



INTEGRATING CULTURAL CREATIVITY AND INDUSTRY COURSES INTO SUSTAINABILITY PRACTICE

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Abstract

This study explored how cultural creativity courses can enhance university students' awareness of sustainability issues and inform the design of sustainable development practices aligned with local cultural values. A total of 75 university students participated in an 18-week general education course, with 50 valid responses analyzed through a mixed-methods approach. Quantitative data were collected via a semi-structured questionnaire, while qualitative data included reflections and interviews analyzed using thematic analysis.

The findings reveal that students developed significant insights into environmental, economic, and social sustainability dimensions through experiential activities, such as field visits and creative product designs. These results align with prior research on experiential learning, highlighting the importance of integrating cultural creativity into sustainability education. However, this study contributes a novel framework by demonstrating how localized, hands-on courses can foster community engagement and sustainable practices. This research provides implications for designing university curricula that address sustainability while preserving local cultural heritage. This study has addressed a gap in sustainability education literature by integrating cultural creativity and experiential learning. The creative outputs, such as cultural products designed by the students, reflected the integration of sustainability practices with local cultural heritage.

Keywords: action research, cultural and creative industries, social practice, sustainable development goals (SDGs), university social responsibility (USR)

Introduction

The term "Cultural and Creative Industry" is officially designated in Taiwan and differs from similar concepts in other countries. It is a combination of "Cultural Industries" and "Creative Industries." The Executive Yuan first defined this term in May 2002 as part of the sub-project "Development of Cultural and Creative Industries" under the "Challenge 2008: National Development Priority Plan." In January 2010, the Legislative Yuan passed the Cultural and Creative Industry Development Act. The Act's first article states: "This Act is formulated to promote the development of cultural and creative industries, construct a social environment rich in cultural and creative content, apply technology and innovation in research and development, foster talent cultivation in cultural and creative industries, and actively develop domestic and international markets. "The Ministry of Economic Affairs defines cultural and creative industries as industries that originate from creativity or cultural accumulation, create intellectual property, and have the potential to generate wealth and employment opportunities, thereby enhancing the overall living environment. Consequently, many universities in Taiwan have established courses related to cultural and creative industries to cultivate relevant talents and promote values such as enhancing the living environment.

Building upon this context, sustainability education has emerged as a critical approach to addressing global challenges, fostering environmental, economic, and social responsibility

among students. Prior research, such as Chang and Hsu (2010), emphasizes the importance of experiential learning in promoting sustainability awareness. However, limited studies have explored the integration of cultural creativity into sustainability education to address local community issues, highlighting a gap in the existing literature.

Since 2022, the university involved in this study has participated in the National Science and Technology Council's "Humanity Innovation and Social Practice" project. This initiative integrates cultural and creative industry courses with university social responsibility (USR) practices to address local community issues. These courses emphasize applying creative thinking to real-world problems, transforming cultural and creative industries into actionable university social responsibility practices.

This study seeks to address this gap by exploring how cultural creativity courses can enhance students' understanding of sustainability issues and foster the design of sustainable development practices that align with local cultural values. The research contributes to sustainability education by providing a localized, hands-on framework that integrates cultural creativity with community engagement.

This study involved 75 university students enrolled in the general education course "Cultural Creativity and Industry," with 50 valid responses analyzed. The students who visited Haomei Village in Budai Township, Chiayi County, participated in community environmental sustainability action experiences to understand their awareness of community environmental issues.

Accordingly, the aim of this study was to explore how cultural creativity can enhance students' understanding of community sustainability issues and foster the design of sustainable development practices that align with local cultural values.

Research Focus

In recent years, the National Science and Technology Council in Taiwan proposed the "Humanity Innovation and Social Practice" project to emphasize the importance of rooting research in local contexts. This initiative asserts that "research in the humanities and social sciences must be rooted in local contexts with adequate resources and manpower, emphasizing social participation" (Hsieh, 2014). Similarly, the Ministry of Education's "University Social Responsibility (USR)" program encourages universities to engage systematically with local communities, identify critical issues, and offer practical solutions. Together, these initiatives have driven university courses to evolve into action-oriented programs focusing on sustainable development.

Literature Review

The Significance of the University General Education Course "Cultural Creativity and Industry"

The term "Cultural and Creative Industries" was first proposed in Taiwan, referring to industries that combine culture and creativity, with cultural uniqueness as the central core. These industries create value through content (including cultural accumulation and creativity), generating economic value (including emotional recognition, and enhancing the quality of life) (Cheng et al., 2009). The concept of cultural industries has been practiced abroad for many years, with its origins tracing back to the 1940s in sociology under the term "culture industry." Each sector and product of the culture industry was designed for mass consumption, produced according to plan, and to a considerable extent, determined the nature of consumption. Contemporary technological capabilities, along with economic and managerial centralization,

have allowed this system to be seamlessly integrated, top-down, with its consumers (Chu, 2000), further exploring the concept of culture industries. Creative industries have been discussed as those based on creativity closely related to everyday life, encompassing culture, art, and entertainment with leisure value (Caves, 2000). According to Caves (2000), seven fundamental characteristics define creative industries: demand uncertainty, the importance of creative workers' commitment to their work, the need for diverse skills in creative products, product differentiation, vertically segmented skills, time sensitivity, and the durability of products and rents. Following the passage of the "Cultural and Creative Industry Development Act" in Taiwan in 2010, efforts have been made to actively cultivate relevant talents. However, definitions of cultural and creative industry professionals and talent vary among countries and scholars (Lee & Lin, 2011). In its 2009 *UNESCO Framework for Cultural Statistics*, UNESCO further defined cultural work as encompassing creativity and artistic production, including the following: (1) the creation, development, preservation, or reflection of cultural and spiritual meanings or symbols; (2) the creation, production, and dissemination of cultural products and services protected by intellectual property rights; and (3) artistic expressions such as visual arts, music, writing, dance, or theatrical arts.

