05 Social responsibility

Major subject of this chapter

GRI 413-2: Local communities

Priority readers

☐ Entrepreneurs

☑ Faculty, staff, and students

☐ Parents

☑ Government agencies

☑ Alumni

☑ Community people/NGO

☐ Suppliers

5.1 Empowering rural education: diverse practices and innovative learning

5.2 Local revitalization assistance: diverse approaches to sustainable development

5.3 Diverse culture inheritance: indigenous culture and local exploration

5.1 Empowering rural education: diverse practices and innovative learning

NCNU deeply recognized the importance of local connection and social responsibility as the only national university in Nantou County. Expanded on-campus care into rural communities. Provided holistic support for schoolchildren in remote area and teachers thru diverse and innovative educational practices to build together an equal and high-quality education environment.

1. Participatory course practice: connected to expertise and local demands

The General Education Center was dedicated to let students to participate in various institutions/organizations, communities, industries, and festival events in Shui Sha Lian area, promoting students' deeply understanding to practical topics. Provided budget and course resources to actively promote social participatory course thru diverse course designs and innovative teaching models for abundant learning opportunities to students in rural schools. This stimulated students' learning interest and motivation. Not only created more future possibilities and opportunities for rural education but also developed students' international outlooks and social participation abilities.

These courses not only helped students to apply theoretical knowledge into real-world situation but also cultivated cultural sensitivity and social responsibility toward rural area. Students understood deeply the challenges and demands of rural education thru practical participation and service to develop innovative solutions.

▼ Traditional Farming and Rituals of the Seediq People

▼ Value of life (I) (Practicum)

Distinctive courses and practical achievements

Course titles	Main content	Participants	Social influence
Social Service Learning (Dept. of Educational Policy and Administration)	Southeast Asian Multicultural Camp at Ai-Lan Primary School	54	Promoted cultural understanding and exchange.
Traditional Farming and Rituals of the Seediq People	Studying tribe's traditional agricultural knowledge and rituals	30	Indigenous cultural preservation and inheritance
Value of Life (I) (Practicum)	On-site health care observation and practice	42	On-site health care observation and practice

▼ Social Service Learning (Dept. of Educational Policy and Administration)

2. Enhanced teaching skills for rural teachers: promoted teaching quality and profession grown

According to Ministry of Education statistics showed, there were 523 substitute teachers in elementary schools and 124 in junior and senior high schools due to the challenges of insufficient qualified teachers, which was far exceeding the national average. Shui Sha Lian Research Center for Humanities Innovation and Social Practice, SSLRC partnered with the Education Support for Taiwan and the Nantou County Government to promote "Unlicensed Substitute Teacher Training Program" to ensure teaching quality thru innovative strategies to promote substitute teachers' teaching skills.

Three strategies of enhancing teaching skills

1. Optimizing education resources

● Recruited senior teachers for training and guidance.
● Built a long-term support mechanism.
● Solved on-site teaching's practical problems

2. Digital training system

● Developed an online courses platform.
● Provided flexible learning approaches.
● Built a resource sharing mechanism.

3. Establishment of talent database

● Created professional teacher profiles.
● Optimized human resource allocation.
● Formed a continuous improvement mechanism.

Actual actions in 2024

NCNU collaborated with Tao-Yuan Primary School, Truku Elementary School, Lu Shan Elementary School, and Xinmin Elementary School by sending 14 mentor teachers paired with 14 unlicensed substitute teachers for training and guidance. Thru online and on-site support integrations, these teachers achieved professional growth rapidly, improved teaching quality then created better learning environments for students. This program was dedicated to build a balanced and quality education system in rural area, providing teachers and students with long-term stable support and growth opportunity.

◤ Nantou Unlicensed Substitute Teachers Support Program in 2024

3. Learning support after classes: Empowering Education Program for Fuxing Community

NCNU's College of Education USR collaborated with Shoufeng Temple in Puli Township based on the core of "Public Private Partnership, PPP" since 2017 to provide accompanying service-learning after classes and assist rural teachers' professional growth in Fuxing community, where it located in suburban area. Children were lack of long-term learning resources after classes. NCNU utilized diverse collaborative mechanisms to create diversified learning opportunities for community children.

Schoolchildren at Fuxing School participated in mix-aged learning activity, demonstrating the achievement of accompanying after class program.

Program development timeline:

● **Beginning of collaboration (from 2017 to 2019):**

Incorporated program resources and service learning courses, established the Fuxing School to build an initial foundational operational model.

● **Stabilized development (from 2020 to 2022):**

Funded by private resources, such as Jin Feng Yuan Co., to expand service scope and depth of content.

● **Sustainable development (from 2023 to present):**

Developed schemes, such as "Hundreds of Industries Lecture" to connect between after class education, life and career development to expand support for rural teachers.

Achievements in 2024:

Students learning

Served constantly 18-20 schoolchildren with accompanying after classes and mix-age learning. Provided activities of homework guidance, reading skills cultivation, and diverse exploration

Enhanced teaching skills

Supported teachers' professional growth across schools in Ren'ai Township and Yuchi Township, particularly relied on Faxiang Elementary School. Utilized co-empowerment workshop to develop course materials, which earned a Local Teaching Material Award in 63th National Primary & High School Science Fair (Life and Applied Sciences Category I).

Social participation

Integrated resources of annual NT$300,000 donation from Jin Feng Yuan Co. and NT$100,000-NT$200,000 from community people to continuously promote the operational model of "Public Private Partnership."

Connection with Sustainable Development Goals (SDGs):

Corresponded to SDG 1.3 (social protection system) and SDG 1.4 (equal rights to economic resources).
Promoted SDG 4 (quality education) and SDG 4.5-4.6 (equal access to all levels of education).

Thru Fuxing School, NCNU not only provided underprivileged schoolchildren with quality after classes learning resources but also provided rural teachers with professional support to practice educational equity and social responsibility. Achieved the core goal of "education empowerment" by expanding learning support after classes from individual students to families and communities.

