

Developing key content for an island curriculum in South Korea

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Abstract

This study aimed to develop an island curriculum and examine the design principles and main contents of the curriculum. During the process of developing the island curriculum, many stakeholders, such as professors, curriculum experts, and field stakeholders, participated in expert consultations, workshops, and discussions. The island curriculum set 'connect,' 'communicate,' and 'engage' as the design principles and selected 'island sensitivity competence,' 'communication and conflict resolution competence,' 'creative problem-solving competence,' and 'cooperation and community competence' as the key competencies. The development of the island curriculum was guided by aiming for a sustainable island, emphasizing the island's response to climate crisis, and considering the educational meaning of place in island contexts. The main contents of the island curriculum consist of the characteristics, goals, key competencies, and contents. The contents of the island curriculum are organized into five strands: Understanding Island Ecology,' Island Life,' 'Island Sustainability,' 'Island Leadership,' and 'Island Expert Practice'. The content structure indicates the subjects to be studied in each strand, the time allotted to each subject, and the core content elements. Further piloting of the curriculum and the development of actual textbooks will help revitalize island education and create island experts.

Keywords

island curriculum

island experts

island program

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Korea's island

Introduction

In recent years, the value of oceans and islands has been renewed internationally as the climate crisis has intensified, and the importance of ecological diversity has been recognized. They are reference points for maritime territories, treasury troves of ecological and natural landscapes, and places of history and culture. Consequently, there is a growing demand for island-related institutions, policies, and education at the national and local levels (Kim, 2024).

The Republic of Korea is a typical peninsular and multi-island country in East Asia with approximately 3,400 islands, making it the fourth largest island nation in the world after Indonesia, the Philippines, and Japan. In response, the Korean government is working to raise awareness of the value and importance of the islands and to improve the quality of life of its residents by sustainably developing island areas. Korea was the first country in the world to designate 'Island Day' and celebrate it every August 8 as a national holiday, and since 1988, the country has enacted the 'Island Development Promotion Act' to implement a comprehensive island development plan every 10 years. In addition, a national organization, the Korea Island Promotion Agency, has been established to promote sustainable island development and enhance national competitiveness, and central government-level projects such as the 'Fishing Village New Deal 300 Project' emphasize local participation to strengthen local capabilities.

However, despite government efforts, the islands face a variety of crises, including uninhabited islands due to the aging of islanders, the continuous decline of the island population, and the disappearance of islands due to climate change (Kim et al., 2022; Ministry of Oceans and Fisheries, 2022; Rukminasari et al., 2024). Despite the growing importance of the islands, the living infrastructure, including education, healthcare, and culture, for the local people living on the islands has not improved. In particular, the educational environment on islands is very poor compared to that in urban areas, and there is a severe shortage of specialized personnel and educational programs for island education (Kim and Lee, 2021; Kim, 2024). Under these circumstances, it is necessary to develop and support the unique characteristics of islands and to systematically manage and preserve them to overcome the crisis facing islands and preserve their values. In this process, the role of island experts, who can connect central governments and islanders based on their on-the-ground experience and expertise and take the lead in island development projects, is crucial.

Despite growing global interest in island education, existing curricula often overlook the place-based, ecological, and culturally embedded dimensions of island life. In response, this study seeks to develop a context-sensitive island curriculum aligned with Korea's 2022 Revised Environmental Curriculum and designed to cultivate island experts equipped with knowledge of ecological, cultural, historical, and tourism resources at the national certification level. The primary objective of this research is to establish the foundational elements of such a curriculum by (1) identifying key competencies essential for sustainable island education; (2) formulating design principles and educational goals; and (3) constructing a five-strand curriculum framework that integrates subject areas, instructional time, and content systems reflective of island-specific contexts. Through this effort, we aim to raise awareness of the need for island-specific education and to provide a solid foundation for the introduction and long-term implementation of the island curriculum in formal and non-formal educational settings.

This study adopts the perspective that islands should not be regarded merely as geographical entities, but as dynamic spaces formed through the interaction of ecological systems, cultural practices, and localized knowledge. In this context, islands are understood as pedagogical landscapes—sites where environmental processes and human life are closely interwoven. Accordingly, the island curriculum was developed in recognition of the distinct spatial, social, and ecological characteristics that differentiate islands from mainland contexts. Rather than relying on a universal or land-centric framework, the curriculum emphasizes the temporal rhythms, socio-ecological vulnerabilities, and adaptive capacities that define island communities. Grounded in this conceptual foundation, the curriculum seeks to cultivate learners who are capable of engaging with island issues and communities not as external observers, but as contextually informed and ethically responsible participants.

Background of the study

It is essential to discuss the contents and competencies that must be addressed in island education to develop an island curriculum. To this end, we review work related to island education and examine the content strands and competencies included in discussions on island education. These are briefly described as follows:

Island-related national projects

1. Rural new vitality plus project. The Rural New Vitality Plus Project, supported by the Ministry of Agriculture, Food, and Rural Affairs of the Republic of Korea, is a national program that fosters specialized industries using local resources and private organizations to build a self-sustaining growth foundation for rural areas. It aims to revitalize and sustainably grow rural areas and is active in island regions with various rural area characteristics (Ha, 2022; Jang et al., 2021). Rural areas face various problems, including regional stagnation, poor living conditions, and the risk of rural extinction due to population decline, aging, and unbalanced development (Goh and Kim., 2021; Jang, 2022; Koo, 2021). The Rural New Vitality Plus project, launched to solve these problems, supports activities such as utilizing local tangible and intangible resources and private self-organization, fostering specialized industries, upgrading local industries, and creating jobs. The rural areas targeted for the project will be selected through open competition, and the selected areas will receive government funding. Through the program, the selected regions support and operate various pilot projects and conduct activities, such as workshops, tours to advanced sites, capacity-building training, and socioeconomic organizations. Since the Rural New Vitality Plus project is a bottom-up method in which local residents themselves propose business ideas, factors such as community ties, multilateral cooperation networks, information sharing, support from local governments, and partnerships with support organizations are important (Ha, 2022; Jang et al., 2021; Park et al., 2024). In addition, because regional promotion systems and human resource development are very important project goals, it is mandatory to spend at least 30% of the total budget on software projects, such as education, and minimize hardware projects, such as facility construction (Ministry of Agriculture, Food and Rural Affairs, 2021). For example, in the case of Sangju, Mungyeong, and Yecheon, which were selected as Gyeongbuk Revitalization Plus project areas in 2019, an academy was organized to strengthen the capacity of local residents, and business practitioners and action groups were identified in the early stages of the project (Lee, 2021). As such, each local government implementing the Rural New Vitality Plus Project is planning and conducting its own education program, but the curriculum is different for each local government, and the

content and scope of application are very different, necessitating a systematic curriculum that can be applied to rural areas in general.

2. Fishing village new deal 300 project. The ‘Fishing Village New Deal 300 Project’ is a national project implemented by the Ministry of Oceans, Maritime Affairs and Fisheries of the Republic of Korea (Ministry of Oceans and Fisheries, 2019) to develop poor fishing villages and fishing ports according to local characteristics and improve the quality of life of residents in fishing villages through infrastructure modernization. It was implemented in 2019, and 300 small fishing ports nationwide were selected to modernize the essential infrastructure and social and overhead capital of fishing villages, such as outdated marinas, berthing facilities, and amenities, and to develop locally specialized businesses (Lee and Kim, 2019; Oh et al., 2020). Since islands are surrounded by the sea and are mostly fishing villages, the program aims to revitalize island areas and strengthen local capacities. The Fishing Village New Deal 300 project is divided into common projects (port of call improvement projects, fishing facilities, and safety facilities), specialized projects (residential improvement, cultural welfare, landscape improvement, and tourism and leisure-related projects), SW projects (resident and leader training, village promotion, consulting, marketing, and local council-related projects), and business support, which are conducted to revitalize the marine tourism and fishing community economy through national and local funding. Local leaders lead communities in selected areas and carry out various projects according to the needs and conditions of the community (Lee et al., 2019; Lee and Seo, 2021). In addition to hardware projects related to local facilities, the 300 Village New Deal project supports various software projects to engage residents, strengthen their capacities, and foster village enterprises. Software projects involve education, promotion and marketing, consulting, community councils, and employment creation (Lee and Seo, 2021). For example, in Dolsan-eup, Yeosu-si, and Jeollanam-do, a local council was formed as a decision-making organization representing residents in the Fisheries New Deal 300 project. The council received relevant training and established a basic plan for the project through on-site consultations, pre-meetings, community meetings, workshops, and consultations with related organizations (Oh et al., 2020). However, even in the case of the Fishing Village New Deal 300 project, local governments only conduct their own educational programs, and a systematic common curriculum that reflects the characteristics of fishing villages is required.

3. Environmental educator certification program. The Environmental Educator Certification Program is a national professional qualification system operated in South Korea and is supported by the Ministry of Environment to foster environmental education professionals with specialized competencies. It was legislated through the “Environmental Education Promotion Act” in 2008 and started as a “social and environmental education instructor” and was reorganized into an “environmental educator” qualification system according to the “Act on the Promotion and Support of Environmental Education,” which was revised in 2022. It consists of three levels: the third level, which includes educators who conduct and operate environmental education programs; the second level, which plans and develops environmental education programs; and the first level, which is responsible for the management and administration of environmental education (Kim, 2021; Lee and Lee, 2023; MOE, 2017). The third level, which plays the role of lecturer and commentator in environmental education, is open to the public. The curriculum of the environmental educator certification system consists of a lecture-based basic course and a practical course with 54 hours of training time for the basic course, 48 hours for the second level, 39 hours for the first level, 90 hours for the third level, 96 hours for the second level, and 81 hours for the first level (Kim et al., 2017; Kim et al., 2021). There are 11 courses at each level, including elective courses. The basic course subjects of the third level of environmental education are

Environment and Philosophy, “Environmental Education Theory”, “Environmental Ecology”, “Living Environmental Issues and Environmental Health”, and “Climate Crisis and Global Environmental Issues”. The practical course subjects are “Environmental Education Teaching and Learning Methods”, “Environmental Education Program Development and Evaluation”, “Local Environmental Issues”, “Environmental Education and Communication”, “Safety Accident Prevention and First Aid”, and electives (MOE, 2022). The evaluation consists of a written assessment after completing the basic course and a practical assessment after completing the practical course. Only those who pass the written assessment can take the practical course. As of January 1, 2025, more than 300 second-level environmental educators and 2,800 environmental educators have been trained nationwide. Environmental educators trained through the qualification system will work as teachers, commentators, and specialized lecturers in environment-related educational institutions, exhibition and experience facilities, kindergartens, and schools.