From the above, it is clear that the definition of cultural and creative industries is broad. Hence, Article 11, Section 2 of Taiwan's Cultural and Creative Industry Development Act explicitly states: "The government may assist local governments, universities, and cultural and creative enterprises in enriching cultural and creative talent, encourage the establishment of cultural and creative industry-related facilities, offer relevant courses, or conduct creative development, experimentation, creation, and performance." As a result, Taiwanese universities have actively offered relevant courses as part of higher education. As of June 2024, a total of 42 universities have offered 151 courses related to cultural and creative industries in the 2023-2024 academic year, highlighting the importance of cultural and creative industries in Taiwan's higher education.

*Integrating "Social Practice" of "Environmental Imagery" into the
"Cultural Creativity and Industry" Course*

Next, the discussion on the formation of environmental imagery can be traced back to the 1970s with the introduction of "Behavioral Geography." This field is generally divided into two main parts: environmental perception and spatial behavior. Environmental perception focuses on the study of imagery, particularly how individuals imagine various elements within their environment, while spatial behavior emphasizes the actions that arise after the formation of these images (Lin, 1998). "Environmental perception" is closely related to the human-environment relationship, being an inseparable part of this relationship system (Chang, 1977). Perception is a more realistic and comprehensive description of human reactions to the environment, leading to the establishment of a framework for environmental perception and behavior. This framework specifically illustrates how the real world provides the necessary information for decision-making through sensory reception, filtered through value systems, which then forms environmental imagery, shaping the decision-making and behavioral processes (Downs, 1970). Based on the relationship between environment and behavior, the environment can be divided into four nested parts: the geographical environment, the operational environment, the perceptual environment, and the behavioral environment (Sonnenfeld, 1972).

However, the formation of environmental imagery through perception influences decision-making behavior. Social practice theory examines social phenomena by observing them, re-evaluating the relationships and reasons for changes between these phenomena, and thus reinterpreting social change in an innovative way (Elizabeth et al., 2012). Social innovation, in this context, is more specifically defined as actions taken by social actors in response to

common needs and the desire to solve problems, aiming to change social relationships, alter the logic of actions, or propose new ways of defining and addressing problems (Bouchard, 2013). Therefore, when university students form an environmental imagery of a place, they can, through learning in the Cultural Creativity and Industry course, observe the phenomena and issues within local communities and propose innovative ideas and solutions. This process helps achieve the goal of social practice in local communities as part of the university's mission.

Strategies for Constructing "Sustainable Development" through "Cultural Creativity and Industry"

In 2016, the United Nations proposed the Sustainable Development Goals (SDGs), which define sustainable development through three main elements: environment, economy, and society. The intersection of these three areas represents what is "bearable," "viable," and "equitable," with the core intersection being "sustainable development" itself (United Nations, 2014). The SDGs comprise 17 goals and 169 specific targets. Among them, SDGs 11, "Sustainable Cities and Communities," emphasizes that urban and rural areas should have positively interconnected planning and development in economic, social, and environmental aspects. Education for sustainable development brings a new impetus to learning, empowering students to develop and evaluate a sustainable future and work collaboratively towards this goal (Chang & Hsu, 2010). When education integrates the United Nations' sustainable development agenda, it encourages students to think critically about related issues within the context of the SDGs, further fostering their ideas and viewpoints while developing critical thinking and analytical skills. Therefore, education becomes a crucial element in sustainable development (Lee, 2023). Through education, students can learn to respect social and cultural diversity and understand issues related to the Earth's environment (Carnoy & Castells, 2001). University students can explore and plan for various issues within local communities. Similarly, the Cultural Creativity and Industry course primarily cultivates students' creative thinking abilities, helping local communities find solutions to their issues, thereby implementing sustainable development.

Research Framework

Building upon the reviewed literature, this study addresses a key gap in understanding how cultural creativity can effectively integrate sustainability into community practices. While previous research has emphasized the importance of cultural and creative industries in enhancing the living environment, few studies have explored how these principles can be applied to improve community sustainability through university courses.

The aim of this research was to examine how cultural and creative industry courses could be integrated into university social responsibility practices and applied to address local community issues. This study involved 75 university students, with 50 valid responses analyzed, to assess students' awareness of community sustainability issues and their ability to design sustainable practices aligned with local cultural values.

Research Questions:

1. How can cultural creativity enhance students' awareness of community sustainability issues?
2. What sustainable development practices can be designed to align with local cultural values?

Research Methodology

Background

This study utilized action research, integrating practical engagement with systematic inquiry (Tsai, 2000). Kemmis (1988) described action research as part of the "reconceptualization of educational research," highlighting the active role of practitioners in problem identification, methodological exploration, and knowledge generation. Elliott (1991) emphasized the key distinctions between action research and traditional research, particularly the difference between internal and external values in practice. Internal values focus on individual growth and learning, whereas external values evaluate whether objectives are achieved.

The action research in this study involved two phases, designed to guide university students in exploring "internal practice values" related to local culture and environmental ecology. The first phase, conducted from February to March 2024, focused on foundational coursework in cultural creativity, equipping students with the knowledge and skills necessary to understand and engage with cultural and environmental themes. The second phase, carried out from April to June 2024, emphasized the development of environmental imagery, which students used as a foundation for creating innovative products that reflect local culture and sustainability principles. This framework, implemented during the 18-week course in the spring semester of 2024, not only fostered individual growth but also promoted community-based outcomes through cultural and creative educational practices.

