina-based design process (Source: Suh 2023)

### 1.3 Design needs

Although the uniqueness of the Hawai'i culture and land is apparent and the challenges due to climatic changes and historical housing disproportion for the indigenous communities, architectural/ Interior design education that is around the built environment design has been based on the Western education system, which focuses on the development of theory-heavy form manipulation skills based on reflective observation and theoretical concept formation (Sanoff 2003; Seidel 1995). This type of hypothetical practice often limits real-life experiential interaction and historical- and social context that is essential in architecture, considering the importance of understanding people and community (Salama 2008). Current built environment design studio education follows a typical design process from the pre-design phase, concept development, and schematic design, to design development. In the pre-design phase, project site visits and analysis, client interviews, and research are one of crucial factors to build a base understanding of the project. However, research in traditional design studios is often simple and casual and "is not structured in the form of deep investigation or inquiry" (Salama 2008, 103). Most research in the design process is precedent or case studies, which do not provide enough depth and meaningful information for the project. One of the crucial missing points in built environment education is that the focus is only on the present physical world, not the story and knowledge around people, history, land, and the community. Because of the lack of concrete research on understanding what and why this design is for, students often get lost on what to focus on and look for. Without a concrete understanding of the project context and ready-made lectures that have the instructor's interpretations embedded, students lose the opportunity to think about the project and design problems critically which hinders their abilities to gather, analyze, synthesize, and process different types of information (Salama 2008). Current design pedagogy only allows students to do surface-scraping information gathering rather than deep-dive and building a meaningful

connection into the core of the project in the context of land that contains the story of people, history, and community (Fisher 2004; Groat 2000).

A land like Hawai'i has so much invaluable knowledge and indigenous practices that designers can learn from. Instead of following conventional Western systems in a built environment design, it would be important to integrate land-based knowledge which can bring authentic information about the land to the design challenges. Particularly, for the indigenous community, respect for the land and people is an important aspect of their culture. In order for our students to know the actual project site beyond the physical structure on the property, it is important that the design education process provide opportunities to place the land in a historical and cultural context and learn its significance. There is a need to understand the Āina (land), not just the place itself but create opportunities for our students to see the relationship of design projects with social implications and historical context. Āina-based pedagogy guides students in asking the right questions with the consideration of land that is built in the past, it is present today, and what is coming in the future which is based on the concept of Welina, the practice of Inclusion and ways to welcome in Hawai'ian (Chun 2006). In order to design a meaningful space, one can't only look at the current issues that the design is facing right at the moment but educators integrate local community partners and cultural experts as a part of the learning team that can guide students to the research that allow students to engage with the indigenous knowledge that the land of the project can share. Having community members as co-creator of the design project is one of the crucial aspects of Āina-based design education. Community members are the ones who have vast experience living on the land and they are knowledgeable where to draw the necessary resources (both text- and site-base) that can inform living, connecting the history and the story of the land. The integration creates interactive and dynamic learning among key members of the project, and it can make the design process more effective

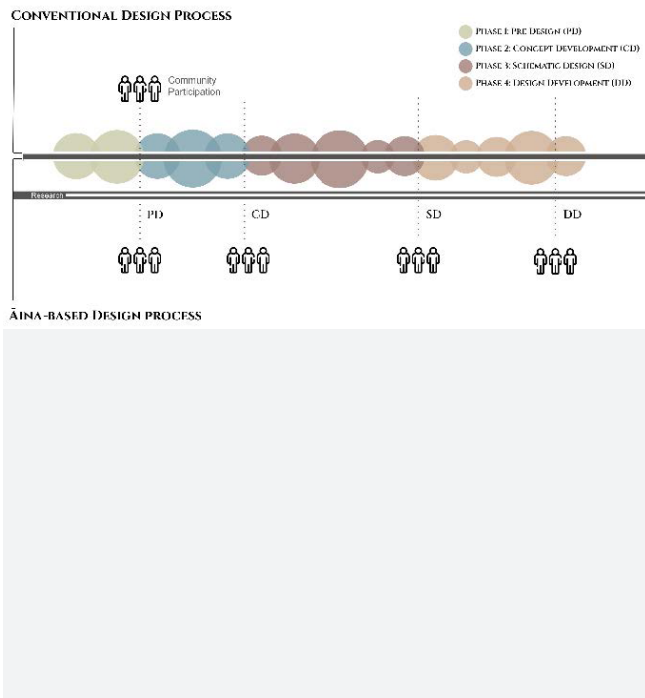


Figure 2. Three pillars of Aina-based approach (Source: Suh 2023)