4. Science and local dialogue: STEAM innovation in rural education

College of Education USR was dedicated to assist local students to know surrounding topics and develop problem-solving abilities. Cultivated active civic with scientific thinking and local perspective by concatenating STEAM learning in Shui Sha Lian area. Thru collaboration with the Affiliated Senior High School of National Chi-Nan University, CNASH, guided students to utilize scientific methods to solve topics, such as local agriculture and disaster prevention based on the core of actual problems.

Program development timeline:

● **Built foundation (from 2020 to 2021):**

> Collaborated with CNASH to develop initial courses scheme, establishing a STEAM local topics-oriented educational model.

● **Deepening the topic (from 2022 to 2023):**

> Guided students to develop social influential scientific topics based on major subjects of local topics

● **Innovation development (from 2024 to present):**

> Launched a STEAM themed camp and a regional high school students learning EXPO to expand scientific educational influence by organizing high school students' community service team.

▼ Students from CNASH exhibited their innovative "Desk With Chair For Disaster Prevention" design, which received the Bronze Medal Award from Taiwan Innotech Expo in 2024.

Achievements in 2024:

Students achievements
Students from CNASH received the Silver Award at University of Tsukuba's Science Edge 2023 with their Automated Apple Snail Removal Device" and "Desk With Chair For Disaster Prevention" received the Bronze Medal Award from Taiwan Innotech Expo in 2024.

Enhanced teaching skills
Established a 10-member faculty social group, conducted five professional trainings per semester, focusing on themed learning, such as robotics, programming, and micro.

Social participation
Collaborated with Department of Computer Science and Information Engineering, provided 20 local students with APCS, actively eliminating the information technology education gap between rural and urban areas.

Connection with Sustainable Development Goals (SDGs):

● Corresponded to SDG4 (quality education) and SDG 4.4 (relevant technical and vocational skills).

● Promoted SDG 4.3 (opportunities for high quality vocational and higher education).

> Cultivated students to apply scientific knowledge to solve local problems thru STEAM educational innovation. This not only injected innovative vitality into rural education but also strengthened their connections with communities, cultivating future civic with "problem-solving" abilities.

5. Global Vision Development: Practicing diverse culture and international education

"Localized internationalization" was the core goal of College of Education USR, which focused on cultivation of international literacies in rural primary and secondary schools thru diverse cultural experiences to develop citizens of global village with global vision. The diverse culture and international education specifically emphasized on creating abundant intercultural learning environment in terms of multicultural integration in Puli Township, which combined cultural resources from immigrant communities, such as Vietnam, Indonesia, and Myanmar.

▼ College of Education USR, the International Cultural Carnival Program, brought multicultural experiences for schoolchildren in Puli Township.

Program development timeline:

● Built "localized internationalization" basic framework by combining the White Paper on International Education 2.0 and the philosophy of SDGs to develop initial planning.

● Launched second foreign language courses (e.g., French), developed Southeast Asian cultural exchange modules, and cultivated teachers' international education literacy at CNASH and Hong Ren Junior High School.

● Held a multicultural market, promoted community participation in international education, and expanded services to more schools in 2024.

Achievements in 2024:

Students participation
held French language courses twice weekly for 13-14 weeks each semester for students from CNASH and Hong Ren Junior High School. Over 760 person/times participated in Southeast Asian cultural exchange activities.

Enhanced teaching skills
Organized international education group for rural teachers to assist schools, such as Nan Feng Elementary School in developing international education courses. 76 person/times participated in international teacher literacy training.

Social participation
Promoted "Mountain City Meets Europe – Children's Cultural Market" and "Latin American Cultural Market." Provided cultural experiences from over ten countries, over 1,000 person/times participated.

Connection with Sustainable Development Goals (SDGs):

● Corresponded to SDG 4.5 (Elimination of education disparities) and SDG 4.7 (Promotion of education for sustainable development).

● Promoted SDG 10.2-10.3 (social inclusion and equal opportunity).

NCNU helped students from rural areas in Puli Township to develop global vision and promoted cultural understanding and mutual respect thru diverse cultural experiences and practice of international education. This program not only broke down barriers to rural students' access to international culture but also created an educational environment that valued diverse culture and international mobility, laying the foundation for students' global civic literacies in future.

6.Digital Companions for Learning: narrowed the gap thru technology

NCNU undertook the Digital Companions for Learning, Ministry of Education based on the core philosophy of "life accompanying life, and life teaching life" since 2006. Dedicated to narrow the gap among students in rural areas to promote learning motivation and interest thru one-on-one online accompanying and learning model.

Program development timeline:

● **Initial stage (from 2006 to 2007):**

Began with online tutoring for 28 schoolchildren in Nantou County. Increased to 164 schoolchildren in 2007.

● **Growth stage (from 2008 to 2013):**

Adopted regional tutoring model, with annual service coverage exceeding 200 schoolchildren.

● **Deepening stage (from 2014 to present):**

Transitioned to individual application model. Intensified localization to continuously expand the influence.

Partner schools and performance in 2024:

Partner schools included Toda (Nantou County) Elementary School, Chunyang (Nantou County) Elementary School, Ren-ai (Nantou County) Elementary School, Fazhi (Nantou County) Elementary School, and Tong-Fu (Xinyi Township) Junior High School, with a total of 67 participating schoolchildren in 2024. Diverse contents of classes included SDGs-integrated learning, life and character education, scientific exploration, humanities literacy, and AI applications.

Social influence:

● Cultivated over 2,500 university companions to promote their abilities of self-management, social service, and digital care.

● Accompanied over 1,928 rural schoolchildren, held annual actual learning activities to enhance emotional connection.

● Promoted social competitiveness of rural schoolchildren to achieve educational equity thru fusion of technological innovation and humanistic concern.

▼ Introduction to indigenous traditional housing

▼ Science outreach activity

▼ Education and training

Thru Digital Companions for Learning, NCNU not only practiced the University Social Responsibility (USR) but also provided rural schoolchildren with quality educational resources and companions, ensuring equal learning opportunities for each child to create together a better future.

5.2 Local revitalization assistance: diverse approaches to sustainable development

NCNU rooted in Nantou and dedicated to practice University Social Responsibility (USR). This included a number of aspects, such as general education courses on sustainable environment, cultural revitalization in Alang Snuwill, under-forest economy in the Four-Village Joint Association, local revitalization model in Taomi and Cuoxing, agricultural technology innovation, promotion of science outreach education, international sustainability collaboration, cultivation of Shui Sha Lian interdisciplinary talent, and construction of innovative and entrepreneurial ecosystem. All of these demonstrated the commitment to sustainable development, jointly driven by various colleges and centers to form together a comprehensive ecosystem. Not only this promoted local development but also built diverse models for practicing social responsibility.