Principles of Curriculum Design

To establish a framework and guide the design principles for the island curriculum, we explored resources from South Korea's national curriculum, the 2022 Revised Environmental Curriculum. The 2022 revised environmental curriculum is based on the Wisconsin Standards for Environmental Literacy And Sustainability (Wisconsin Department of Public Instruction, 2018), with the design principles of ‘connect,’ ‘explore,’ and ‘engage’ (Lee et al., 2022). The Wisconsin Standards for Environmental Literacy and Sustainability, established to promote environmental literacy and sustainability in learners and communities, have six Big Ideas and three strands. The big ideas for the ‘Connect strand’ are “systems” and “interdependence,” while the big ideas for the ‘Explore strand’ are “networks and nested systems,” “interdependence,” “diversity and resilience,” “cycles and flows,” “change and adaptation,” and “dynamic balance” for the ‘Engage strand.’ In addition, systems thinking was integrated throughout the framework and prioritized for learning content. The design principles for Korea's 2022 revised environmental curriculum are based on the Wisconsin Standards, which synthesize recent discussions to connect, explore, and engage, each of which refers to the following (Lee et al., 2023): First, ‘connect’ encompasses both human-centered connections, such as between the environment and humans, humans and humans, and individuals and society, as well as connections between ecosystem components and between humans and ecosystems. As humans do not live in isolation but are connected to all elements of the global ecosystem, this strand allows us to understand systems and interdependencies. ‘Explore’ allows students to explore and learn about environmental problems and issues, climate change issues, and more. It is necessary to utilize a variety of skills and knowledge in the social and natural sciences that deal with the environment. ‘Engage’ aims to engage in personal and social actions as a member of the global ecosystem for a sustainable society and future. These design principles were incorporated into the curriculum and served as a framework for exploring and selecting content. The island curriculum adopts the design principles of “connect,” “communicate,” and “engage,” drawing upon theoretical foundations from **place-based education** (Howley et al., 2011), **competency-based curriculum theory** (OECD, 2002), and **environmental literacy frameworks** (Wisconsin DPI, 2018). Based on the Wisconsin Standards and 2022 Revised Environmental Curriculum, the island curriculum reflects the nature of island professionals who must interact and communicate with a variety of stakeholders on the island, including island residents.

Key competencies

Competencies, which are increasingly targeted as a goal of education to prepare for uncertainty in a rapidly changing future society, are recognized as essential for successful individual lives and sustainable societal development beyond their functional meaning (OECD, 2002; Rychen, 2003; Seo, 2017). Among the various competencies required in future societies, key competencies refer to the universal abilities that all individuals should have in common, and they focus on moving beyond simply acquiring knowledge and skills to applying them in practice and solving complex problems (OECD, 2002; Rychen and Salganik, 2003). Competence-based education emphasizes the importance of emotional and social competencies (emotions, attitudes, motivation, values, etc.) as well as cognitive competencies (knowledge and skills), which have been the focus of traditional education. This means going beyond the mere accumulation of knowledge and emphasizing its transfer to various life contexts in which the utilization of methodological and procedural knowledge becomes central to learning (OECD, 2002; Son et al., 2021). To design the island curriculum as a competence-based curriculum, we explore the key competencies of the 2022 revised environmental curriculum, the key competencies of marine environmental education, and the transformative competencies of the OECD Education 2030's DeSeCo (Definition and Selection of Key Competencies) project (OECD, 2002), and derive the key competencies of the island curriculum based on these competencies. The key competencies of the 2022 revised environmental curriculum are environmental sensitivity, systems thinking, cooperation and community, communication and conflict resolution, creative problem solving, and environmental information literacy. The key competencies of marine environmental education developed by Jang et al. (2018) are community awareness, reflection and insight, creative problem-solving, communication and conflict resolution, information literacy, and marine environmental sensitivity. To design the island curriculum as a competence-based curriculum, we explored the key competencies of the 2022 revised environmental curriculum, the key competencies of marine environmental education, and the transformative competencies emphasized in the OECD's Education 2030 framework (OECD, 2018), as well as the foundational DeSeCo project (OECD, 2002). The Education 2030 framework proposed by the OECD outlines key transformative competencies—such as generating new value, addressing tensions and dilemmas, and exercising responsibility—that are essential for individuals to navigate the complex demands of modern society and contribute to sustainable futures (OECD, 2018). Rather than limiting education to the transmission of knowledge and technical skills, this approach emphasizes the importance of nurturing learners' capacity for ethical judgment, adaptability, and independent action in uncertain and dynamic environments. This study adopts such a perspective to explore how these competencies align with the unique educational needs of island communities. By analyzing and integrating multiple curricular references, the research redefines a set of core competencies tailored to the island context and systematically incorporates them into the design of the proposed curriculum.

Methods

It is important to note that the present study focuses solely on the design phase of the curriculum and does not extend into its implementation or the measurement of educational outcomes. This approach follows established practices in curriculum research, in which the design stage is frequently treated as an independent phase that precedes empirical testing or policy application (Lee et al., 2022; Kim & Lee, 2023). The core aim of this study is to propose a curriculum framework for island education that reflects both theoretical

considerations and field-based relevance. This framework is positioned as a foundational step for future studies involving field application and outcome-based validation.