for both students and instructors who can benefit from richer information to draw meaningful design solutions together.

## 2. DEFINITION OF ĀINA-BASED DESIGN

He alii ka 'āina; he kauwa ke kanaka.

Land is a chief; man its servant. – Ōlelo No'ēau

### 2.1 Definition

In the context of Hawai'i, Aloha 'Āina (appreciation of the land) is a powerful core value for the people of Hawai'i, representing a deep connection between land, nature and people, where Native Hawaiians draw foundational strength from. On the cultural heritage level, to Native Hawaii's kūpuna (ancestor), the land was life. Imbued with mana (spiritual energy), 'āina provides everything people need to survive. On a personal level, Kānaka Maoli (Native Hawaii) are connected to the land by the generations of kūpuna who lived on the land before and whose ancestors rest here. Thus, the emotional ties Native Hawaii have to their families, and the gratitude they have for ancestors, extends to the land that feeds us. The appreciation and compassion for the 'āina is ingrained within Native Hawaiians and it is core to the Hawaiian worldview. Land is not a commodity to be exploited, it is to be respected and cared for and, who, in turn, cares for us. Mālama (To take care) 'āina expresses Native Hawaii's kuleana (responsibility) to care for the land and to properly manage the resources and gifts it provides. Aloha 'āina expresses active

Hawaii' love for this land and beyond that, our love of country – the sovereign nation stolen away but ever in their hearts.

Āina-based design approach is different from conventional approaches, sustainable approach and environmentally friendly approach in two aspects. First, the design concept draws the knowledge from vernacular knowledge on construction materials, spatial organization, symbolic meaning and adaptability to the climate. Second, the design concepts are created according to building typology rather than learning from their contemporary competitors. Here, the definition of building typology proposed by Robert Jan Van Pelt and William Westfall:

Here it is argued that a building imitates a type which is timeless. The type provides a symbol of the purpose which the building embodies... The particular building is a conventional sign within which is embedded the natural symbolism of the type (van Pelt & Westfall 1991, 156).

In this sense, there are buildings belonging to disparate functional kinds (e.g., 'temple', 'dwelling', 'shop') whose plans are natural symbols of the purpose of activities accommodated by those buildings (De Clercq 2014). For example, a temple is the place where people gather to acknowledge the divinity by serving celebration, and the plan layout of the temple symbolizes the purpose of those celebration activities.

### 2.2 Approach and Design Principles

As illustrated in Figure 2. 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, also known as 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). By 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 specific design parameters that the study will explore include natural ventilation, material, space layout, natural view, and lighting.

Student participation is through the form of service-learning, that is a teaching and learning strategy that integrates community service with academic instruction. It involves engaging students in meaningful community service activities that are directly related to the course content they are learning, and that address





pueo, kawelu, sugarcane leaves, and ti leaves are all acceptable materials (Honolulu).