1. Environmental and ecological sustainability

(1)General education and sustainable environment: courses practices in circular value

The General Education Center stimulated students learning interest and motivation, cultivated their abilities to understand diverse needs and challenges from different backgrounds simultaneously thru actively diverse courses design and innovative teaching models.

▼ Students conducted a field study on wetland eco-conservation and water quality testing at Zhongguakeng Creek in Bei-Shan Village, Guoxing Township.

✎ These sustainability-related courses not only taught in classrooms but also extended to practical fields. Provided students with opportunities of hands-on experiences while laying a theoretical foundation for community practice in future.

Number of courses
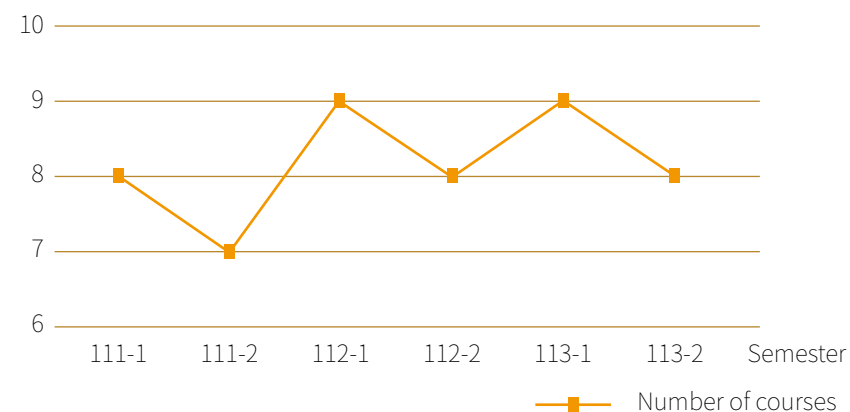
Students learned how to utilize green energy technology to solve current environmental problems thru general education courses related to environmental education. Gained a deeper understanding of practical methods for circular economy and environmental protection to promote the awareness of eco-conservation. Particularly, led students to conduct a field study on wetland eco-conservation at Zhongguakeng Creek in Bei-Shan Village, Guoxing Township during the wetland eco-conservation course in 2024-1 semester. Students utilized professional equipment to conduct water quality and pH testing when introducing wild river restoration engineering and understanding the fusion of eco-conservation and hydraulic engineering. This helped to understand the long-term influence of wetland eco-conservation to environment, intensifying environmental responsibility, and promoting notice and concern of sustainable circular value practice.

7 AFFORDABLE AND CLEAN ENERGY | 13 CLIMATE ACTION | 15 LIFE ON LAND | 17 PARTNERSHIPS FOR THE GOALS

(2) Taomi and Guoxing: a dual-track development of eco-conservation and renewable energy

The practices of the Shui Sha Lian Research Center for Humanities Innovation and Social Practice, SSLRC in Puli area, which demonstrated two complementary approaches to local revitalization.

"Taomi" collaborated and "NCNU" built sustainability in future.

The development of Taomi eco-village highlighted the key role of organizational collaboration in local revitalization:

Establishment of cross-organizational collaboration platform

● **Background of development:**
Taomi eco-village began in 2015 when confronting challenges of fragmented leadership and parochialism within the community.

● **Innovative solution:**
Shui Sha Lian Research Center for Humanities Innovation and Social Practice, SSLRC promoted the establishment of "Taomi Eco-Village Community Development Coordination Association" as a cross organizational collaboration platform.

● **Integrated effectiveness:**
Successfully integrated local organizations, such as community development association and leisure agriculture promotion association, solving problems of resources overlap and lack of communication.

Development model based on the core of eco-conservation

● **Integration of scientific research and environmental education:**
Not only monthly frog survey served as scientific research but also served as a platform for environmental education for connecting B&B owners and their children.

● **Biodiversity conservation:**
Continued to deepen ecological capital of community thru the research of species, such as butterflies and Sympetrum nantouensis.

● **Intergenerational empowerment mechanism:**
Built this mechanism for future generations from environmental education in local schools and cultivation of youth volunteers to preservation of cultural memory.

"Guoxing" innovation: industrial transformation based on renewable energy

The case of Guoxing Township development demonstrated how to transform from environmental friendly technologies into local development:

Micro-hydropower project

● **Beginning:**
Shui Sha Lian Research Center for Humanities Innovation and Social Practice, SSLRC began this project in Guoxing Township in Oct. 24.

● **Innovative integration:**
Integrated renewable energy technology with the philosophy of local revitalization.

● **Multiple concerns:**
Not only concerned technological innovation, such as planning of this project and environmental impact assessment but also noticed local talents development.

Establishment of the Industry-Government-Academia Collaboration platform

● **Resource integration:**
Integrated resources of agriculture and tourism thru the platform.

● **Innovative industries:**
Developed distinctive sustainable tourism routes.

● **Strengthening resilience:**
Created new economic opportunities while strengthened the community's adaptability confronting to climate change.

▼ The 114th meeting of the Taomi Eco-Village Community Development Coordination Association

▼ Guoxing Local Revitalization, Salon Meeting in 2024

2.Cultural and community sustainability

(1) Alang Snuwill: agri-food culture and traditional attair

Alang Snuwill located at an altitude of 1,200 meters between Qingjing Farm and Lu-shan Hot Spring in Ren'ai Township, with approximately 1,300 residents, which demonstrated strong resilience and adaptability when confronting major natural disasters.

Environmental challenges and transformation opportunities

The tribe had been through a series of major disaster impacts:

- 921 Earthquake in 1999
- Typhoon Bilis in 2000
- Typhoon Khanun, induced mudslide in 2023

Rethought the importance of environmental conservation, soil and water conservation after these disaster experiences. Meanwhile, awakened the value of traditional agricultural wisdom then transformed it into sustainable development.