The island curriculum development team consisted of a professor and two curriculum researchers. The development of the island curriculum took place over eight months, from July 2024 to February 2025 and consisted of literature research, research team meetings and workshops, and expert consultations. Through this research, the development direction and principles of the island curriculum were envisioned, and based on this, the characteristics and goals of the island curriculum, key competencies, strands and subjects, and the content system were developed. During this process, 18 research team meetings were conducted, and four expert consultations were held on island policies and practices. The expert consultation process involved six field experts (three island policy researchers, two local education officers, and one community facilitator), selected based on their direct experience with island-based development projects. Each consultation was semi-structured and recorded, with consensus notes used to refine curriculum content iteratively. curriculum was revised, consulted, and supplemented several times to reflect the needs and demands of the field. The procedures used in this study are listed in Table 1.

Table 1. Island Curriculum Development Process

Step	Description
Step 1	Derive curriculum direction and principles
Step 2	Set the characteristics, goals, and key competencies of the curriculum
Step 3	Develop strands, subjects and content schemes
Step 4	Supplement and revise with expert consultation

Beyond literature review and expert input, the process of curriculum development was also informed by the research team's prior engagement with island-centered educational practice. Before conducting this study, one of the researchers developed and facilitated an environmental education initiative specifically tailored to island contexts, involving both secondary school students and adult participants. This initiative blended classroom-based learning with experiential components carried out on a Korean island. Activities included coastal ecology fieldwork, interviews with local residents, and the design of learning projects rooted in local conditions. Such hands-on experiences provided valuable insights into the educational needs and ecological-social realities of island communities, thereby shaping the identification of key competencies and guiding decisions about curricular structure and content.

Results

This study focused on the direction of development, design principles, and the main contents of the island curriculum. The results of this study are as follows:

Setting the direction for island curriculum development

The island curriculum aims to address the island crisis, promote the sustainable development of island communities, and improve the quality of life of islanders. The development of an island curriculum has been

guided by a sustainable island orientation to achieve these goals, emphasizing island responses to the climate crisis and considering the educational meaning of place in island contexts.

1. Toward sustainable island. The island curriculum is based on island sustainability, with the ultimate goal of improving the quality of life of islanders and island future development. For a sustainable island, the ecological sustainability of the island environment and the social and economic sustainability of the islanders must be closely linked, which, in turn, is directly related to the island's development and regional revitalization. Therefore, to realize a sustainable future for islands, education on climate change, which directly or indirectly affects the ecological environment and lives of islanders, as well as policies, industries, and institutions related to the lives of islanders, is essential. Sufficient opportunities should be provided to promote the active participation of islanders. People, technologies, and institutions are intimately tied to natural systems, and an understanding of the local ecology allows individuals and societies to consider multiple perspectives on a region (Zandvliet, 2019). The island curriculum was designed to incorporate sustained discussions on both individual behavioral change and broader social structures. This approach enables learners to engage with the complexity of island-related challenges in an integrated manner and to envision pathways toward a sustainable future grounded in local contexts.

2. Emphasizing the island's response to the climate crisis. Climate change and its associated environmental challenges have emerged as critical global concerns, prompting a wide range of political, economic, and social responses. Within this broader context, the island curriculum addresses the climate crisis through the strand titled Island Sustainability, which provides learners with a foundational understanding of climate change as it relates specifically to island settings. This strand examines the multifaceted impacts of the climate crisis on island ecosystems and communities, and presents practical response strategies. These include the exploration of island-specific policy approaches, ESG (Environmental, Social, and Governance) frameworks, ecotourism initiatives, and models of ecological economy. The primary aim of this strand is to foster in learners not only a sound conceptual grasp of climate change, but also a sense of ethical responsibility and the capacity to engage in meaningful action toward climate resilience and sustainability within island contexts.

3. Considering the Educational Meaning of Place in Island Contexts. The island curriculum is inevitably place-based because it is set in a special place called an island. An island is a piece of land surrounded by water on all sides with special geographical conditions, ecological characteristics, resulting in lifestyles that differ from those on the mainland. Therefore, island professionals working in an island setting must have a deep understanding of the island's natural and social environment and should be able to utilize the island space as a place for education actively. Howley et al. (2011) suggested that education about the needs and concerns of island communities can effectively connect learners to the ecological resources of the island and threats to those resources. Therefore, given the diverse field contexts of island communities, we sought to integrate the elements of place attachment, real-life experiences, and community connections throughout the curriculum.

The island curriculum comprises both theoretical and practical components. The practical courses—Island Leadership and Island Expert Practice—are designed to extend the knowledge acquired in theoretical sessions through learner-centered activities such as workshops, seminars, and field-based experiences. Upon completion of the training, participants are expected to engage directly with local island communities, where they apply their learning to real-world challenges through communication, collaboration, and problem-solving. These practice-oriented experiences allow learners to gain a nuanced understanding of island contexts, both

through direct interaction and reflective observation. In developing the curriculum content, particular attention was paid to the pressing and context-specific issues currently faced by islands. These include the sustainable management of marine resources in the face of climate change, conservation of island biodiversity, addressing population decline and regional revitalization, and improving the overall quality of life for island residents.

Design principles for island curriculum

The design principles of the island curriculum were established based on research data for the development of Korea's 2022 revised environmental curriculum (Lee et al., 2022) and the results of analyzing the curriculum of related qualification systems similar to the island curriculum. The design principles of the island curriculum are 'connect,' 'communicate,' and 'engage,' and each principle is implemented across all areas of the curriculum.