### 3. WHY CHAMINADE UNIVERSITY OF HONOLULU?

Chaminade University of Honolulu is a private Marianist university. Marianists (Society of Mary) embrace the idea of education as a mechanism to transform society and support a spirit of openness, mutual respect, and acceptance. Chaminade is a minority-serving institution with 18.4% Native Hawaii or other Pacific Islands students, 28.2% Asian and 11% Hispanic. Marianist education is about serving the community and understanding others through learning. Academic programs at Chaminade are encouraged to integrate “service learning” component in their curriculum. Many active learning assignments are connected to local community-service projects. Marianist education is based on the following 5 characteristics: Educate for Formation in Faith (Mana). May I live by God (E ola au i ke akua) (‘Ōlelo No’eau 364); Provide an Integral, Quality Education (Na’auao). Acquire skill and make it deep Lawe i ka ma’alea a kū’ono’ono (‘Ōlelo No’eau 1957); Educate in Family Spirit (‘Ohana). Recognize others, be recognized, help others, be helped; such is a family relationship (‘Ike aku, ‘ike mai, kōkua aku kōkua mai; pela iho la ka nohana ‘ohana) (‘Ōlelo No’eau 1200); Educate for Service, Justice and Peace (Aloha). Education is the standing torch of wisdom (Ka lama kū o ka no’eau) (‘Ōlelo No’eau 1430); Educate for Adaptation and Change (Aina). All knowledge is not taught in the same school (‘A’ohe pau ka ‘ike i ka hālua ho’okahi) (‘Ōlelo No’eau 203).

An Āina-based design approach aligns with Chaminade and Marianist education characteristics where respect for the land is the basis of the education. The sense of respect for the land in Marianist and Hawai’ian values encourages adaptation and changes through service, justice, and peace within the family spirit and faith. An Āina-based design approach is about how our design pedagogy can guide our students to put themselves in the place of others and the land in social, historical, and cultural contexts, so students can find their design solutions that keep the family spirit and faith where justice and peace of the land are preserved and serve our community for goodness.

### 4. PEDAGOGY DESIGN

#### 4.1 Overall course design

The teaching and learning objectives are integrated into two courses taught by two faculty members: EID 271: Materiality in Interior Design Studio and EID 471 Senior Studio - commercial, and EID 480: Independent Study. Students examine space layouts that will enable occupants to take control of their environment. The individual living space and their situated setting correlate to a sense of “place founded on mutual respect and sustainability” (Godbolt & Hoho 2006). In addition, students also explore the appropriate use of materials and access to a natural to create a sense of belonging and comfort. Those design

elements and concepts fit well with the values of Marianists and Native Hawaiians.

#### 4.2 EID 271: Materiality in Interior Design

This year’s studio project is based on the Āina-based design approach of the three pillars illustrated in Figure 2. The studio project was a Āina-based design-inspired emergency/ homeless shelter. It was particularly selected due to the current housing crisis many native Hawai’ian communities are suffering, disproportionate housing availability on the island for low-income indigenous communities, and which is likely to become even more severe through the effects of climate change (Callies 2010). Community program manager from the Institute of Human Services (IHS), a non-profit organization requested to provide design schemes for sleeping areas of the facility. The 2nd-year design studio, EID 271: Materiality in Interior Design has taken this as a semester-long project. Students were asked to think about the quality of life for the people in these extremely stressful conditions and how to serve communities as a designer which aligns with the Marianist education values. The studio focused to explore the meaning of Āina-based design in the Hawai’i context and people on the land, and how human dignity and safety can be valued and respected in the life crisis that temporary residents in the shelter are experiencing.

This 2nd-year design studio course examines how design concept is translated through materiality, focusing on the integration of appropriate materials, finishes, and products in the design of interior environments. The studio investigates ‘materiality’ as means to develop interior space. Students explored the relationship between material integration and its effect on spatial quality. Community members and Hawai’ian culture specialists were invited from the beginning of the design process, and they provided insightful feedback on their design development from concept development to the design development phase. In the pre-design phase, the in-depth discussion regarding Hawai’i vernacular design and the indigenous knowledge about the application of interior building and finish materials was conducted with various literature resources that were provided by in-house cultural specialists and the director of the Maunaloa Fishpond Heritage Center (MFHC). Students were encouraged to interpret the knowledge they have gained from readings and discussions and translate the importance of historical-, social- and cultural context that is related to the presented design challenge within the project (Figure 3).

#### 4.3 EID 471: Senior Design Studio - Commercial

Based on the Āina-based design approach of the three pillars illustrated in conceptual framework, this capstone studio course focuses on redesign of the Maunaloa Fishpond Heritage Center (MFHC). MFHC ensures the management, preservation, and protection of the Kānewai Spring site for the long-term benefit of the community and residents of Hawai’i.