Innovative pactice in culture inheritance

Agricultural culture inheritance

Built an intergenerational learning platform of elders, youth, and schoolchildren based on the cultivated land as the core field adjacent to the Presbyterian Church. Thru practice of traditional farming methods, not only inherited agricultural knowledge but also reappeared the wisdom of harmonious coexistence with land, practicing the philosophy of sustainable agriculture.

Preservation of weaving culture

The Seediq weaving of Alang Snuwill was distinctiveness. The double-layered weaving in purple and red, in particular, was famous. The tribe actively transformed weaving into modern design when confronting the crisis of traditional crafts by fitting in life aesthetics and creating dual value of culture and economy.

Integrated innovation of industrial development

Built a diversified industrial development strategy:

(1) Agricultural Industry upgrade: integrated traditional farming methods and modern technology to build sustainable agricultural production system.
(2) Development of creative industries: transformed traditional weaving crafts into marketable creative products, creating new economic pathways.
(3) Establishment of brand image: reshaped the Alang Snuwill brand by strengthening local distinctive features and promoting product value.

Achievement and influence of sustainable development

The Shui Sha Lian Research Center for Humanities Innovation and Social Practice, SSLRC provided professional counseling to assist tribe to build an integrated development model:

● **Organiztional collaboration:**
Integrated resources, such as cultural health station and after-school are thru Holistic Care Association as a platform.

● **Intergenerational exchange:**
Promoted inheritance of knowledge and skills between elders and younger generations.

● **Knowledge preservation:**
Stored agricultural and traditional attire knowledge systematically thru WikiData database architecture since 2005.

● **Demonstration effect:**
Provided valuable development experience to other indigenous tribes.

◣ Inheritance of Seediq traditional weaving crafts

This model integrated culture inheritance, industrial development, and organiztional collaboration. Built a resilient tribe development pathway gradually, achieving sustainable balance of culture, economy, and environment.

(2)Four-Village Joint Association: co-creation of indigenous tribe under-forest economy

This association represented an innovative model of natural resource by self-management of the tribe. Fostered SDG15 Life on Land and Partnerships for the Goals.

Background and goals of the association

Shui Sha Lian Research Center for Humanities Innovation and Social Practice, SSLRC established this association in 2023, which was an innovative attempt to solve collaborative development problems in traditional tribe:

● Past difficulties: the Forestry and Nature Conservation Agency entrusted commercial companies to implement projects, such as economic crop transformation and eco-travel. Due to lack of familiarity with humane, ecological, and traditional cultural knowledge, resulting miscommunication.

● Transformation opportunity: the agency encouraged the tribe to undertake an "under-forest economy planting program" after establishment of the association in 2024.

● Collaborative network: the SSLRC connected four villages with a total of nine tribes, such as Alang Snuwill, Alang bwarung, Smratuc, and Délùgǔ, the association was co-found as a communiation platform across tribes.

Innovative service model

Kissmarket

The SSLRC partnered with the Qingjing Guest House, where tribal handicrafts were able to sell in the "kissmarket". Meanwhile, promoted the philosophy of the association and visitors' concerns of environmental sustainability in 2024.

Ecological Interpretation Services

The SSLRC collaborated with the Yuanfeng Services Center to invite Seediq people of Délùgǔ as interpreters to fit traditional territory and agricultural plant knowledge in nature trail tours. This enabled visitors to:

● Gained a deeper understanding into the truth stories behind Taiwan' landscapes.

● Realized the connection between indigenous peoples and natural environment.

● Felt Seediq people's unique cultural intelligence and lifestyle.

◥ Ecological interpretation

This model integrated eco-conservation, culture inheritance, and economic development, successfully built a new pathway of sustainable development for tribe's independent operation.

(3)International sustainability collaboration: ongoing emotion with "Cambodia" continuous mobility with "NCNU"

College of Science and Technology USR team responded to SDG 6 Clean Water and Sanitation and SDG 17 Partnerships for the Goals with actual action thru a transnational water resources collaboration project. Provided practical technical and resource support to promote global practice of sustainable development goals.

Program development timeline

● **The beginning of early practice (from 2017 to 2019)**

- Established the first clean drinking water system, serving about 2,000 people in Boeung Krom Commune, Mukh Kampul District, Kandal Province, located near Phnom Penh, Cambodia in 2017.
- Conducted testing and improvement when returned in 2019. Meanwhile, conducted a fieldwork in Moeng Meanchey Village, Tang Krous Commune, Batheay District, Kampong Cham Province for 2nd location.

● **Continued to maintain connection during COVID-19 (from 2020 to 2023)**

- Continued to communicate with the Cambodia Sunshine Social Welfare Foundation thru online.
- Discussed the "water resource and environmental sanitation" topic, including an assessment for phase I's conditions of use and collaborative model in future.

● **"NCNU" continued to revolve the new phase in 2024**

- Collaborated with the International Sunrise Charity Foundation to support a water resource project at Sreng Kim High School.
- Location: the distance was 82.6 km from Phnom Penh, with a total of 1,714 faculty and students.
- Content of collaboration: joint donation for a slow sand filtration water purification system, with professional technical support
- Long-term plan: established partnership with President Mr. Long Dina to lay the foundation in future.

Social influence

● **Media spread:**
Promoted visibility after nine media reports.
● **Established the relationship:**
Shortened the distance between NCNU and Cambodia for long-term collaboration.
● **Health influence:**
Improved drinking water quality for 1,714 faculty and students to promote health development.

▼ Group photo with faculty and students for launching ceremony of water purification system at Sreng Kim High School, Cambodia

(4) Interdisciplinary mutual learning: RAMTAU diverse culture enhancement program

This program built an inclusive and symbiotic social vision thru diverse cultural dialogue and practice, originating from cultural preservation of indigenous tribe. Focused on the topic of sustainable development at "social dimension" based on the core of the dialogue "fallen behind others" and "progressive self." This emphasized the university's role and contribution to social responsibility. Conducted the establishment and spread of philosophy and value thru timely and innovative social practice. This practiced the philosophy of global citizen's local practice.

Vision and goal

NCNU was dedicated to address the social topics of people with diverse culture thru a shift in awareness:

1. **Cultivated diverse cultural dialogue ability**, to eliminate social discrimination and achieve social interaction of mutual understanding.