'Connect.' The principle of connect in the island curriculum refers to the formation of relationships across multiple dimensions—between islands and humans (including islanders and outsiders), among individuals and communities, and within the interconnected elements of island ecosystems. This principle emphasizes not only ecological and social interdependence but also the experiential and emotional ties learners develop through place-based engagement. Rather than approaching the island as a static or abstract concept, learners are invited to experience it as a lived, dynamic environment shaped by tides, remoteness, community rituals, and other contextual factors that inform identity and belonging. Zandvliet (2019) describes islands as pedagogical landscapes where cultural, ecological, and physical elements converge in daily life. Similarly, Howley et al. (2011) highlight how community-based schools in island settings cultivate deep place attachment through locally grounded and context-rich learning experiences. By incorporating these perspectives, the connect principle fosters an embodied understanding of ecological relationships and encourages learners to form meaningful, situated connections with the island as both an environment and a lived space.

'Communicate.' This principle highlights the meaningful exchange of knowledge, emotions, and perspectives among the diverse actors engaged in island life. It encompasses both formal and informal communication channels—ranging from interactions between island residents and outsiders, to dialogue between local communities and policymakers, and the integration of traditional ecological knowledge with contemporary scientific and technological perspectives. Particularly significant is the intergenerational transmission of knowledge through oral histories, storytelling, and culturally embedded practices, which serve to sustain community identity and social cohesion. Recognizing the linguistic diversity found in many island regions—including regional dialects, maritime terminologies, and localized epistemologies—is essential for fostering authentic mutual understanding. By cultivating a learning environment that values and supports these diverse forms of communication, the island curriculum encourages learners to develop interdisciplinary awareness of island-related challenges and co-create context-sensitive, culturally respectful solutions.

'Engage.' This principle underscores the importance of active participation by learners and diverse stakeholders in co-creating sustainable futures for island communities. Engagement, in this context, extends beyond classroom-based instruction to include immersive, real-world experiences such as community-based projects, collaborative educational initiatives, and partnerships with island residents to address local challenges. Grounded in participatory and experiential learning theories, this approach repositions learners as active agents of change who critically navigate complex ecological and social systems. For instance, learners may work alongside local organizations to address issues such as marine debris management, the development

of sustainable tourism models, or strategies to mitigate youth outmigration. Such engagements cultivate a deeper understanding of the cultural and environmental specificity of islands, enhance learners' sense of social responsibility, and foster a collective commitment to long-term island resilience and sustainability.

These three principles—connect, communicate, and engage—are systematically embedded across the five strands of the island curriculum. Each strand interprets and applies these principles to support systems thinking, dialogic learning, and active participation, all within the broader goal of promoting island sustainability.

Content of the Island Curriculum

The main contents of the island curriculum were organized into four main sections: characteristics and goals, key competencies, and content system. The characteristics and goals section presents the characteristics of the island curriculum, the human image to be pursued, and the overall goals of the curriculum. In the key competencies section, four key competencies were set as the essential competencies to be cultivated as an island professional. The curriculum's content system was organized into five strands, and key competencies, subjects, allotted time, and content elements were developed for each strand.

1. Characteristics and goals. The island curriculum is designed to address the problems of islands whose sustainability is under threat in the context of the global climate crisis and special island conditions, such as local population decline and development stagnation. Therefore, the island curriculum is organized to help learners systematically understand the ecological, social, and cultural characteristics of islands and seek solutions to revitalize island areas and secure sustainability, with the goal of strengthening academic inquiries and practical capabilities for sustainable island development. To this end, the island curriculum is based on an interdisciplinary approach that encompasses the humanities, social sciences, arts, and natural sciences and encourages learners to develop problem-solving and critical thinking skills by exploring a variety of island examples and key issues. In particular, it is action-oriented and empowers learners to play an active role in promoting sustainability in island communities. In line with this, the island curriculum has established the 'island expert' as the human figure to be pursued, and the role of the island expert is to design policies, consult locally, and explore practical alternatives for sustainable island development based on an interdisciplinary understanding of island ecology, culture, resources, and local communities.

2. Key competencies. Island experts trained through the island curriculum should be able to recognize the functions and values of islands, accurately assess and solve island realities and problems, and revitalize local communities through communication with the islanders. Based on the key competencies of the OECD and Korea's 2022 revised environmental curriculum, the key competencies selected for the island curriculum are 'island sensitivity competence', 'communication and conflict resolution competence', 'creative problem-solving competence, and 'cooperation and community competence. To this end, the island curriculum aims to foster key competencies as an island expert by developing integrated knowledge, skills, attitudes, and values and selecting competencies that can be utilized in multi-layered and complex real-world problem situations.

Island sensitivity competence refers not only to the ability to recognize and appreciate the beauty and ecological value of islands, but also to a deeper awareness of islands as lived and embodied spaces. This competence encompasses sensitivity to the spatial and cultural distinctiveness of islands—such as geographical isolation, dependence on marine resources, unique temporal rhythms, and strong place-based

identities. Drawing on phenomenological and place-based educational perspectives, island sensitivity includes experiential, emotional, and relational dimensions of learning that arise from direct engagement with the island environment. Zandvliet (2019) describes islands as "lived pedagogical landscapes shaped by rhythm, culture, and ecology," emphasizing the role of physical space and lived experience in education. Similarly, Howley et al. (2011) argue that island schools offer uniquely immersive learning contexts that foster a strong connection to place and community. This competence encourages learners to develop both ecological awareness and personal resonance with the lived realities of island life.

