Exploring and facilitating Daoism's contributions to design prototypes for social innovation projects - a case study from the "More than Human" project: Hokkhi.

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Facing the current climate crisis, there is an emergent debate over how our species should respond. Discussions, research, and practices are rapidly growing in many regions. Within the design community, there is an ever-growing perspective that these discussions represent a culturally diverse approach to design, challenging the current Western-centric design shaped by modernism and capitalist market economies. Instead, it reflects the emergence of an evolving design scene called "Pluriverse." This article demonstrates how design strategies, inspired by the lens of The Five Elements theory, have been transformed into a citizen and Taoism engaged oyster reef conservation project called "Hokkhi." The authors conducted in-depth field research, expert interviews in the Quanzhou region, and desk research to create a theoretical model of Daoism's token of honesty (Fǎxīn 法信) system. This model was then integrated with the specific content needed for the product design, resulting in three prototypes of artificial oyster reefs (AOR) co-created by the suppliants and the faithful. As significant touchpoints in this project's product service system, these prototypes will serve as boundary objects and undergo further iterations through co-design activities. Emphasizing a Chinese cultural perspective, particularly Southern Fujian culture, these prototypes bring value to design for pluriverse and design for social innovation.

*Keywords: design for pluriverse; design for social innovation; design prototype; oyster reef conservation* 

1 Introduction

There is a growing recognition that the design culture needs to move beyond anthropocentrism as the design community becomes increasingly aware of the harmful effects of anthropocentric approaches to design (Forlano, 2016; White, 2019a; Escobar,2018; Fry, 2020; Tassinari et al., 2020; Akama et al., 2020). A specific academic focus is on exploring the contributions of indigenous cultures, as they offer
vibrant, relational, and thoughtful ontologies that differ from Western-centered modernist values (De la Cadena, 2015; Country et al., 2016; de La Bellacasa, 2017; De la Cadena & Blaser, 2018; Escobar, 2018; Akama et al., 2020). This provides a theoretical foundation for rethinking modern design and a critical understanding for designers seeking to reshape modern design values.

This paper introduces "Hokkhi," a product prototype resulting from an exploratory Product Service System Design (PSSD) project with a focus on social innovation (SI) values in marine conservation. The primary value of SI in this initiative lies in its capacity to stimulate bottom-up actions, compensating for the inefficiency parts of top-down government services (Scott-Cato & Hillier, 2010; Manzini, 2015; Howaldt & Schwarz, 2017). The SI project aims to drive a sustainable transformation by creating accessible "commons" - shared resources and spaces for the community while fostering new relationships (Mies; 2014; Manzini, 2019). Moreover, "Hokkhi" goes beyond the anthropocentric convention in SI by placing a strong emphasis on engaging “More than Human (MtH)” actors and their agency. It recognizes the importance of understanding the intricate relationships between humans and MtH actors in facilitating sustainability (Pearson, 2015; Cianchi, 2015).

Eighty-five percent of the world's oyster reefs have been degraded and lost. In stark contrast, there are currently only three experimental oyster reef restoration sites in China, with no citizen participation in oyster reef restoration projects (NSITS, 2021). In Weitou Village, less than 10 percent of the original oyster reefs remain in Weitou Bay (Lin et al., 2019). However, the oyster shells, which are the best restoration material, are discarded and in a smelly state in large numbers. These oyster shells not only occupy valuable land and mudflat resources but also cause environmental pollution as they decay. Moreover, the preservation of the maritime faith culture in southern Fujian is becoming increasingly urgent, and both the A-Ma Temple and local Taoist temples are facing challenges in adapting to the new era and the pressing need to explore new business models (Ding, 2017).

The aim of "Hokkhi" is to integrate local religious communities and members of the general public who wish to pray for the blessing from deities in the efforts to save local oyster reefs by stimulating the hidden opportunities in local beliefs. This belief primarily blends the local marine culture, folk beliefs, and Daoism.

In the first design phase, the project utilizes tools developed from the main author's doctoral research. Guided by these tools, the team conducted the first investigations and analyses of the local context. Building upon this, the team established the core design concept that is centering on the water element represented by local beliefs (with the local temple as a critical actor) to balance the imbalances of the Five Elements, particularly focusing on promoting the condition of the earth element (with oyster reefs as critical actors) and the wood element (with oyster and marine ecosystem as critical actors). The primary aim is to design a way of "restoration" that enhances and stimulates the agency of these actors. With this foundation, the team referred to their 'Five Elements Strategic Diagram' (Figure 1) to determine the relationships that need to be fostered among different actors belonging to various elements in the design.

In the second design phase, based on in-depth interviews with Daoist stakeholders and fieldwork at Daoist temples in Quanzhou, a design prototype was developed, forming the main content of this paper. The culmination of the project resulted in a localized "oyster reef restoration" that leveraged the value of inspiring local beliefs. The entry point highlights the transformative role that design can
play in the Daoist “The token of honesty (Fǎ xìn 法信) ” system. This is an opportunity point discovered during the local field research.