2. **Fostered underprivileged and marginalized groups to voice their needs,** understood deeply their intangible and non-material needs.

3. **Implemented community sustainable development,** responded University Social Responsibility (USR) to everyday local life.

4. **Cultivated topics of seed instructors and youths,** promoted deep-rooted education and social practice.

▼ Learning away from home at ASEAN Square on Apr. 27, 2024

▼ Topic field survey-Great Qingjing Migrant Community on Nov. 23, 2024

Practical strategies and achievements

Innovative interdisciplinary courses

Offered diverse topic-oriented courses and established innovative learning platform:

Type of courses	Number of courses	Number of participants
Formal courses	27	815 students crossed 24 departments from five colleges for electives.
Field surveys	13	439
Multilateral communication among universities	16	1007
Topic lectures	36	1495
Mutual learning and communication of youth groups	11	110
Paulo's movie theater	7	205
Diverse culture mid-night canteen	19	519
Collaborative courses	5	123
Civilian image workshop	1	28

Distinctive courses and innovations

Four main curriculum categories:
- "Development and population movement"
- "Topic integration"
- "Interdisciplinary practicum"
- "Field-based deepening"

Innovative learning methods:

- Built AO station as an innovative learning platform.
- Integrated theory and practice to cultivate critical thinking skills.
- Promoted cultural sensitivity thru in-depth field survey.
- Built empathy and intercultural conversation skills.

Education rooting action

"Three-phase of education rooting action":

Topic lectures:
Invited experts from various fields to share diverse cultural topics.

Field surveys:
Led faculty and students to study fields of diverse cultures and communities.

Development of innovative lesson plans:
Assisted faculty to fit diverse cultural topics in teaching.

Education rooting action

1. Established a collaborative preparation group with the Human Right Topic Team of the Compulsory Education Counseling Group, Nantou County

2. Cultivated seed teachers by enhancing training activities on-site.

3. Assisted elementary and secondary school teachers to integrate diverse cultural topics into courses.

4. Responded to 2019 Curriculum Guidelines on diverse culture and global literacy.

Field surveys and exchange of international topics

Conducted international comparison and exchange by connecting domestic and foreign related fields:
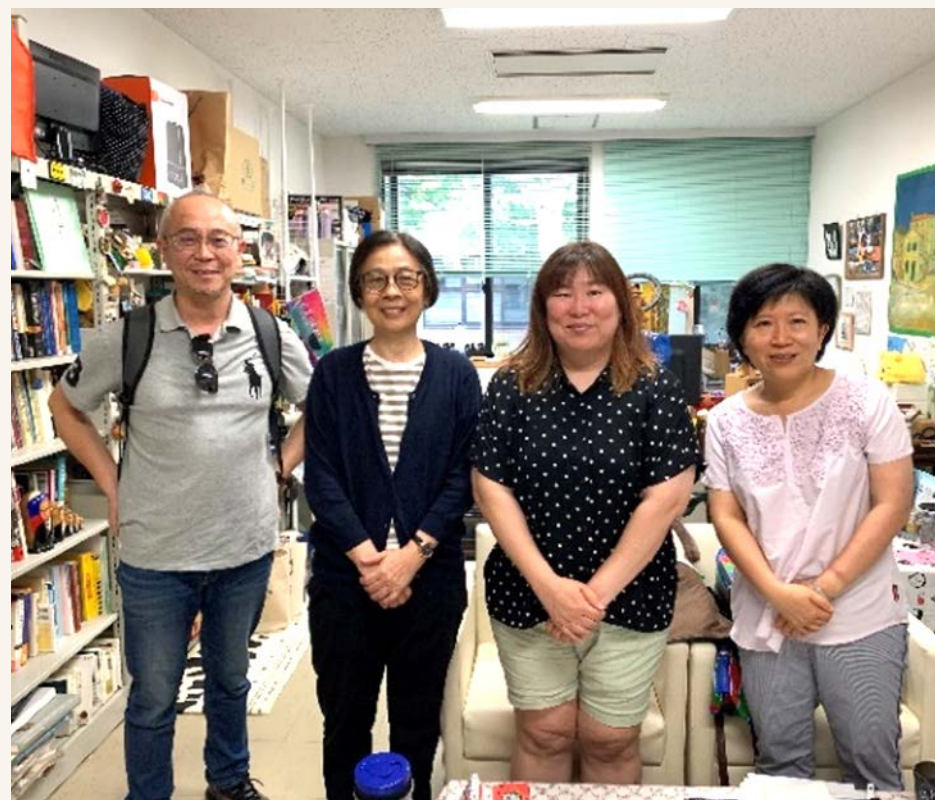
● **Hokkaido University, Japan:**
  Exchanged topics, such as "immigration phenomena" and "integration of foreigners into Japanese society."

● **Sapporo Regional Union:**
  Explored topics, such as migrant worker rights and inclusive diverse culture.

● **International intercultural understanding:**
  Expanded learners' international outlooks and cultivate global civic awareness.

◥ Exchanged topics, such as diverse culture to expand international outlooks.

◥ Exchanged with Sapporo Regional Union in Hokkaido.

◥ Exchanged topics with related scholars from Hokkaido University.

3.Industry and sustainable innovation

(1)Technology empowered agriculture: local practice of smart agriculture technologies