Design

The primary teaching objective of the "Cultural Creativity and Industry" course is to train students in using local cultural resources and design elements, applying "biomimicry" principles to discover local characteristics, create value, and develop product design skills. The course addresses the gap in practical case integration in general education, using environmental issues as a core theme, combined with hands-on teaching to connect academic knowledge with community needs:

1. Step One: Establishing Course Framework

The 18-week course dedicates 4 weeks to field visits in Haomei Village, where students identify unique community features and propose cultural product designs focusing on sustainability. The course framework is visually illustrated in Figure 1, which details the structure of the course, including theoretical foundations, group reflections, research methods, local issue analysis, community visits, and creative design proposals. This visual representation helps demonstrate the logical flow from theoretical learning to hands-on practice, culminating in feedback and reflection activities that enhance students' understanding of local cultural and sustainability issues.

2. Step Two: Securing University Support

Funding from university projects supported transportation, meals, activities, and the hiring of a teaching assistant, ensuring off-campus visits were feasible.

3. Step Three: Planning Environmental Imagery

Initial analysis of Haomei Village included literature collection, on-site observations, and community input. Teaching focused on 12 key themes of environmental imagery, where students engaged in community visits and sustainability actions. Interviews with residents enriched students' understanding of the village's culture, ecology, and sustainability challenges.

An environmental imagery preference questionnaire was also administered, with responses summarized in Table 1, which helped deepen their understanding and enhance their capacity to design products that reflect local characteristics.

Figure 1
Course Structure Diagram

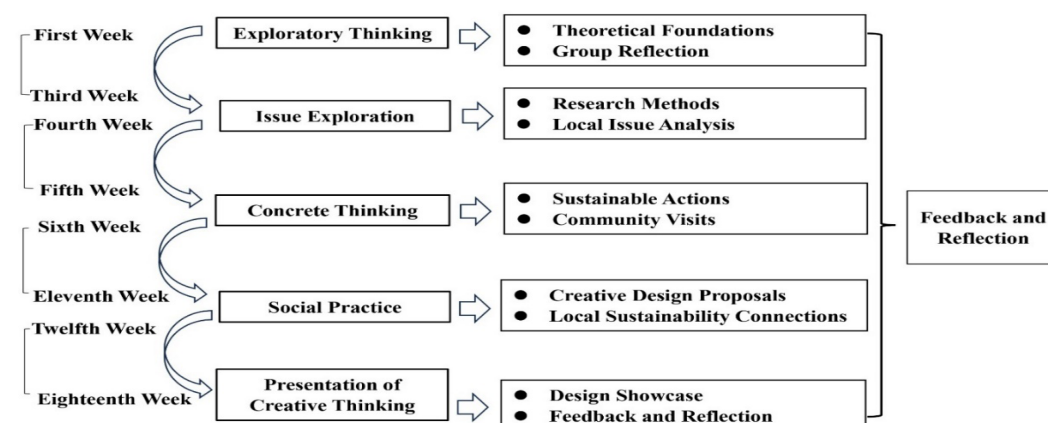


Table 1
Haomei Village Environmental Imagery in Course Planning

Environmental Imagery	Characteristics and Origins of the Imagery	Potential Informants
Wanckan Tai-seng Temple	Community Religious Center, a Temple Dedicated to Matsu.	Temple Administrator
Matsu Statue from the Ming Dynasty	The Oldest Existing Matsu Statue in Taiwan, Enshrined at Tai-seng Temple.	Temple Administrator
Gak-tau Temples	Community Temple Branches, with a Total of Four Gak-tau Temples	Temple Administrator
Wu-Ying Army	The Wu-Ying Army are the Protectors of the Village. Due to Haomei Village's proximity to the sea, they are shaped like tall towers.	Temple Administrator
3D painted murals	In 2015, it became Taiwan's first 3D painted fishing village, with the murals created by artist Tseng Jin-Cheng.	Haomei Boat House (Haomei Agriculture and Fishery)
Jia-Hao Ecological Park	The windbreak forest within the community is a collaborative site between National Chiayi University and the Haomei Village community.	Local Residents
Abandoned Salt Fields	Once an important industry during the Japanese colonial period, the site is now abandoned.	Local Residents
Fish Ponds	One of the main industries in the community, focused on the aquaculture of clams, white shrimp, and milkfish.	Local Residents
Oyster Industry	One of the community's industries includes oyster farming, shucking oysters, collecting oyster shells, and making oyster fritters.	Local Residents

Environmental Imagery	Characteristics and Origins of the Imagery	Potential Informants
Egg Chicken Farms	One of the community's industries, with chicken farms primarily focused on egg production.	Chairperson of Haomei Village Community Development Association
1920 Haomei Bao'an Forest	The Haomei Village windbreak forest, is renowned for its ecological engineering methods, including trenching and dike construction.	Local Residents
Haomeiliao Nature Reserve	The coastal sandy terrain of Haomei Village once saw its beach eroded away. Local residents restored the beach area by using sand-blocking fences. This location is also a popular spot for taking "Mirror of the Sky" photos, favored by social media influencers.	Haomei Boat House (Haomei Agriculture and Fishery). Local Residents

4. Step Four: Constructing Community Imagery

Using SPSS, students analyzed data from the environmental imagery questionnaire, which helped shape a unique community imagery for Haomei Village.