Through interviews with Daoist research experts and desk research, the team further illuminated the potential value of the Daoist concept of “Oneness of heaven and humanity (Tiān rén hé yī 天人合一)” in SI for a “pluralistic world” and the construction of a human sense of care for the MtH actors. This consciousness is concretized by promoting the power of religion and belief to engage individuals and by modifying the improper manner of supplicants to benefit MtH actors. Through these efforts, a spiritually and practically connected community to marine conservation is expected to arise.

As a case study, this paper explores a way to transform the current relationship between humans and nonhumans, from that humans perceive MtH actors as mere resources or human welfare to those humans and nonhumans mutually “co-becoming.” This paper also brings design value to going beyond human-centered and away from dualistic ontology through the lens of Daoist and south Fujian (Min nan 闽南) culture. Those cultures allow nonhumans to shape the life that humans and nonhumans intertwine with each other.

Field Research & Adjust Strategy
+ indicates that the current status is too vigorous
− indicates that the current status is too weak

Figure 1. The design concept gets from analysis through using the result (a set of design tools) of one of author’s Ph.D. research. Source: the authors.

2 Design for pluriverse and for co-becoming

The development of theories from humanities and social sciences about how one may explore beyond the dualistic world shaped by modernism and its affiliated operating mechanisms, particularly those theories related to a relational ontology (Bennett, 2010; Morton, 2013; Haraway, 2015; Harman, 2018;
Blanco-Wells, 2021) that emphasise inquiry treatment for all things, including humans, are leading the development of the design to a new era. These new viewpoints of our living world change the designers’ understanding of the relationship between humans and MtH actors. In post-anthropology theory, MtH actors refer to entities like animals, plants, technologies, landscapes, and abstract concepts that actively shape human societies beyond traditional human actors. This perspective challenges human exceptionalism by recognizing the agency and contributions of non-human entities in shaping social relations, practices, and cultural meanings. It emphasizes the interconnectedness between humans and the environment, urging a holistic approach to studying and understanding human societies that considers ecological, technological, and non-human factors. Many existing design practices explore how to incorporate MtH human actors into the design from different aspects. But the issue is obvious: the mainstream of current design efforts on fixing the relationship between humans and MtH actors are under dualistic thinking, which makes the current situation that we are living in a "single" and "separating" world and puts many design explorations into a dilemma (Escobar, 2018; Fry, 2020). On the one hand, designers promoted research on design for sustainability, which has since evolved into various research directions with various topics, such as the circular economy and cities, life-cycle design, nature-based solutions, etc. Even though individual researchers realize the anthropocentric principles involved in those research (Maller, 2021; Randrup et al., 2020; Akama et al., 2020; Wakkary, 2021), their voice still needs to be stronger. Discussions about how humans and non-human actors coexist in the “Common World” (Latour, 2018c) from an ontological point of design are rare. On the other hand, the search for "deanthropocentric" design approaches and methods, such as "planet-centered," "interspecies design," either HCI or participatory design (Bastian et al., 2016; Westerlaken & Gualeni, 2016; Roudavski, 2021), is not detached from the reliance on production and consumption framework. The design results have hidden dangers that may continue raising the use of our planet’s resources. There are currently few effective ways to undo the harm done to nature in the production and consumption process (Shen, et al., 2020). Therefore, an urgent requirement for design is to turn its ontology on how design views the world we live in, to transform and balance the relationship between humans and non-humans, but not from one extreme to the other. In this case, one of the most significant design theories that get attention is "Design for pluriverse" (Escobar, 2018). It emphasizes how we can open our horizons from an ontological perspective to see pluriverse worlds that parallel the human world under current mechanisms and to think about how to connect with them and involve them in shaping the “Common World.” The goal is co-becoming the country- as stated by Bawaka Country (2016): "(A)Country includes humans, more-than- humans and all that is tangible and nontangible and which become together in an active, sentient, mutually caring, and multidirectional manner in, with, and as place/space." - rather than doing a design that serves one specific specie. Nevertheless, this is not a new thing; deep connections between humans and non-humans can be found in many regions, such as Latin America (De la Cadena, 2015; Tola, 2018; De la Cadena & Blaser, 2018) and Australia (Country et al., 2016; Yunkaporta, 2019), as well as in China and Japan (Nguyen, 2016), and even though these connections are often hidden under the dominant modernist systems, they are still deeply embedded in people’s mindsets and have maintained a significant impact on the local context. This was discovered when the team intervened in the southern Fujian region, where Taoism, as the spiritual center of local religion that connects maritime culture, folk religion, and ancestral faith into a whole, continues to have a strong influence on the habitats' behavior nowadays (Figure 2). Engaging this pluriverse culture will help strengthen
the design capacity for SI projects and evoke the potential localized design opportunity to rebuild the bridge with MtH world.