College of Science and Technology USR was dedicated to promote agricultural sustainable development with technological solutions. This was to practice the Sustainable Development Goals (SDGs).
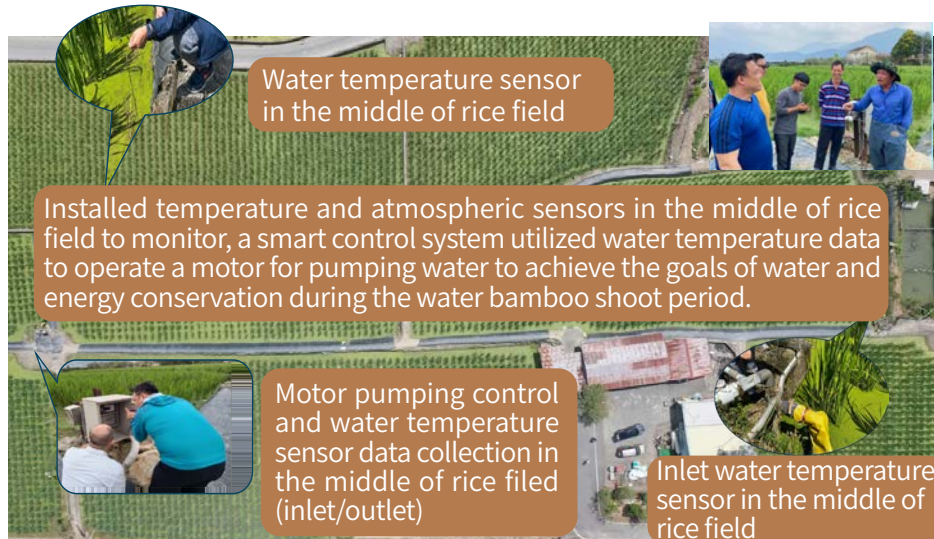
Establishment of a proper agricultural water management model

The team extended the development of the Agricultural Water Conservation Demonstration Project, in order to practice sustainable water resource management in 2024:

● **Participating field:**
Conducted a total of 8.2 ha of water bamboo field monitoring.
● **Basic water consumption:**
Farmer Lee used 7,243 $MtCO_2e$ during the first cultivation period, whereas farmer Liu used 92,789 $MtCO_2e$
● **Optimized benefits:**
Farmer Lee reduced 1,281 mt, whereas farmer Liu reduced 8,629 $MtCO_2e$ thru seeding cultivation and water conservation test of bamboo shoot period
● **Overall effect:**
Conserved 9,910 $MtCO_2e$, achieved 9.9% water-saving rate, and reduced about 1,545 kg CO_2e carbon emissions.

The Farmland Water Resource Sensor Monitoring System and field survey

Water temperature sensor in the middle of rice field

Installed temperature and atmospheric sensors in the middle of rice field to monitor, a smart control system utilized water temperature data to operate a motor for pumping water to achieve the goals of water and energy conservation during the water bamboo shoot period.

Motor pumping control and water temperature sensor data collection in the middle of rice filed (inlet/outlet)

Inlet water temperature sensor in the middle of rice field

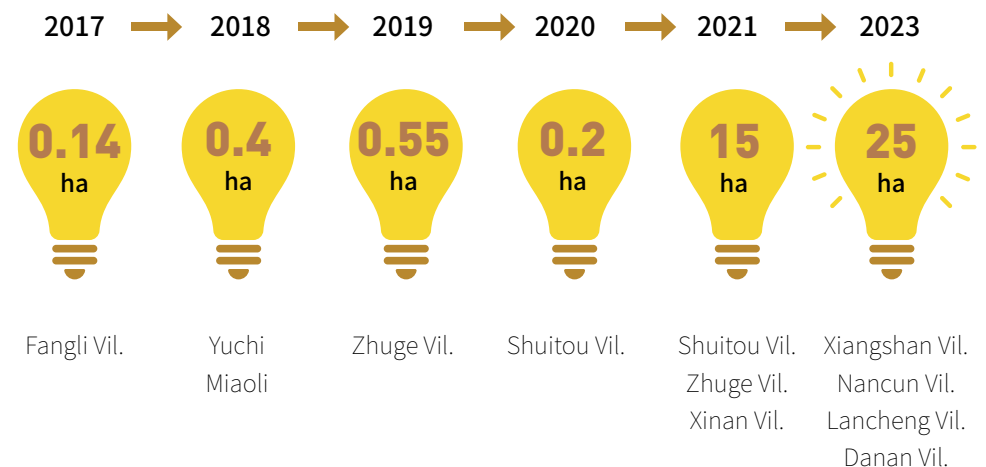### Effectiveness and spread of the LED lighting program

College of Science and Technology USR got involved in the LED lighting program since 2017. Solved agricultural energy consumption problem with technological solution. See below for the program development timeline:

● **Spread phase:**
From the beginning of 0.14 ha in Fangli Village in 2017, expanded to eight villages, including Xiangshan Village, Shuitou Village, Nancun Village, Lancheng Village, Danan Village, Zhuge Village, and Xinan Village in 2023.
● **Growth in scale:**
Reached 25 ha total coverage area of the Agricultural Energy Conservation Demonstration Area.
● **Environmental benefits:**
Reduced 327,000 kWh electricity consumption and avoiding 165.8 $MtCO_2e$ of carbon emissions.

LED lighting project-field spread, reached 25 ha from 2017 to 2023.

2017	2018	2019	2020	2021	2023
0.14 ha	0.4 ha	0.55 ha	0.2 ha	15 ha	25 ha
Fangli Vil.	Yuchi Miaoli	Zhuge Vil.	Shuitou Vil.	Shuitou Vil. Zhuge Vil. Xinan Vil.	Xiangshan Vil. Nancun Vil. Lancheng Vil. Danan Vil.

(2)Promotion of science outreach education: technological knowledge became popular in local area.

Conducted related science outreach experiments of sustainable development thru science outreach activity to integrate local agriculture and distinctive ecology. This attracted local students and residents to participate, stimulating interests and imaginations in science.

Science outreach train activity design in 2024

College of Science and Technology USR team planned the science outreach train activity in 2024, which featured the following:

● **Diverse collaboration model:**
Integrated 17 booths, inviting the joint participation of NCNU (six), Beishan Junior High School (one), Puli Junior High School (two), communities (four), and private enterprises (five).

● **Innovative and interactive design:**
Broke away from traditional theoretical explanations by adopting hands-on experience models. Designed multi-stages activities. Earned a star when cleared a stage. Received a gift upon collected nine stars.

● **Promoted learning effectiveness:**
Stimulated students' curiosity to increase their interests in science outreach thru engaging and exploratory activities.

Activity benefits and influence

Participation status

● **On/off campus honored guests:**
Representatives from Department of Education, Nantou County Government, Nantou County Council, Puli Township, and supervisors at all levels on campus jointly participated.

● **Students paticipation:**
A total of 507 faculty and students from NCNU, Puli Junior High School, Beishan Junior High School, and Puli Elementary School participated.