5. Step Five: Linking Products to Sustainability

In line with the United Nations Sustainable Development Goals (SDGs), particularly SDG 11 on sustainable cities, this step ensured that student-designed cultural products aligned with Haomei's sustainability themes. After the visits, students completed a questionnaire with items related to environmental, economic, and social aspects of sustainability (see Table 2). The SPSS analysis identified students' perspectives on local sustainability, showing their preference for integrating sustainable practices into cultural product design. Table 2 presents a summary of the students' responses, highlighting their thoughts on how cultural creativity can contribute to the sustainability of Haomei Village.

Table 2
Sustainable Development Items for Haomei Village

Sustainability Dimension	Questionnaire Items	Problem Awareness
Environment	The natural scenery of Haomei Village is beautiful and unique.	The area has a national-level wetland and abundant natural ecology.
	The cultural landscape of Haomei Village is rich in history and distinct.	The area has a 400-year history of cultural heritage.
Economy	The level of commercialization in Haomei Village is low.	The area's original industrial and economic activities.
	There are few tourists in Haomei Village, resulting in a low level of crowding.	The economic status of the tourism industry.
Society	The community atmosphere in Haomei Village is warm, friendly, and feels comfortable and relaxing.	The social relationships among community residents.
	Tourism information and public service facilities in Haomei Village are adequate.	The relationship between public agencies and the community.

Participants

This study involved 75 students enrolled in an 18-week general education course titled "Cultural Creativity and Industry," offered at a university in Taiwan. The participants represented diverse academic backgrounds, including the Teachers College, College of Humanities and Arts (28%), College of Life Sciences, College of Agriculture, and College of Science and Engineering. Most participants were sophomores, with representation from other academic years as well.

However, among the 75 participants, data were collected from 50 valid responses (67% response rate), which is lower than initially expected. This smaller-than-expected sample size could potentially affect the generalizability of the findings. Despite this limitation, the data collected provide valuable insights into students' perceptions of sustainability and cultural creativity practices.

The demographic details of the respondents are summarized in Table 3. The majority (64%) were male, aged under 20 (66%), and predominantly first-year students (48%). Furthermore, 76% of the participants visited Haomei Village for the first time. The research was conducted in Haomei Village, Budai Township, Chiayi County, Taiwan, known for its rich cultural heritage and natural attractions, such as Tai-seng Temple and the NO.1920 Haomei Bao'an Forest.

Ethical approval for this study was obtained from the Institutional Review Board (IRB) of National Chiayi University. All participants provided informed consent prior to the study, ensuring voluntary participation, anonymity, and confidentiality of the data collected.

Table 3
Table of Personal Attributes Data

Respondents' Basic Information		Sample (people)	Percentage (%)
Gender	Male	32	64
	Female	18	36
Age	Under 20 years old	33	66
	21-30 years old	17	34
Department/College	teachers College	14	28
	College of Humanities and Arts	14	28
	College of Science and Engineering	7	14
	College of Agriculture	9	18
	College of Life Sciences	6	12
Grade	First-year student	24	48
	Second-year student	14	28
	Third-year student	3	6
	Fourth/final-year student	8	16
	Other	1	2
Place of Residence	Northern Taiwan	11	22
	Central Taiwan	18	36
	Southern Taiwan	20	40
	Other	1	2
Have you visited Haomei Village before?	Yes	12	24
	No	38	76

Instrument and Procedures

This study employed a combination of quantitative and qualitative methods to comprehensively assess the sustainability practices integrated into the cultural creativity and industry courses.

To collect quantitative data, a semi-structured questionnaire was designed to assess students' perceptions of environmental imagery and the three pillars of sustainability—environmental, economic, and social. The questionnaire included 18 items rated on a 5-point Likert scale. Its reliability was confirmed with Cronbach's alpha values ranging from .70 to .98. Expert validity was evaluated by three university professors specializing in environmental education, cultural studies, and sustainable development, who reviewed the questionnaire for relevance, clarity, and coverage. This process resulted in a content validity index (CVI) of .88. After the experiential activities, the questionnaire was administered online to 75 participants, resulting in 50 valid responses, representing a response rate of 67%.

Qualitative data were collected through 300-word student reflections and 30-minute group interviews. Reflections were analyzed via open coding to gain insights into students' creative processes and sustainability integration.

Data Analysis

Quantitative data were analyzed using descriptive statistics in SPSS to summarize participants' responses and identify trends related to environmental imagery and the three pillars of sustainability (environmental, economic, and social). This approach was chosen to provide a clear overview of central tendencies (e.g., means, medians) and variability (e.g., standard deviations) in the data, enabling an understanding of general patterns in students' perceptions. Initially, 75 students were invited to participate in the study; however, only 50 valid responses were collected, yielding a response rate of 67%. This smaller-than-expected sample size may influence the generalizability of the findings. Despite this limitation, the data collected still provide valuable insights into students' perceptions of sustainability and cultural creativity.

Qualitative data, including reflections, interviews, and observational notes, were analyzed using thematic analysis, following the six-step framework outlined by Braun and Clarke (2006). This method was chosen for its flexibility and ability to capture nuanced patterns of meaning in participants' experiences.

The thematic analysis involved the following steps:

1. Data Familiarization: All qualitative data were read multiple times to gain a comprehensive understanding.
2. Generating Initial Codes: Data were systematically coded to identify meaningful segments and recurring patterns.
3. Searching for Themes: Codes were grouped into overarching themes such as "cultural awareness," "environmental responsibility," and "design innovation."
4. Reviewing Themes: Themes were refined to ensure alignment with the research objectives and accurately represent the data.
5. Defining and Naming Themes: Clear definitions were assigned to each theme to ensure consistency.
6. Writing Up: Themes were synthesized into a cohesive narrative to provide actionable insights.