Figure 2. Collage of rich and diverse local culture in Quanzhou region. Source: the authors.

3 The relationship between man and nature from a Taoist perspective

From a Chinese culture’s standpoint, Daoism’s emergence as a religion and philosophy played a significant part in influencing how Chinese people understood the interactions between humans and MtH nature agents. The foundation of this relationship is traditional Chinese cosmology, a worldview developed over thousands of years by observation and the summarization of one’s surroundings, with a significant emphasis on relational philosophy. The interaction between humans and the MtH actors is seen through the perspective of Heaven’s relationship with the human in Daoism. In this interpretation, MtH actors and humans are inextricably linked; their relationship is contained in that between humans and heaven (in Daoism, Heaven [sometimes also be considered as nature] [Tiān 天], Deity [Shén 神], Dao [Dào 道], and Taiyi [Tài yī 太一] refer to the same concept, i.e., the Ultimate Being), and both MtH actors and humans are a part of heaven (Peng, 2018). As such, there is no such thing as a set of concepts full of dichotomies between humans and MtH actors in the traditional Chinese philosophical system, nor is there an essential distinction between human and MtH actors (Peng, 2018). Man is created from the interaction between heaven and earth; human life is ruled by heaven. Even though humans and all things are different in nature of expression, they are essentially isomorphic. Accordingly, to protect and stabilize human lives, Daoism has set up its laws and rituals conforming to the law of nature they understood. Humans, in return, must take on the responsibility to protect and care for the lives of MtH actors because we are all birth from the movement and interaction of the original "Qi" (Yuán qì 元气) and are consequently intrinsically linked as being the same (Wang, 2019).
Accordingly, Daoism came to the realization that the “Nature is unkind: It treats the creation like sacrificial straw-dogs.” (Laozi, 350 B.C.E., p. 10). These basic Daoist ideas concerning our interaction with nature are seen in more specific Daoist ideas like "emphasizing life (Zhòng shēng 重生)" (Chen, 2006). These ideas laid the foundation for incorporating MtH actors in constructing Chinese society, including artifacts. These Daoist understandings significantly impact faithfuls’ attitudes and behaviors toward MtH actors. According to this situation, the Sages (sheng rén 圣人) plays a key role (Chang, 2007). The sage senses heaven, connects with it, and establishes human society's rites and covenant (Lìng yuē 令约) by understanding heaven's operating mechanism. As a result, the covenant serves as implicit guidelines and boundaries for human action based on respecting the law of heaven, for example, refers to the norms of how humans should behave when and where they are, such as planting in spring and harvesting in autumn according to the Twenty-Four Solar Terms, or arranging human diet according to the coldness of spring and the dryness of autumn; respecting all of these covenants are the rites reflecting the honest feature of heaven. As I Ching said: "When we contemplate the spiritlike way of Heaven, we see how the four seasons proceed without error. The sages, in accordance with (this) spirit-like way, laid down their instructions, and all under heaven yield submission to them."

All of these elements are the foundation of Daoist doctrine and Chinese relational ontology. In general, according to Daoist philosophy, man must conform to the laws of heaven and earth. But before learning how to reach harmony by balancing Yin and Yang, Daoist sages must establish cognitive and behavioral norms for humans in accordance with the laws of heaven. Both Daoism and Daoist culture have had a substantial impact on Chinese society. Numerous ideas have deeply affected the Chinese way of perceiving things and contributed to the growth of knowledge. These epistemologies remain the underlying mentality and logic in many aspects of contemporary Chinese society. In Taoism, restoring the ecology is accumulating merit and can lead to blessings. This desire for happiness and blessing has led to a local tradition of marine blessing for thousands of years, and hokkhi improves on this by using recycled materials to create blessing products that respect the local culture while contributing to the restoration of oyster reefs. This co-creation connects people through the process of participating in the ocean blessing service.