Social influence

● **Media attention:**
Five news media reported.

● **Policy support:**
Highly commended and committed to support continuously by county government and county council.

● **Expansion effect:**
Expanded further to schools in rural areas, such as Ren'ai Township, Yuchi Township, and Sinyi Township.

◥ Taiwan Science Outreach Train-Puli Station in 2024, jointly participated by faculty and students for science outreach activity.

SDG 4 QUALITY EDUCATION | SDG 8 DECENT WORK AND ECONOMIC GROWTH | SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION | SDG 17 PARTNERSHIPS FOR THE GOALS

(3)Shui Sha Lian interdisciplinary talent cultivation of sustainable industry

With a principal axis in "Shui Sha Lian Sustainable Industry," the College of Management achieved the vision of sustainable rural development thru interdisciplinary talent cultivation and international exchange.

The vision of the program: this was dedicated to empower on/off campus interdisciplinary talents, increase the employment opportunities for returning to hometown individuals, utilize smart digital technologies, shorten rural-urban divide to cultivate interdisciplinary and intergenerational talents, establish international talent development mechanism thru the spirit of sustainable development in rural-urban areas, and achieve off-site field practice as well as SDG17: Partnerships for the Goals.

Practical strategies and achievements

Local industries sustainable development

Core scheme	Practical details
☕ Coffee ndustry	1. Assisted local specialties to promote quality and establish brand. 2. Supported home-returning youths to start business in coffee industry 3. Held coffee-making techniques and quality evaluation.
🏖 Tourism industry	1. Developed sustainable hospitality models. 2. Designed distinctive itinerary and in-depth experiences. 3. Cultivated professional hotel-keepers.
🏘 Distinctive industry	1. Promoted food and agricultural education and recreational area transformation. 2. Developed boutique souvenir. 3. Implemented digital technologies, such as beehive monitoring.

Employee retention/youth entrepreneurship

▼ Mr. Chao-Ting, Ho interned at hotel

▼ Mr. Kuan-Tai, Chen returned to his hometown for the youth entrepreneurship

Highlights and achievements from 2023 to 2024

Youth cultivation and entrepreneurial achievements

Project assistant student Kuan-Tai, Chen

Returned to his hometown after graduation to participated in "2024 Dongshan Estate-Grown coffee Friendly Match" :
- Teamed with the Roasting Aesthetics Working Group to win the champion.
- Awarded third place in the Tainan Coffee Roasting Competition.
- Awarded second place in the Chuanliu Cup Hand Drip Coffee Competition.
- Established successfully the coffee shop "GOFFEE."

Dept. of Tourism, Leisure and Hospitality Management, student Chao-Ting, Ho interned at Nahari Hotel in Kochi Prefecture, Shikoku, Japan:
- Hotel supervisor highly commended.
- Full-time employment after graduation

Award-winning students

Dept. of Tourism, Leisure and Hospitality Management, student Yu-Tung, Hsu:
Received the Honorable Mention in the University Divison of the 6th Just Beverage Art Challenge, Pour Over Coffee in 2024.

Dept. of Tourism, Leisure and Hospitality Management, student Hao-Te, Li and Dept. Of Chinese Language and Literature, student Hui-Chun, Huang:
Received the 2024 SDGs SUSTAINABLE BOARD GAME DESIGN COMPETITION, Golden Award.

International exchange and industry-academia cooperation

International exchange achievements

"Rural Tourism and Local Revitalization: New Directions in ESG Sustainability" International Forum

2024.6.7

Number of participants: Over 150

Gathered experts from Taiwan, Thailand, and Japan, along with the Association for Agro and Rural Tourism of Taiwan to share experience.

Khon Kaen University, Thailand exchanged.

2024.6.24-27

Number of participants: 22

1. Discussed academic collaboration from both sides.
2. Taiwan and Thailand exchanged food culture.
3. Taught hand made noodle techniques.
4. Experienced Thai cuisine at Blue Elephant Cooking School, Bangkok.

Kochi University, Japan exchanged.

2024.7.18-23

Number of participants: 16

Gained Japan's experience in marketing agricultural specialties and local revitalization experience for promoting Shui Sha Lian agricultural specialties.

Industry-academia collaboration model

Experts, local partners, home-returning youths, and faculty and students jointly discussed:

1. **Local specialties development:**
   Promoted quality and established brand for local specialties, such as coffee, tea.
2. **Tourism industry upgrade:**
   Promoted hospitality service quality and developed distinctive itinerary.
3. **Recreational area transformation:**
   Promoted food and agricultural education and experienced design.
4. **Integration of digital application:**
   Utilized smart digital technologies to assist industrial upgrading.

Social influence achievements

1. **Talent cultivation:**
   Nurtured interdisciplinary talents with sustainable thinking.
2. **Industrial upgrading:**
   Assisted local specialties to promote quality and brand awareness.
3. **Local employment:**
   Increased the employment opportunities for returning to hometown individuals.
4. **International exchange:**
   Established the international talent development mechanism and the platform for sharing international experiences in sustainable development.

▼ The program, "Shui Sha Lian Talent Cultivation and Cross-Regional Practice" received the 2024 Taiwan Sustainability Action Golden Awards.

Expected NCNU to build the foundation for sustainable development in Shui Sha Lian area, achieving the responsibility and mission as the social promoter.

(4)Innovative and entrepreneurial ecosystem: cultivated local and indigenous entrepreneurial talents

	Ensured education for all, fair, high-quality education, and lifetime learning.		Promoted tolerated and sustainable economic growth, everyone had a good job.		Built diversified partnership to promote sustainable vision.

NCNU's Entrepreneur Incubator continued to intensify local industrial innovation since the establishment in 1996. A local entrepreneurial ecosystem was developed in recent years to build a combination of economic value and sustainable development of innovative and entrepreneurial environment. This built a local micro-industry support system to promote diversified industries development and inclusive society.

Core mission and values

- Built a local entrepreneurship support and interdisciplinary exchange platform.
- Provided holistic counseling and marketing support.
- Promoted industrial upgrading and sustainable development.