The choice of thematic analysis over content analysis was based on the study's exploratory nature, which aimed to understand the depth and complexity of students' reflections and their engagement with sustainability principles.

Research Results

Quantitative Findings: Perceptions of Community Environmental Imagery

The quantitative analysis explored students' perceptions of sustainability, including environmental, social, and economic dimensions. The results provided insights into their understanding of community environmental imagery and its alignment with sustainability principles.

The analysis results of the collected questionnaires are presented in Table 4. It was found that after the students' visits and experiential activities, the most preferred environmental imagery of Haomei Village was the "1920 Haomei Bao'an Forest." In addition to the visits, the course also arranged for students to participate in a hands-on sustainability activity involving sand-blocking fences at the Haomeiliao National Wetland. Due to this practical experience, the "Haomeiliao Nature Reserve" ranked second in environmental imagery preference. Additionally, Haomei Village gained significant popularity in 2015 as Taiwan's first 3D painted fishing village, quickly becoming a hot tourist spot. As a result, the "3D Painted Fishing Village" imagery ranked third and left a strong impression on the students. However, the students were less responsive to local industries such as fish ponds, egg chicken farming, and salt production, resulting in weaker industrial environmental imagery.

From the construction of Haomei Village's environmental imagery, it is evident that students were more focused on issues related to the natural environment and ecology. This preference aligns with the concept of environmental sustainability, which is one of the three dimensions of sustainable development. The following sections will analyze the sustainability dimension of the questionnaire, student reflections, and the creative thinking behind cultural and creative products to explore students' comprehensive views on sustainable development.

Table 4
Environmental Imagery Preference Analysis

Environmental Imagery	<i>M</i>	<i>SD</i>	Rank	Overall <i>M</i>
Wanckan Tai-seng Temple	4.02	0.50	5	3.92
Matsu Statue from the Ming Dynasty	4.04	0.42	4	
Gak-tau Temples	3.74	0.60	9	
Wu-Ying Army	3.70	0.55	10	
3D painted murals	4.10	0.33	3	
Jia-Hao Ecological Park	3.90	0.45	7	
Abandoned Salt Fields	3.62	0.70	11	
Fish Ponds	3.84	0.52	8	
Oyster Industry	3.92	0.48	6	
Egg Chicken Farms	3.40	0.80	12	
1920 Haomei Bao'an Forest	4.40	0.30	1	
Haomeiliao Nature Reserve	4.34	0.25	2	

Qualitative Insights: Integrating Sustainable Development into Cultural Creativity

The qualitative findings revealed themes such as cultural awareness, environmental responsibility, and creative innovation. These insights highlighted how the Cultural Creativity and Industry course fostered the integration of sustainable development into practical community-based learning.

This learning process is both authentic and meaningful, providing a robust teaching experience. To clarify students' thoughts on sustainable development, this study utilized various sources, including student questionnaires completed after visits, student reflections, group project design concepts, and design interviews. The results are summarized as follows:

1. *The Implementation of the "Environmental Sustainability" Dimension in the Cultural Creativity and Industry Course*

Based on the results of the questionnaires completed after the visits, the items related to environmental sustainability were divided into natural environment and cultural landscape categories. The average scores for these items are shown in Table 5. The data indicate that students had a stronger impression of the natural environment, which aligns with their preference for the natural environmental imagery of Haomei Village, as mentioned earlier. In their reflections after visiting the community, students expressed a deeper appreciation for the local natural environment and environmental sustainability actions. After open coding the students' reflections, key terms related to environmental sustainability and the natural environment were identified and summarized as follows:

For me, the most distinctive feature of Haomei Village is the windbreak forest. Whether it's the Haomei Bao'an Forest that connects to the beach or the small windbreak forest outside the activity center, I feel that it not only represents the effort everyone has put into environmental restoration but also symbolizes the deep connection between the local residents and the land. (S-3-601)

My favorite part of Haomei Village was the beach and the windbreak forest area we visited that day. Although the weather was extremely hot, walking in the shaded windbreak forest felt like a different experience altogether. It gave me a sense of mystery and beauty, and as I watched the swaying branches and leaves, I felt my mood relax as well. (S-2-203)

Haomei Village Beach is the result of the relentless efforts of the local residents, who painstakingly erected sand fences and planted sand-fixing vegetation to create what is now the 'Mirror of the Sky.' The residents, driven by the need to protect clams from sand intrusion, environmental conservation, and the preservation of this beautiful landscape, have collectively fostered the concept of sustainable development. (S-5-401)

I really liked the beach at Haomei Village. The sand there is so fine that even if it gets into your shoes, you hardly notice it. Additionally, the planting of beach morning glory and the beach cleanup efforts show how much care has been put into preserving this beach. (S-2-301)

Table 5
Students' Impressions and Perceptions of Environmental Sustainability in Haomei Village

Questionnaire Item	<i>M</i>	<i>SD</i>
The natural scenery of Haomei Village is beautiful and unique.	4.14	0.50
The cultural landscape of Haomei Village is rich in history and distinct.	3.84	0.55


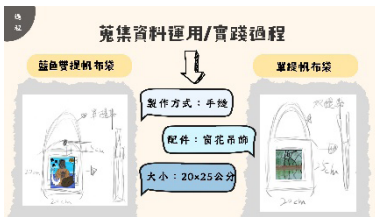
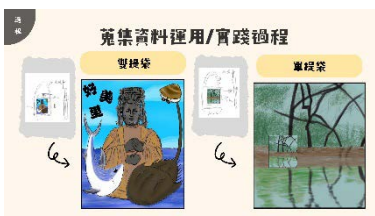
Certainly, some students preferred the cultural and historical aspects more. Since students came from different academic disciplines, their perceptions of the environment varied. The key terms related to culture and history were identified and summarized as follows:

The cultural and historical landscape of this place is also very captivating to me. Many of the towers here, which I had never seen before, serve as landmarks, each dedicated to different deities. These are the faith stories unique to the local people. There are also many temples, which highlights the importance of religion to the fishing village residents, who have long relied on the sea for their livelihood. (S-5-302)

Through the visit, I gained a deeper understanding of Haomei Village's temple culture and its many painted landmarks. The elevated Five Camps (Wu-ying army) associated with the local temples were particularly intriguing. During the visit to Taiseng Temple, I was surprised to find that, in addition to enshrining the Ming Dynasty Matsu, the temple also worships other deities, highlighting the uniqueness and long history of Tai-seng Temple. (S-3-204)

The results of this course study indicate that students had a profound experience in the visited areas, which also provided them with opportunities to explore local issues and generate creative inspiration. The explanations of each group's creative concepts (as shown in Table 6) reveal how students addressed their concerns about environmental sustainability by producing practical works.

Table 6
Explanation of Students' Group Cultural and Creative Products and Environmental Sustainability Concepts

Physical Presentation of Cultural and Creative Products and Design Process	Explanation of Creative Concept
 <p>Design Process</p>  	<ol style="list-style-type: none"> Production Theme: Wanckan Mazu Blessing Canvas Bag Design Concept: The Wanckan Tai-seng Temple Mazu, the aquaculture industry, and the Casuarina windbreak forest are significant local features and cultural symbols of Haomei Village. These elements embody the essence of the community, allowing visitors to leave with a lasting impression of Haomei Village. Sustainable Development Goal 12: The focus on responsible consumption and production is reflected in the choice of materials for this product, which are made from recycled waste, thereby contributing to environmental sustainability.

Physical Presentation of Cultural and Creative Products and Design Process**Explanation of Creative Concept****Design Process**

1. **Production Theme:**
Haomei Village Landscape Feature Calendar
2. **Design Concept:**
To promote the unique characteristics of Haomei Village, a calendar with continuous imagery was chosen as the product. This allows visitors to gain a deeper understanding of Haomei Village while preserving fond memories.
3. **Sustainable Development Goal 11:**
Sustainable Cities and Communities: By creating and sharing this cultural and creative product, the aim is to enhance the connection between urban, suburban, and rural areas, especially in lesser-known regions like Haomei Village.

2. *The Implementation of the "Economic Sustainability" Dimension in the Cultural Creativity and Industry Course*

Regarding the aspect of economic sustainability, it was the part that left the most profound impression on the students. Haomei Village, located on the southwestern coast of Chiayi County, is considered a rural area within the county, resulting in a relatively low level of economic prosperity. This observation is also reflected in the students' questionnaire results (as shown in Table 7), where they noted that Haomei Village has a low number of tourists and a low degree of commercialization. After visiting the community, students' reflections revealed an even deeper awareness of the local economic sustainability issues. The analysis of the students' reflections, following open coding, highlighted key points related to economic sustainability, which are summarized as follows:

I noticed that many open spaces in Haomei Village tend to become breeding grounds for litter and disorder, and there is a lack of businesses between points of interest that would encourage tourists to stop and stay longer. (S-3-315)

The most distinctive feature I discovered in Haomei Village is the development of the primary industry. Through the local people's introduction, I learned that the fish ponds are divided into three layers: the top layer for heat-sensitive milkfish, the middle layer for shrimp, and the bottom layer for heat-sensitive clams. I believe that aquaculture in these fish ponds is the most unique aspect of Haomei Village. (S-3-418)

I think the community should improve certain aspects of its living amenities, such as building a PX Mart or convenience store, which would bring more convenience to both tourists and residents. Otherwise, you have to go far just to buy a drink. If the living amenities are improved, along with some events organized by the local residents, it might attract more people to visit. (S-4-612)

Table 7
Students' Impressions and Perceptions of Economic Sustainability in Haomei Village

Questionnaire Item	<i>M</i>	<i>SD</i>
The level of commercialization in Haomei Village is low.	4.24	0.60
There are few tourists in Haomei Village, resulting in a low level of crowding.	4.54	0.50

Additionally, students suggested that to stimulate local tourism and economic development, it would be beneficial to incorporate guided tours and in-depth travel experiences, or to integrate technology, making the experience more meaningful and engaging. The summarized research findings are as follows:

Currently, I think what Haomei Village needs to improve is its marketing and promotion. Before visiting, I had almost never heard of this community. I believe there is a need for local guides to introduce the area, including the beach and beautiful scenery. Without a local person to point the way, visitors might not even notice these attractions, which I think is a missed opportunity for tourism. (S-5-510)


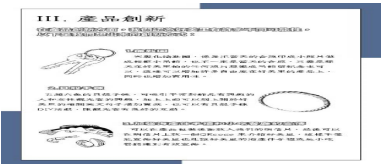


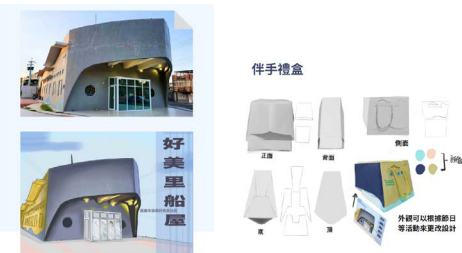
During the visit to the 1920 Haomei Bao'an Forest, I encountered other casual visitors who complained that the windbreak forest was boring, which highlighted the importance of having a guide. (S-3-217)

Haomei Village needs a systematic attraction (such as orienteering activities or city exploration challenges) to draw in outside tourists. If the number of tourists increases, it could boost local businesses (like the growth of snack shops), which in turn might attract young people to return to their hometown and start businesses. (S-3-215)

The research results indicate that students had a strong impression of the community's economic activities, particularly their concern for the tourism industry in rural areas. Since the tourism industry can be integrated with cultural and creative industries, students naturally focused on the intersection of this issue with their creative concepts. In this regard, some groups' creative concepts in their learning outcomes reflect their thoughts on economic sustainability. The design concept explanations for these cultural and creative products are presented in Table 8.