Communication and conflict-resolution skills are the ability to communicate effectively with various stakeholders, including islanders and outsiders, using language and media, and to mediate and reach a consensus in conflict situations, considering the needs and perspectives of each party. Creative problem-solving competence is the ability to collect, analyze, and evaluate relevant information and data for a variety of problematic situations that arise on islands and to utilize tools and media to find creative solutions effectively. It also includes the ability to present various alternatives and select and apply the best solution to improve the sustainability and living environments of the islands. Cooperation and community competence refer to the ability to cultivate and practice the core values and attitudes required of an island professional and to build and maintain good relationships with islanders and relevant outsiders. It also includes the ability to contribute to the development of the community by recognizing and actively fulfilling one's roles and responsibilities in the context of the island on which one is based.

3. Content organization. The island curriculum consists of five strands and 21 subjects, totaling 90 hours of training, with a basic unit time of 3 hours per subject. The island curriculum consists of a theoretical course and a practical course. The theoretical course consists of 13 lecture-based subjects covering the main content that island professionals need to know, and the practical course consists of eight subjects covering the skills that island experts need to have. The practical course is organized to conduct learner-led activities based on theory, such as workshops, seminars, and field trips. The island curriculum has been developed into five strands: Understanding Island Ecology, Island Life, Island Sustainability, Island Leadership, and Island Expert Practice. The first three strands are theoretical, and the last two are practical. The program is designed to foster a sense of place and island sensitivity based on the understanding that the ecological characteristics of islands are fundamental to the survival and activity of islanders and the creatures that inhabit them and that there is an organic connection between islands and humans (islanders and outsiders). The study of island life is designed to foster island sensitivity and a sense of community by understanding islanders' unique way of life, which is shaped by a combination of unique ecological environments and external factors. Island sustainability was designed to recognize the need to improve the quality of life of islanders, promote the sustainable development of islands, and familiarize students with the role of island professionals in realizing this goal. The practice area for island leadership includes a multidisciplinary exploration of problematic situations, both internal and external to the island, with relevant elements to help find solutions and actively participate in the decision-making process as island professionals. The five strands of the island's curriculum are closely interrelated and can be flexibly adapted by adjusting the flow and sequence of learning as needed. The subject outline and content elements for each strand are outlined below.

Table 2. Island Curriculum Content Organization

Strands (Principle)	Key competencies	Subjects	Time	Content elements
1. Understanding Island Ecology (Connect)	Island sensitivity competence, Creative problem-solving competence	Understanding island values and island curriculum	3	Meaning, features, value, and function of islands
		The creation and destruction of islands	3	Environmental change, disappearance, and conservation of islands
		Korea's islands and the world's islands	3	Korea's islands, the world's islands, islands and marine protected areas
		Island tidal flats	3	Biological resources of islands, formation and characteristics of island tidal flats
2. Island Life (Connect, Communicate)	Island sensitivity competence, Cooperation and community competence	Life of islanders	3	Islander communities, combining agriculture and fishing
		Fishing culture and diet	3	Characteristics and values of island food, saltwater activities, and island specialties
		Islander livelihoods	3	Fishing activities on the island, wind and water in island
		History of islanders	3	Island migration, island policies throughout history, and the history of land dispossession and rebellion.
3. Island Sustainability (Connect, Engage)	Island sensitivity competence, Creative problem-solving competence	Climate crisis and islands	3	Damage and disappearance of islands due to the climate crisis, the island's response to the climate crisis
		Ecotourism and ecological economy	3	Ecotourism, ecotourism best practices, eco-economy, community-led tourism resource development
		Ecological value and attraction of uninhabited islands	3	Status and value of uninhabited islands, uninhabited life, and the importance of inhabited islands
		The sixth industrial revolution and island life	3	Sixth industries on islands, examples of sixth industries on islands, digital skills needed to develop islands
		Sustainable island policy	6	Islands and ESG, state of island policy, post-island business
4. Island Leadership (Communicate, Engage)	Communication and conflict resolution competence, Cooperation and community competence	Understanding island education	3	Characteristics of island education, state of island education, education for islanders, education for island tourists
		Teaching methods for island programs	3	Theoretical foundations of island teaching, practicalities of island teaching
		Utilizing island educational resources and media	6	Types of island education resources, island education online communication tools
		Communication and conflict resolution methods	6	Understanding communication, how messages are delivered and received, and how to resolve island conflicts.
		Explore the island region	12	Selecting and researching island locations, and practicing island exploration
5. Island Expert Practice (Communicate, Engage)	Creative problem- solving competence, Cooperation and community competence	Analyze and evaluate island education programs	6	Elements of island program development, analyzing and evaluating island program best practices
		Develop an island education program	6	Planning for island program development, factors to consider when developing an island program, developing an island program
		Presentation and feedback	6	Demonstrate island programs, share results
Total			90	

1.1 Understanding island ecology. ‘Understanding island ecology’ is allocated 12 hours and is designed to build basic knowledge of islands based on their natural and ecological characteristics and to recognize their importance and value. In this section, learners learn the definitions and characteristics of islands, and based on this, they learn their values and functions. Through concrete examples and materials, they will explore various islands in Korea and around the world and understand that the natural characteristics of each island, such as climate, topography, and biodiversity, are closely related to people and the human environment. In addition, students will learn about the large and small environmental changes that islands have undergone, including creation and disappearance, as well as their biological and ecological resources, such as tidal flats and seas, flora, and fauna of islands, and develop an understanding of the islands. The main subjects in the ‘Understanding Island Ecology’ area are ‘Understanding Island Values and Island Curriculum,’ ‘The creation and destruction of islands,’ ‘Korea’s Islands and World’s Islands,’ and ‘Island Tidal Flats.’ Through these courses, students can develop island sensitivity and creative problem-solving competencies.