This capstone studio course focuses on the execution of a complex commercial project from design concept to design development, and serves as a bridge between academic and professional practice. As a culmination of everything learned in the curriculum, the semester-long interior design project will demand a thorough and in-depth understanding and application of problem-solving skills, technical knowledge, theory, and research.

The studio is organized according to the Āina-based design approach of the three pillars illustrated in Figure 2. The community partner is the Maunalua Fishpond Heritage Center (MFHC), a non-profit organization established in 2007 co-founded by Chris Cramer and Jeannie Johnson (Figure 4). At the time, the last Hawaiian fishponds in the region were destined for auction and likely destruction. In 2010 Chris helped secure passage of Act 210 which protects publicly owned Hawaiian fishponds statewide. MFHC ensures the management, preservation, and protection of the Kānewai Spring site for the long-term benefit of the community and residents of Hawai'i. Kānewai Spring is one of the last large natural springs in Honolulu that still provides clean fresh water to the shore. Each day, approximately 840,000 gallons of fresh water are discharged from the spring, flowing through a stone auwai into Kānewai Fishpond. The water then empties into Paiko Lagoon Wildlife Sanctuary, and finally into Maunalua Bay.

As for the student leadership, the service-learning modules are built throughout the entire semester to encourage students to take on more responsibility to lead the community engagement and client communication. Students will demonstrate the understanding of 'āina-based design approach through working with Maunalua Fishpond Heritage Center (MFHC) (Figure 5).

## 5. CONCLUSION

An Āina-based design approach is the inception of the sustainable and inclusivity-focused design process that emphasizes the historical-, social-, and cultural context of the land, not the place itself. This approach is not only pertained to design education discipline but can be adopted in professional practice and in any other fields. Considering three pillars: community participation, student-participation leadership, and research engagement, the design approach fosters collaboration, understanding, and shared ownership of the project. As it is evident from students' work, they get to deep-dive into research, experience meaningful discussion with community members, and learn to reflect and have an opportunity to critically think about these dynamic insights and knowledge in their own understanding. Although the idea was driven from Hawai'i and their respect for the land, the word, Āina (land) should be considered as the primary education focus to be more effective, inclusive, and equitable learning that benefits all students. In the Western education system, human is often the center of built environment design where our needs are the most important regardless of the environment and history of the land. As we experience extreme climatic changes

every year, the land is reminding us that we are not, never was, and will not be the owner of the land. The sense of respect and care for the land needs to be restored and emphasized in our

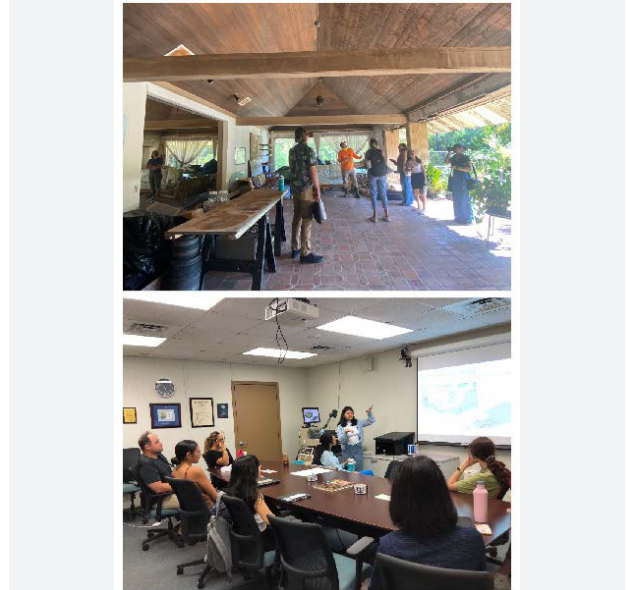


Figure 5. MFH Site Visit; Discussion and Presentation

education where students, educators, community members, and their invaluable knowledge build socially, historically, environmentally, and culturally sustainable futures for all.

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