4 "Zhai jiao ke yi" and "Fa xin" system in Taoism

According to the interpretation given above, Daoism could be characterized as a native Chinese religion that establishes its institutions and governs its behavior through learning about and observing how nature functions, in accordance with its understanding of the Way of Heaven, with the aim of fostering the harmony between heaven and man as well as the infinity of life. Daoism also establishes a number of rituals and ceremonies (Zhāi jiào kē yí [ZJKY] 斋醮科仪) designed by Daoist sages to build the bridge for communicating with the Dao in order to understand and embody the Dao (Ren, 2004). The “Zhai” emphasizes the abstinence of the devout and the strictness of the monastic way of life. By cleansing the mind and spirit to divest oneself of the distractions of the mundane, they allow the Zhai practitioner to concentrate and thus commune with the heaven (Zhang, 2002). “Jiao” is a ritual in which the Daoist expresses his sincerity to the deities in exchange for their blessing. The Daoist's actions must stand out his sincerity and the way of expressions need to reflect his devotion (Li, 2014). The Zhai is more focused on the methodology aspect, such as the “Internal Zhai” (Nèi zhāi 内斋) and
“External Zhai” (Wài zhāi 外斋) (Zhang, 2002; Dao men, 2022). Jiao is more about the form of pray for the blessing, such as the strict program of various rituals. The ZJKY system’s specific requirements shaped an evolving system composed of numerous artefacts, represented by the token of honesty (Fǎ xìn 法信) system. These visible artifacts served as the material carrier of the Daoist faith’s link between heaven and earth, spirits and believers (Figure 3-1,3-2,3-3).

Figur3. (3-1) The “presenting a memorial” (shàng biǎo 上表) ritual. (3-2) The “Dividing the lamp” (Fēn dēng 分灯) ritual for connecting and lighting the heaven, human and earth. (3-3) Playing the music (Míng jīn zhèn yù 鸣金振玉) that have the same frequency to sense with deities. Source: webpage (Shanghai City God Temple, 2017; Chengdu Taoist Association, 2020; Tian shi fu dao yi, 2021.)

The Fa xin as an intermediary for communication must match the form of the Dao in terms of length, weight, color, material, and quantity, thus establishing a correspondence with heaven, earth, and nature, which reflects the mindset that is learning and imitating the role of heaven and earth (Fǎ xiàng tiān dì 法象天地) (Gai& Wang, 2019). In Chinese, the word “Fa” in the token of honesty means laws (Fǎ dù 法度), rules (Lǜ lìng 律令), and methods (Fāng fǎ 方法) (Gai&Wang, 2019); “Xin” means sincere and honest, also referring to the object presented on the altar as a covenant with the deities, the bearer of the embodiment of the law of heaven, and the expression of sincerity. Here we focus on the three interpretations of Xin in the context of the Daoist cultural system. Xin refers to both a noun, i.e., honesty (Chéng xìn 诚信) - and a verb, i.e., the transmission of faith and signalling (Chuan xìn 传信) - as well as to material and immaterial credentials to build the deity’s trust (Píng xìn 凭信), i.e., credentials; These three interact with each other (Figure 4).

Honesty is an interpretation of Taoism’s understanding of the intrinsic nature of the Dao and is the method of building understanding and interacting with it. Taoism believes, “The utmost honesty could make man sense with deities, and the gods will descend upon us”. As an intermediary between humans and deities, the token’s selection must first satisfy the honesty characteristics of heaven and the deities. Moreover, it must be inserted into the Daoist ZJKY to express or train man’s honesty. Finally, it has the opportunity to assume the responsibility of transmitting one’s faith to deities. Depending on the objectives of ZJKY, transmitting the faith to heaven in Taoism is typically separated into two major parts. The first part refers primarily to “External Zhai” (represented by ‘Jìdù 济度’), including many different rituals and ceremonies, which are accessible to the public and the faithful. Through them, Taoists are enabled to communicate with heaven, grant the faithful’s wishes, and pray for the faithful’s blessing and protection from disasters. The second part focuses more on how Taoists create harmony with Heaven and Earth through their daily practice in order to realize their oneness with Dao and to be liberated from their bodily and spiritual limitations as humans, generally named Internal Zhai (represented by ‘Jí dào 极道’) (Dao men, 2022); Ordinary supplicants deeply connected with the first aspect, as it is the most prevalent and ingrained aspect in their daily prayer practices. A
token's transmission function can occur through a visible material ritual that includes many objects or invisible internal mental or hard physical training. The public prefers the former - the physical carrier of honesty - the credential for getting trustworthiness from the deity. The second method appears more demanding on the faithful, and the standard tends to be more abstract and stricter. Regarding the choice of the carrier for “Chuan xin”, as early as at the Zhou dynasty (c. 1100 BC - 771 BC), supplicants began to use specific natural or artificial objects as carriers of messages, such as blood and smoke from firewood to convey wishes (Zhou, 2018). The prayer's choice of credentials is based on the understanding that the deity is of "The same sounds can resonate, and the same Qi can respond to each other (this philosophy original from The I Ching 易经 - Qian 乾 - Wenyan 文言: Tónɡ shēnɡ xiānɡ yìnɡ, tónɡ qìxiānɡ qíú 同声相应，同气相求). That is, the supplicants believe deities are created by “Qi" which is void, and the credential used in the ritual must be physically and meaningfully attuned to the deity's Qi in order for the deity to manifest in the ritual. How does a Daoist communicate the wishes of the faithful's heart to the invisible deity? The Daoist understanding is that, at a certain moment, for instance, the "presenting a memorial" (Shànɡ biǎo 上表) ritual in the ZJKY, the Daoist can establish a mutual induction with the heaven through spiritual resonance, deliver the faithful's wishes through Chuan xin and pray for blessings. For instance, Daoism takes the smoke's symbolic significance as the object of Chuan xin because the smoke lacks form, just like the shape of Dao, and because its fragrance shows the same quality as Dao and can be smelled by prayers (Zhang, 2021). The objects that generate the carrier for Chuan xin are considered as "Pin xin" with Taoist written charm or spell (Fú lù 符箓) (Figure 5) and the incense sticks (Figure 6) being the most represented Pin xin as artifacts with deep symbolic value. According to Wang, Pin xin's works typically combine secular, philosophical, and religious connotations (2019), which can evoke the supplicants' honest faithful attitude.