1.2 Island life. ‘Island Life’ is a 12-hour section that explores how people live in the unique space of an island. In this strand, learners will learn about the history of how people first started living on islands, as well as the historical events that took place in this particular space. It also covers how island life has changed over time, with unique ways of living that take advantage of island features, such as water, wind, reclaimed land, and salt flats. Learners can learn about the unique values of island cultures through examples of traditional indigenous cultures that have remained intact because of the geographical isolation of islands from the mainland. This strand also emphasizes experiential learning grounded in local island contexts. For example, students participate in activities such as cooking classes using traditional island ingredients, guided interviews with elderly islanders about intergenerational knowledge, and field visits to observe how natural elements like wind and tides shape housing, livelihoods, and food preservation practices. These place-based experiences are designed to cultivate island sensitivity and community awareness. The main subjects in the ‘Island Life’ area include ‘Life of Islanders,’ ‘Fishing Culture and Diet,’ ‘Island Livelihoods’ and ‘History of islanders.’ Through this strand of research, students can develop island sensitivity, cooperation, and community competence.

1.3 Island sustainability. ‘Island Sustainability’ is an 18-hour strand that identifies the challenges facing islands in a rapidly changing world and explores the direction islands should take to ensure a sustainable future. This strand aims to learn about the challenges faced by islands in responding to the climate crisis, the value of uninhabited islands, ways to revitalize them, and directions for sustainable islands in various aspects such as industry, economy, tourism, and politics. In addition, learners can explore the problems of the islands caused by climate change from various perspectives, such as ecology, industry, and life, and explore climate justice cases based on the climate vulnerability faced by islanders. Key subjects include ‘Climate Crisis and Islands,’ ‘Ecotourism and Ecological Economies,’ ‘Ecological Values and Attraction of Uninhabited Islands,’ ‘The Sixth Industrial Revolution and Island Life,’ and ‘Sustainable Island Policy.’ Competencies that can be developed by studying this strand include island sensitivity and creative problem-solving.

1.4 Island leadership. ‘Island Leadership’ is a 30-hour strand that introduces students to the various attitudes and competencies that island experts need to have as island leaders. Based on the basic understanding of island education that an island expert should conduct, this section aims to learn the teaching methods, resources, and media that can be used in island programs and to cover communication methods that can be used in actual educational situations. Based on the nature of island space as a venue for island education, this section focuses on creating a sense of place - the experiences and memories, perceptions and feelings, and

values of the people associated with the island - so that the island is not just a physical space or backdrop, but a meaningful place for learners. In addition to this, this section is a hands-on course, which is designed to allow learners to choose, research, and explore an island of their choice and apply what they have learned in a practical way. 'Island Leadership' include 'Understanding Island Education,' 'Teaching Methods for Island Programs,' 'Utilizing Island Education Resources and Media,' 'Communication and Conflict Resolution,' and 'Exploring the Island Region.' The key competencies of this strand are communication, conflict resolution, cooperation, and community competence.

1.5 Island expert practice. The 'Island Expert Practice' is an 18-hour seminar and hands-on practical course designed to equip learners with the skills needed to actually run an island program, including analysis and evaluation, development, presentation, and feedback. In analyzing real-life cases, learners will identify the various elements found in island programs, such as recreation, experiences, specialities, cultural events, and education, and investigate how these elements contribute to boosting island tourism and generating income for islanders. This area enables learners to develop the practical skills of island experts by enabling them to experience first-hand the different roles they will perform as island experts after qualification and giving and receiving feedback. In this practice-oriented strand, learners engage in authentic field-based tasks, such as designing educational programs around tidal flat ecology, creating local tour routes that highlight sustainable practices, or co-organizing island community events such as seaweed festivals or traditional ceremonies. These projects allow learners to apply their competencies while respecting the geographical and cultural specificity of the islands. The units in the 'Island Expert Practice' include 'Analyze and evaluate island education programs,' 'Develop an island education program,' and 'Island Program Presentation and Feedback.' This will help students develop creative problem-solving, cooperation, and community competence.

Conclusion

This is a study of the island curriculum to develop a framework for the curriculum centered on its development direction, design principles, and main contents of the island curriculum. The purpose of this study was to develop goals and directions, key competencies, and content systems based on the development focus and principles of the island curriculum and to propose a curriculum for revitalizing island education and fostering island experts. The results and discussions of this study are as follows:

First, the development direction of the island curriculum is to "toward sustainable island," "emphasizing the island's response to the climate crisis," and "considering the educational meaning of place in island contexts." This direction aligns closely with the 2022 Revised Environmental Curriculum of South Korea, which emphasizes ecological transition, sustainability, and competency-based education. The revised national curriculum highlights the need for place-based, integrated, and experiential learning to foster students' ability to engage with real-world ecological challenges (Lee et al., 2022). In this context, the island curriculum not only embodies the spirit of ecological transformation but also operationalizes key elements of national environmental education policy through a grounded, context-sensitive approach. While sharing core principles with the national curriculum, the island curriculum differentiates itself by explicitly addressing the unique geographical, ecological, and cultural characteristics of islands. It offers a localized educational framework that incorporates island-specific competencies—such as island sensitivity and community-based problem-solving—and emphasizes the lived experiences of island residents. By doing so, it contributes a concrete, place-

based model to the broader discourse on environmental education, and provides practical strategies for applying national curriculum goals within regionally distinctive learning environments.