Table 8

Explanation of Students' Group Cultural and Creative Products and Economic Sustainability Concepts

Physical Presentation of Cultural and Creative Products and Design Process	Explanation of Creative Concept
	<ol style="list-style-type: none"> Production Theme: Infinite Possibilities of Haomei Design Concept: The postcard design integrates the local oyster farming industry and includes an interactive experience. By scanning the QR code on the postcard, users can view 3D interactive animations, related videos, or narrated stories about the location on their smartphones. Sustainable Development Goal 8: Decent Work and Economic Growth: The innovative use of technology in tourism and the sustainable development of local industries contribute to promoting a beneficial and sustainable tourism industry.
<p>Design Process</p>  	<ol style="list-style-type: none"> Production Theme: Haomei Boat House Gift Box Design Concept: Inspired by the appearance of the Haomei Boat House, the design is based on the "Fujian Ship" used by Yan Siqi, who led settlers to Taiwan in 1621. The gift box is designed as a cardboard box, with a focus on environmental friendliness and practicality. Sustainable Development Goal 12: Responsible Consumption and Production: The design promotes sustainable tourism by emphasizing local culture and products through eco-friendly packaging.
<p>Design Process</p>  	

3. *The Implementation of the "Social Sustainability" Dimension in the Cultural Creativity and Industry Course*

Students' experiences during their visits to the community, particularly in relation to social sustainability, were analyzed through questionnaire results (as shown in Table 9). The findings indicate that students generally felt comfortable in the community and perceived it as warm and welcoming. During the community visits, students also reported interactions with local residents, which were reflected in their reflections. After open coding, the key points related to social sustainability were identified and summarized as follows:

The part I liked most about Haomei Village was the warmth of the local people. During our group activity, we took a wrong turn and found ourselves getting farther from our destination, with the surroundings becoming increasingly desolate. We asked an elderly man for directions, and after answering, he could have just walked away. Instead, he turned back to tell us where the others were. This kind of scene can only be seen in a simple and honest seaside fishing village like this one! (S-3-621)

The residents of Haomei Village were also very friendly and warm. The village chief even treated us to drinks. We also got to try oyster fritters and stir-fried clams. Originally, it was supposed to be clam soup, but the auntie was concerned that the hot soup would make us feel even hotter in the warm weather, so she prepared stir-fried clams instead. This thoughtful gesture made me feel the strong sense of community and warmth. (S-4-826)

Additionally, Table 9 shows that students generally felt that the public facilities and tourism information provided by government agencies were insufficient. This sentiment was also reflected in the analysis of students' reflections. The research findings are summarized as follows:

I think the transportation needs improvement. Although Haomei Village doesn't have many residents, I noticed that some of the roads are not wide enough to accommodate tour buses side by side. Additionally, there doesn't seem to be a parking lot for visitors. This is quite unfortunate because it forces tourists to park temporarily in front of local residents' homes, which not only disrupts the residents' daily lives but also poses a safety risk for pedestrians. (S-1-223)

I really like the atmosphere in Haomei Village. The residents are very friendly, and it made me feel comfortable and at ease. However, there are some areas that need improvement. The walking paths on the beach are uneven, which might be difficult for some visitors. I suggest adding ladders or ropes. Additionally, more bus stops or informational signage could be installed to improve transportation. (S-2-228)






Table 9
Students' Impressions and Perceptions of Social Sustainability in Haomei Village

Questionnaire Item	<i>M</i>	<i>SD</i>
The community atmosphere in Haomei Village is warm, friendly, and feels comfortable and relaxing.	4.17	0.58
Tourism information and public service facilities in Haomei Village are adequate.	3.40	0.65

The research results indicate that students also had keen observations regarding the social relationships within the community. Many of the students, having lived in urban areas for most of their lives, felt a deeper connection to the warmth and hospitality of rural areas. In this regard, some groups' creative concepts in their learning outcomes included interviews with local elders, exploring social sustainability issues. The design concept explanations for the

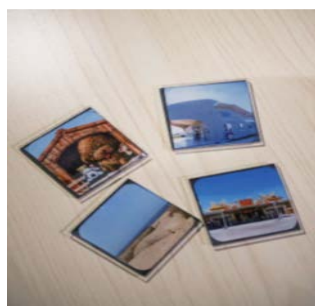
cultural and creative products developed by the students under these considerations are detailed in Table 10.