Figure 4. The Model of Trinity of Fa xin, summarised by the authors
In conclusion, Daoism chooses intermediary items that possess the same qualities as Dao as Fa xin to establish a long-term relationship with the deities and a connection between supplicants and the deities.

Overall, the various physical forms reflect metaphysical Dao connotations. The rich form of the Daoist ZJKY built on this perfect unity between the physical and the metaphysical. It plays an essential role in the spread and development of Daoism. At present, the Daoist Fa xin system is in a mess affected by capitalism and a marketing-driven economy; thus, the Daoist Fa xin system aims to purify their forward path abides by tracing the original aspiration and by restoring the right track through the interpretation of Daoist classics such as Collected Taoist Scriptures (Dào zàng 道藏) (Ding, 2017). However, updating the Fa xin system to adapt to the masses’ growing needs and catch the stream of times is sluggish. Furthermore, lacking interaction with the faithful has resulted in stagnation and passivity in related inquiry innovations.

For example, possessions are not forbidden as a form of token in Faxin’s long history, but even if they are used as a carrier of the “Fa,” the core of using it is to promote the faithful heart by giving up possessions. At the philosophical level, the ultimate goal is to realize “Feeling the Dao through understanding things (Tǐ wù zhī dào 体物知道)”. The “exchange of possessions for Fa/Dao” is increasingly being interpreted as an “exchange of possessions for wishes” by the masses. They are attempting to use expensive items as stepping stones to pray for blessings from deities without changing their behaviors and mindsets. This phenomenon deviates from the relationship between
humans and objects, i.e., humans using Fa xin to pursue the Great Dao. This phenomenon transforms the faithful relationship into a transactional relationship, departing from the original intention. In the face of these phenomena, more appropriate approaches within the Daoist system are currently required to explore the opportunities hidden behind the chaos. Daoist stakeholders, particularly Daoists, require a more proactive approach to engaging the public and their ability to respond to and change this chaos by stimulating their potential to produce Daoist-inspired solutions. Throughout history, the Daoist ZJKY and Fa xin systems have evolved to adapt to new requirements asked by the times (Li, 2014; Ding, 2017). Under the current context that China’s development has moved into a new era, Daoism must explore new avenues and take the initiative to advocate and innovate for a new grid of relationships in order to take on greater responsibility in the face of new issues and complexity raised by the emergence of new social patterns, requirements of developing China’s Ecological Civilization strategy, the advancement of science and technology, and the faithful’s increasing requirements for rich and diverse blessing activities. Consequently, the new role and how to transform the current Fa xin system must be further explored, which brings room for design engagements.

5 Research methodology

This research based on a localised SI event held in Weitou village organised by CSDC and Upbeing in the summer of 2022. This event was divided into four themes, of which the team led the marine conservation theme for a month-long design research activity. During this month, the team conducted ten days fieldwork and expert interviews in the Weitou village and Quanzhou area, particularly with resident sociologists and experts from the South China Sea Institute.

The entire design process puts one of the first author’s Ph.D. research findings to the test: a design framework to help designers overcome the limitations of anthropocentric thinking and a set of five design tools inspired by relational ontology theory to find the potential connection between humans and "MtH" actors for designers, in order to facilitate their capacity to tackle with the SI project that engages "MtH" participation. And these tools support each stage of the design framework based on multiple case studies conducted during the author’s doctoral research. The toolkit integrates post-anthropocentric theories, such as the Quadruple Object model, and combines them with the traditional Chinese relational theory of 'Five Elements.'

The first phase of this project culminated in a “strategy map” and a localized design concept involving the value of inspiring local beliefs to promote oyster reef conservation. Over the following six months, the first author and some group members continued to advance the project. In-depth interviews and initial co-creation activities were conducted in Daoist temples in the Quanzhou area and with representative Daoist ecosystem stakeholders. The methods used to generate the prototype were comprehensive. However, as far as the content and data in this thesis are concerned, it is primarily supported by data obtained through desk research, field research, and especially expert interview (Figure 7).