To realize the ecological and socioeconomic sustainability of islands, it is important to improve the quality of life of islanders and cultivate a proper understanding of the climate crisis and a sense of responsibility. In this process, field-based learning must be enabled by considering the ecological characteristics and lifestyles of islands with special geographical conditions. This study is grounded in the belief that islands are not merely geographic locations, but culturally and ecologically embedded learning environments. The proposed curriculum reflects this understanding by integrating the lived experiences, rhythms, and values unique to island communities. As Zandvliet (2019) notes, islands can be seen as pedagogical landscapes shaped by their ecological cycles, cultural heritage, and spatial distinctiveness. Similarly, Howley et al. (2011) highlight the importance of place-based learning in small island schools, where local knowledge and community life are central to meaningful education. By incorporating the notion of islandness into curriculum design, this study offers more than a technical framework—it presents an educational philosophy that values emotional connection to place, cultural continuity, and ecological awareness. This perspective reinforces the role of education not only as a means of knowledge transfer but as a participatory and transformative process rooted in local realities. The island curriculum developed here thus contributes to reimagining sustainability education through a place-responsive and community-engaged lens.

Second, we set connect, communicate, and engage as the curriculum design principles. The entire curriculum was designed based on the principles of ‘connect,’ which means forming relationships in various dimensions, ‘communicate,’ which promotes information exchange and mutual understanding among various subjects, and ‘engage,’ which means that subjects play an active role. The curriculum design principles of “connect,” “communicate,” and “engage” are not only grounded in environmental education theory, but also resonate with the seven essential principles of ocean literacy. These principles emphasize the interconnectedness between the ocean and humans, the importance of understanding marine biodiversity and ecosystems, and the need for active participation in addressing real-world marine and coastal issues (NOAA, 2024). Recognized as a global educational framework by UNESCO and central to the United Nations Decade of Ocean Science for Sustainable Development (2021–2030), ocean literacy provides a foundation for cultivating knowledge, attitudes, and behaviors that support ocean sustainability. By embedding these elements, the island curriculum aligns with international efforts to promote place-based, action-oriented marine education that empowers learners to become informed and responsible stewards of island and marine environments.

Third, ‘island sensitivity,’ ‘communication and conflict resolution,’ ‘creative problem-solving,’ and ‘cooperation and community’ were selected as the key competencies of the island curriculum. Through this, island experts who are sensitive to the beauty and change of islands communicate effectively with various stakeholders related to islands and creatively solve various problems that occur on islands to lead island communities. These identified competencies closely align with international models of place-based and sustainability-oriented education. For instance, the UNESCO Kien Giang Biosphere Reserve in Vietnam provides a notable example of how community members cultivate ecological sensitivity, collaborative problem-solving, and participatory learning through locally grounded, transformative educational practices (Hoang Tri et al., 2019). In this context, residents engage in dialogue, share intergenerational knowledge, and co-develop adaptive responses to environmental challenges—all of which mirror the competencies emphasized in the island curriculum developed in this study. This alignment reinforces the validity of the proposed competency framework and

suggests that the island curriculum, while grounded in the Korean context, possesses broader relevance for island and coastal communities seeking sustainable development through education. By embedding these core competencies into structured learning experiences, the curriculum equips future island experts not only to understand island systems but also to lead transformative actions within them.

Fourth, the content structure of the island curriculum is organized into five strands: 'Understanding Island Ecology,' 'Island Life,' 'Island Sustainability,' 'Island Leadership,' and 'Island Expert Practice,' with a total of 90 hours. 'Understanding Island Ecology' is designed to foster a sense of place and island sensitivity based on an understanding of the island's ecological environment, while 'Island Life' provides an understanding of the island's unique lifestyle and culture. The 'Island Sustainability' recognizes the need for environmental, social, and economic sustainability of islands, and the 'Island Leadership' and 'Island Expert Practice' allow students to explore various problematic situations encountered in the field as island professionals and seek solutions. We have presented the subjects to be studied in each strand and the core content elements for each subject. However, there are limitations in that the study did not include the pilot application process of the curriculum or the development of actual textbooks. Follow-up studies on these processes may be required in the future.

This study contributes to the growing discourse on place-based and sustainability-oriented education by presenting a context-specific island curriculum that reflects the ecological, cultural, and social realities of island communities. By identifying key competencies and structured content tailored to island conditions, the curriculum offers a framework that can inform both educational practice and policy design. While the curriculum is systematically developed and aligned with national initiatives such as the Environmental Educator Certification Program (Level 3), its practical effectiveness has yet to be tested through pilot implementation. The limited range of stakeholders involved in the consultation process may also affect the curriculum's broader applicability. Findings from a recent study in coastal Palawan, Philippines, highlight the importance of aligning instructional methods with learners' media preferences and technological familiarity, suggesting that curriculum implementation in island contexts must be both pedagogically and contextually responsive (Castillo et al., 2023). Nevertheless, the proposed curriculum holds strong potential for integration into local lifelong learning programs, educator training institutions, and regional development strategies. Future research should focus on evaluating its educational outcomes, refining implementation pathways, and enhancing policy alignment to support the sustainable development of island regions through education.

Ultimately, we argue that islands should be reimagined in education not as peripheral spaces, but as vital sites of ecological insight, cultural continuity, and experiential learning places where sustainability education can find its most urgent and authentic expression.

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