Table 10
Explanation of Students' Group Cultural and Creative Products and Social Sustainability Concepts

Physical Presentation of Cultural and Creative Products and Design Process	Explanation of Creative Concept
<div></div> <div><p>Design Process</p></div>	<div><p>1. Production Theme: Haomei Village Good Neighbor Cards</p></div> <div><p>2. Design Concept: The card deck consists of 54 cards divided into six major themes. The cards were created by students after interviewing and interacting with elderly residents in Haomei Village. These cultural and creative products aim to foster interaction with the elders and provide positive energy to the community.</p></div> <div><p>3. Sustainable Development Goal 3: Good Health and Well-being: Elderly resources in rural communities are often limited. Social sustainability requires greater care and interaction to ensure the well-being of these communities.</p></div>

Physical Presentation of Cultural and Creative Products and Design Process

Explanation of Creative Concept



Design Process

二、小組文創小物說明



我們選了五種美麗風景照片，經過可見的物件觀察與照片拍攝，文創小物是冰箱貼。冰箱貼的用途不僅是貼在冰箱上，這些照片能夠將美麗的自然和獨特的文化元素呈現給人們。更重要的是，它能夠喚起人們的記憶和情感。每當人們看到家中牆上的這些風景照片，看到牆上的照片或風景，都會想起和那地方相關的記憶，而這些記憶往往與一段珍貴的時間、一段珍貴的情感、或是那難忘的時刻。這是一個能夠喚起人們美好回憶的物件，而冰箱貼正是具有這種喚起和保存的功能。它們小巧輕便，不佔空間，非常方便攜帶。無論是貼在旅行途中，還是在不同的生活場景中，都可以輕鬆地將它們貼在身邊。它們的保存時間長，即使長時間放置，也不容易褪色或是被時間打壞。長期保存回憶和情感，透過冰箱貼能夠將美好風景和特色記憶力傳遞給更多人。

- Production Theme:** Haomei Memories Fridge Magnets
- Design Concept:** The inspiration comes from the idea of preserving the beautiful scenery, unique culture, and the warmth of Haomei Village's residents as cherished memories through these magnets.
- Sustainable Development Goal 12: Responsible Consumption and Production:** The magnets are designed to promote sustainable tourism by highlighting local culture and products. They are easy to collect and durable, thus embodying sustainability in both form and function.

Discussion

This study aimed to investigate how integrating cultural creativity into sustainability education could enhance university students' awareness and engagement with local community issues. The findings reveal that students gained significant insights into environmental, economic, and social dimensions of sustainability through experiential learning activities, particularly in the context of Haomei Village. These results contribute to the understanding of how localized, hands-on learning approaches can foster sustainability awareness in educational settings.

However, it is important to note that this study involved 75 students initially, but only 50 valid responses were collected, yielding a response rate of 67%. This smaller-than-expected sample size may influence the generalizability of the findings. Despite this limitation, the data collected still provide valuable insights into students' perceptions of sustainability and cultural creativity, which should be considered when interpreting the results.

The results align with prior studies emphasizing the role of experiential learning in promoting sustainability awareness. For example, Chang and Hsu (2010) highlighted that practical engagement fosters deeper understanding and critical thinking about sustainability issues. Similarly, this study demonstrated that students' field visits and cultural product designs significantly shaped their perceptions of local environmental and cultural themes. Students' positive responses to environmental imagery, such as the Haomeiliao Nature Reserve, are consistent with Elizabeth et al. (2012), who emphasized the importance of direct engagement with natural environments in shaping environmental stewardship.

At the same time, this study offers novel insights by demonstrating the integration of cultural creativity into sustainability education. Unlike Carnoy and Castells (2001), who emphasized top-down approaches, this study highlights the value of student-driven initiatives. For instance, the "Wanckan Mazu Blessing Canvas Bag" and "Haomei Village Landscape

Calendar" designed by students illustrate how creative projects can effectively connect local cultural symbols with sustainable practices, thereby addressing both environmental and economic sustainability. These findings expand the existing literature by showcasing how creativity and sustainability can be interwoven to enhance community engagement.

However, this study also revealed challenges that align with broader discussions in the literature. Students noted the limited tourism infrastructure and inadequate public facilities in Haomei Village, which reflect broader issues of balancing development across sustainability dimensions. These observations are consistent with Carnoy and Castells (2001), who argued that achieving sustainable development in rural areas requires addressing economic and social disparities. This highlights the importance of collaborative efforts among universities, local communities, and policymakers to ensure holistic and inclusive sustainability practices.

Overall, the findings provide valuable insights into sustainability education by offering a replicable framework for integrating cultural creativity into university curricula. By connecting theoretical knowledge with practical, community-based activities, this study addresses a gap in sustainability education literature, emphasizing localized and practice-oriented approaches. Future research should focus on assessing the long-term impact of such interventions, exploring their scalability across diverse contexts, and examining community members' perspectives on university-led sustainability initiatives. These efforts will further refine the integration of cultural creativity and sustainability education, ensuring meaningful contributions to academic discourse and community development.

Conclusions and Implications

This study provides a novel framework that integrates cultural creativity into sustainability education, filling a gap in the current literature on experiential learning and sustainability practices. By participating in experiential learning activities, such as field visits and creative product designs, students gained a deeper understanding of community challenges and developed practical solutions to address environmental, social, and economic sustainability dimensions.

The findings have practical implications for designing university courses that address sustainability through localized and culturally relevant approaches. For instance, incorporating hands-on projects that engage students with local communities can foster both individual learning outcomes and collective social impacts. This framework serves as a model for integrating sustainability education into general curricula at higher education institutions, emphasizing the importance of community engagement and cultural awareness.

From an academic perspective, this research highlights the importance of experiential learning, demonstrating its effectiveness in fostering sustainability awareness and community engagement. It highlights the potential of such approaches to bridge the gap between theoretical knowledge and practical application, particularly in the context of community-based sustainability initiatives.

Future research could employ longitudinal case studies to assess the long-term impact of cultural product designs on community sustainability, providing concrete metrics for success. Additionally, studies should explore the scalability of this framework across diverse cultural settings to determine its adaptability and effectiveness in varying contexts. Finally, integrating technological tools, such as virtual reality or digital storytelling, could enhance the learning experience and broaden the reach of sustainability education programs.

Declaration of Interest

The authors declare no competing interest.

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