The team interviewed sociologists in order to better understand the local maritime cultural atmosphere and community culture, and to follow up with a design based on the local culture. The team conducted interviews on marine beliefs in southern Fujian, the relationship between man and nature in traditional religious culture, and rural revitalisation, and found that the local area has a long history of marine beliefs and culture, and the community is close to its neighbours, which provides the
soil for residents to co-create. On the other hand, the protection of marine faith culture in southern Fujian is imminent, and the A-Ma Temple and local Taoist temples are facing the challenges of the new era and urgently need to explore new business models. Meanwhile we consulted experts from the Institute of Oceanography of the Chinese Academy of Sciences and the School of Oceanography of Xiamen University. The marine experts answered our questions about the material and structure of the artificial reefs. The reefs made of discarded oyster shells are biologically recognisable, and the three-dimensional porous structure increases the contact area and greatly improves the restoration efficiency. In terms of follow-up environmental testing, the experts told us that we still use manual periodic observation methods, and that underwater cameras are easily entangled and covered by aquatic plants. The interviews with the marine experts validated the functionality of the hokkhi project’s products, and the biological and environmental expertise provided by the experts on oyster reef conservation helped the project to be better grounded and iterative.

![Figure 7. Comprehensive field research. Source: the authors.](image)

6 Project introduction

6.1 Questions from the project

Based on research and literature review of various aspects of Daoism and oyster reefs, the following questions were raised as to the significance of the project.

1. How to stimulate the potential dynamism of "things" and make them interact with human society in order to facilitate the emergence of new relationships?
2. How can such relationships be incorporated into the constitution of human beings as both the material world and the spiritual world?
3. How to build empathy for things and reverence for nature to promote environmental and ecological sustainability? What forms, behaviours, and processes will this produce?
4. What matter in what form is transformed into Fa xin involved in establishing a spiritual connection to the Dao through matter?
6.2 Hokkhi project

Based on the above, we developed the Hokkhi project. Hokkhi signifies good fortune in the Southern Fujian dialect. Hokkhi is dedicated to creating a meaningful wish-granting service relevant to marine ecology and non-human beings. Hokkhi aims to integrate emerging blessing activities with oyster reef restoration into the Daoist service system. The Design for SI guidelines and PSSD approach can facilitate Taoism’s capability to intervene in local ecology conservation and actively contribute Daoist wisdom to China’s Eco-civilization development process. Mutually, the project will also contribute to the modernization of Daoism. Based on previous theories about the Daoist Fa xin system, the project seeks to establish empathy with the marine ecosystem by digging into Taoism philosophy, especially the wisdom that links humans and nature, and transforming the oyster reef into a Trinity Fa xin in Taoism. This transformation could bring the opportunity for Design to shift supplicants’ and faithful’s concerns from self-interest to care activities that can contribute to improving the local marine ecosystem and promote biodiversity from the bottom up. It entails making them conscious that their actions contribute to obeying and responding to Heaven by cocreating oyster reefs. They can help to repair the imbalanced ecology, which is no end to virtuous achievements. It also allows traditional beliefs to perform as an active actor in the local network of environment conservation to take more social responsibility in the face of ecological crises.

6.3 Research for prototype design

6.3.1 Feasibility assessment for artificial oyster reefs

Oyster reefs are reefs or reef beds formed by oyster species continuously attached to the oyster shells to gather and accumulate (National Shellfish Industry Technology System, 2021). For a long time, people have focused more on oysters’ economic value and exploited them as food and mineral resources (lime). 85% of the world’s oyster reefs have been degraded or lost entirely, making them one of the most degraded coastal zone habitats (TNC, 2022). However, oyster reefs have significant ecological benefits. Oyster reefs have essential ecosystem services such as water purification, nutrient removal, and coastal zone protection. Their complex spatial structure provides a primary environment for sheltering, feeding, breeding, and growing many marine organisms (TNC, 2022). However, there are very few studies and practices on oyster reef conservation in China.

Quanzhou region has a long relationship with oysters, not only as a delicacy but also as a construction material (Yao, 1985). Recently, a large area of mudflats in Weitou Village of Quanzhou has been cultivated, resulting in many discarded oyster shells (Lin et al., 2019). The local oyster reef habitat and its germplasm resources have been degraded to a significant level (Figure 8).

The team researched local populations and ecological surveys and conducted feasibility assessments. Weitou Village is located in the oyster harvesting area of Fujian Province. With sufficient local oyster replenishment, hard mudflat substrate, and fast water flow, the local oyster population has favorable conditions for species growth and is suitable for oyster reef restoration projects. The local policy is inclined to create industry-academia-research cooperation projects.

Synthesising the proposal’s feasibility with experts, the focus group established an artificial reef solution based on the characteristics of local waters. The team chose to mix cement, adhesive, and waste-crushed oyster shells to form a new hard matrix reef structure based on composite materials. Moreover, porous structures are set in the AOR module, which helps to create a complex threedimensional habitat for Marine ecology and resist the impact of seawater. It is conducive to the
passage of Marine animals such as fish, crabs, and shrimp and the growth of Marine plants, thus increasing the area where oysters could attach (Liu, 2019). Additionally, the team considered the need for oyster fry to be attached to the surface of oyster reefs in response to the lack of local species. The group expects significant restoration effects to occur within one year after the reefs are put in place. Additionally, the newly constructed artificial reefs will be in a rapid succession stage and are expected to develop into a benthic community similar to natural oyster reefs in 3-5 years. With the natural growth of oysters, the oyster reef structure will be further strengthened and become a stable whole.

6.3.2 Field research on Quanzhou Daoist Temples

The team researched various aspects of local belief systems, primarily through field research and in-depth interviews at Yuanmiao Guan, a typical Daoist temple in Quanzhou (Figure 9,10,11). The authors found that the current Faxin system for Daoist believers to pray for blessings needs to be strengthened in interaction, simple in form, and singular in purpose. As mentioned in Part Four, the Jiao-festival ceremonies are usually conducted by Taoist priests only, and the believers can only watch them and cannot participate in them directly. Through the author's observation, most of the traditional blessing ceremonies take the act of burning, which pollutes the air. Although there are new services such as electronic incense and remote blessing services, most exchange wishes with money, which in turn undermines the sense of ceremony too much as a result, ordinary supplicants have a shallow understanding of blessings, and the Daoist concept of "help all things" didn't give full play. At the same time, the existing belief and blessing mechanism has created a gap between Daoist masters and believers, contrary to Daoism's purpose and principles.

On the other hand, field surveys and questionnaires among ordinary supplicants also show that supplicants' expectations and aspirations for a better life are enough to drive them to make mindset and behaviour changes. The different participation degree of blessing behaviour also reflects the spontaneous and self-organised spirit of co-creation. Therefore, we hope to combine the Daoist belief system of Buddhism with the AOR, embed ecological protection into the daily lives and behaviour of
Daoist people, transform the current traditional blessing form into the eco-friendly form of building oyster reefs, and stimulate the potential value of blessing and belief.

Figure 9. Yuanmiao temple introduction and field research on faithful actions about praying for blessings in the temple. Source: the authors.

Yuanmiao Temple Introduction

Yuanmiao Temple was first built in the Western Jin Dynasty, mainly dedicated to the gods of Sanying, Jade Emperor and Daoist orthodox gods, with a history of more than 1,700 years. It was the first Daoist temple after Daoism was introduced to Fujian, and it is known as the "first Daoist temple in Fujian".

Yuanmiao Temple has always been the center of Daoist activities in Quanzhou. Every national or Daoist festival, or the birthday of gods, Yuanmiao Temple will hold grand religious activities and rituals, and set up altars to worship.

Figure 10. Field research on faithful actions about praying for blessings in the temple. Source: the authors.
6.4 Design prototype

Based on engaging the research about Daoism’s culture, the behavior of blessing, and the biological characteristics of the oyster reef and the intertidal zone, the team attempted to transform the AOR into a trinity of Fa xin. The team considered linking ecology with blessing actions from four dimensions: material, social, cultural-spiritual, and ecological (Figure 12). On the material level, the traditional Daoist Fa xin system is transformed into an AOR compatible with the intertidal and subtidal ecosystems. Supplicants donate different AOR modules according to their willingness and praying activities (Figure 18). Once sufficient AOR modules have been collected, Taoists will organize the settlement ceremony in the Intertidal zone. In the future, a new ecosystem will be generated by the power of nature, fostering the harmonious coexistence of humans and “MtH” actors. At the social level, Daoism further promotes its modernization level through this engagement and transforming its potential influence into real action. Public education on the relationship between humans and nature, inserting the Taoist value, will enable a more comprehensive range of people to participate in oyster reef restoration from the bottom up so that citizens can spontaneously contribute to nature and non-human beings for good. As a scenario for the short-term, with 3-5 years, an Eco-social Landscape (Figure 19,20) will be formed by collaboration continually, which will become a landmark for this village. As for the long-term scenario, a community could form through these activities, and the value of the projects could be spread wildly. In terms of culture and spirituality, the design is expected to not only carry the profound Daoist tradition and culture inherited over thousands of years but also to embody the spirit of “the greatness of heaven, the greatness of things” and to embody the way of heaven’s care for the life of all things reflect on the Daoist doctrine. Through the empathy of Daoism,
we will shift from a human-centered perspective to a “Shared Vulnerability-based” perspective, allowing people to view the relationship between humans and non-humans more equitably and guiding society toward sustainable development from its “inner” side through the spirit and culture of Daoism, with the ultimate goal of contributing to ecologically sustainable development.

The product section of the project has produced a product form, function, usage, and scenario for three AOR prototypes related to blessing.

1. The AOR altar set up by Daoist masters when they hold the ‘Zhaijiao’ ceremony (Figure 14).
2. The Oyster reef wishing tower created by the faithful during the major Daoist festivals and traditional festivals (prayers to Daoist deities) (Figure 15).
3. The Oyster Wishing card created with the participation of believers (Figure 16).

<table>
<thead>
<tr>
<th>Connection level</th>
<th>Material</th>
<th>Social</th>
<th>Cultural-spiritual</th>
<th>Ecological</th>
</tr>
</thead>
<tbody>
<tr>
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Figure 12. Table created for analysing the design objects.

Figure 13. The replacement of current Fa xin in current Taoist temple (Product and space to place, according to figure 9, 10, 11)
1. Material: Bio-based material made from recycled oyster shells;

2. Shape: It adopts the traditional elements of the Eight Diagrams array of Daoism and the modules of Daoist talismans and scriptures that can be embedded according to the theme of blessing;

3. Texture: In order to allow benthic organisms to grow better, the octagonal surface on the top adopts a differential growth algorithm;

4. Structure: Using support structure using topology optimization algorithm to generate heterogeneous space;

5. Modular design method: After the reef is placed in the subtidal zone, it can also be flexibly combined into artificial oyster reefs of different areas and scales.

*Figure 14. The AOR altar set up by Daoist masters when they hold the 'Zhaijiao' ceremony. Source: the authors.*

1. Material: Bio-based material made from recycled oyster shells;

2. Shape: The shape has the function of gathering the wishes of the people, and the form is similar to the pagoda style of requieming the soul and suppressing the soul;

3. Structure: The structural design of the base of the wishing tower is suitable for inserting the tower-shaped oyster reef into the tidal flat in the intertidal zone;

4. Modular design method: The wishing stick made of oyster material can be plugged with incense, and believers light the incense to pray to the gods. When the tower body is filled with wishing sticks, the installation of the reef is completed.

*Figure 15. The Oyster reef wishing tower created by the faithful during the major Daoist festivals and traditional festivals (prayers to Daoist deities). Source: the authors.*
Three installation methods

- unit
- used in Taoist temples
- oyster reef

Figure 16. The Oyster Wishing card created with the participation of believers. Source: the authors.

1. Material: The Wishing card is made from biomaterials synthesized from recycled oyster shells. The blessing screen is made of stainless steel, which is easy to assemble.

2. Shape: The shape of the wishing card comes from the elements of the traditional Taoist Eight Diagrams array and top view of the blessing screen presents a semi-circular outline.

3. How to use: Believers make wishes by purchasing wishing cards and writing their names and wishes on them. Then put their own wishing card on the blessing screen.

4. Modular design method: The semi-cylindrical blessing screen can flexibly divide the Taoist temple space, thereby improving the space utilization rate. When the two blessing screens are filled with wishing cards, the oyster reef that merges into a cylinder will be released into the subtidal zone.

Figure 17. The expected marine ecosystem for Weitou village after the launch of this project. Source: the authors.
Figure 18. The scene of the three prototypes setting in a Taoist temple. Source: the authors.

Figure 19. The scene of three prototypes in the intertidal zone after settling for five years. Source: the authors.
7 Reflection and summary

The current ecological crisis pushes designers to explore how to design beyond the "anthropocentric." This process urgently requires the design to explore ontologically how to become distanced from the current monolithic dualistic values. Design for pluriverse theories that emphasise getting inspired from indigenous culture, with its deep roots in localised contexts, presents an opportunity to answer this macro question - helping to make more invisible connections visible - by addressing the complex relationship with the non-human. Nevertheless, this poses a challenge for design - how to create a design interpretation of localised knowledge. The answers may already exist within the local context, but searching for them requires designers to engage in interdisciplinary research. Alternatively, the designer must become "ignorant and humble" in the process as a bridge to interdisciplinary collaboration. As Daoism advocates, only by clearing one's mind of the distracting contents can one see the "Dao" behind the operation of things. This paper reviews the relationship between human beings and nature in Daoist beliefs and the connotations of Daoism and Taoist rituals and ceremonies under the influence of this relationship. The authors further focus on studying the material aspect of the rituals - the Fa xin system - and proposes a trinity-based model of the Fa xin system - explaining how "things" are transformed into Fa xin for communication between humans and heaven. The prototype design of a social innovation-oriented PSSD-based artificial oyster reef project in Weitou Village is a concrete example to analyse how this model helps to consider the prototype design from the material, social, cultural/spiritual, and ecological dimensions. This prototype will be further developed into a codesign boundary object for further iterations with the Daoist priest, oyster reef experts, supplicants, and faithful.
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