Achievements of faculty and student entrepreneurship

Performance of innovation and entrepreneurship counseling

Provided students with holistic support for innovation and entrepreneurship thru Youth Development Administration, Ministry of Education's U-start Plan and Innovation and Entrepreneurship Education Program for Colleges and Universities:

Achievements

U-start Plan
1. A total of five teams received phase I subsidies (NT$500,000 individually) from the Youth Development Administration, Ministry of Education from 2022 to 2024.
2. One team received phase II subsidy (highest amount that year) NT$900,000.

Entrepreneurship Simulation Learning Platform
Two teams received NT$200,000 individually in 2023.

New brand cultivation
Five student teams established new brands and operated from 2022 to 2024 (IT108, have a meal, and Floating Island SUP in 2022; Strength Pillar Source in 2023; overSEA in 2024).

Distinctive entrepreneurship consulting projects

1 Floating Island SUP (2022):
Concatenated the core of local indigenous tribe to develop tourism. Presented vividly the Thao Tribe's traditional water culture and stories thru guided water tours of Sun Moon Lake. This enhanced tourists' understanding and identity of local culture. This team was recognized as an outstanding project of the Year and received highest NT$900,000 subsidy.

▼ Floating Island SUP-highest NT$900,000 subsidy of the year

2 Strength Pillar Source Project (2023):
Built the first intelligent dispatch system for indigenous tribes. This integrated local demands and distinctive features, assisted indigenous association to manage human resource effectively, optimized work arrangement, and promoted efficiency and community participation.

▼ Strength Pillar Source

3 overSEA project (2024):
Built a career development platform focused on southbound markets. Delivered high quality international talents for enterprises thru overseas internships and pre-employment training programs.

▼ overSEA

Diverse resource integration platform

● Concatenated local enterprises, civil organizations, government agencies, and academic institutions.
● Built the ecosystem of supporting local entrepreneurship and sustainable development.
● Provided holistic counseling from launching a startup to growth and expansion.
● Promoted interdisciplinary resource sharing to ensure the benefits of economic, social, and environment.

The distinctive empowerment of indigenous entrepreneurship

NCNU focused on the development of indigenous youth entrepreneurship to build a support system systematically.

● Established "Central Area Indigenous Youth Entrepreneurship Ecosystem" in 2022.
● Held "Indigenous Youth Dream-Building Camp" and entrepreneurship empowerment forum in 2023.
● Held "2024 International Forum for Outstanding Young Innovators" in collaboration with the Taichung Young Generation Distinguished Citizens Society of the Times.
● Established an intergenerational and interdisciplinary innovation exchange platform.

Sustainable development counseling for startups

Provided specialized counseling mechanism to startups in the incubation and acceleration stages:

1. **Enterprise diagnosis:** grasped each startup's current development status and needs thru professional diagnosis.
2. **Specialized counseling:** planned exclusive counseling scheme to tailor-made the strategy for accelerated growth.
3. **Brand establishment:** assisted startups to establish their brand foundations, with a series of marketing plan courses.
4. **Expert consultation:** provided guess lecturer consultation mechanism to promote enterprise brand image and market competitiveness holistically.
5. **Industrial linkage:** fostered the linkage between startups and local industries to create collaborative opportunities.

| 8 DECENT WORK AND ECONOMIC GROWTH | Entrepreneurship consulting and innovative R&D | 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE | Local industries revitalization | 12 RESPONSIBLE CONSUMPTION AND PRODUCTION | Micro-entrepreneurship ecosystem |

▼ The Entrepreneur Incubator assisted the exposure and collaboration of new brands.

▼ The tailored-made counseling scheme accelerated industrial linkage.

▼ The International Forum for Innovative & Outstanding Youth gathered 360 talents from industry, academia, and research to demonstrate the achievements of interdisciplinary exchange.

5.3 Diverse culture inheritance: indigenous culture and local exploration

1. Campus tribe development: indigenous cultural education and inheritance

NCNU upheld the philosophy of culture diversity and sustainable education. Actively promoted the philosophy of indigenous cultural preservation and inclusive indigenous education thru campus space development and educational activities design to build a campus with distinctive and diverse indigenous culture since 2015.

Indigenous environmental education field

- Built the "Indigenous environmental education field" behind the library.
- Completed constructions, including millet garden, Seediq barn, Atayal bamboo house, Paiwan stone slab house, and Seediq half-underground house.
- The Paiwan stone slab house was shortlisted for the Ministry of Culture's "Public Art Award–Education Outreach Award" in 2020.
- Functions of education field: environmental education, cultural experience, and traditional knowledge inheritance.
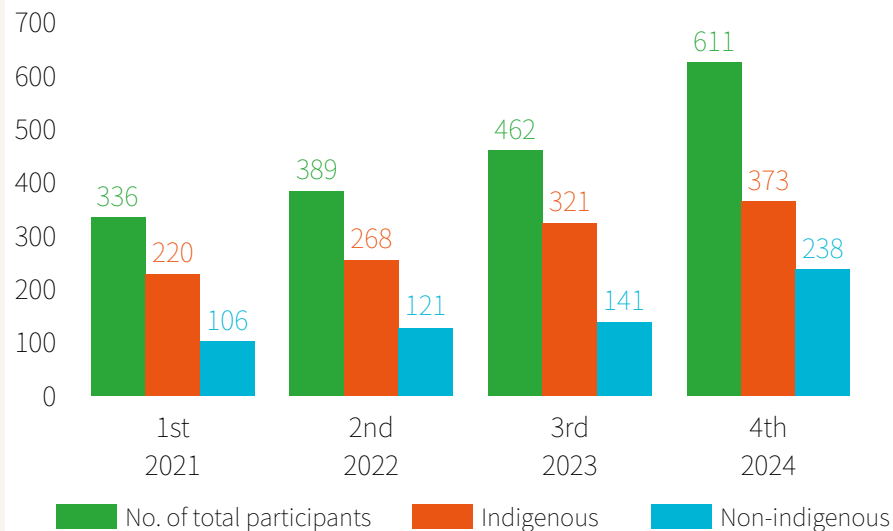
Cultural activities and achievements

The "Life Festival" had been held for four years annually since 2021.
The 4th "Beautiful 4" Life Festival:

- Designed five senses experience activities based on the subject of the Amis culture.
- Held grassland concert, cultural shop, and market.
- Accumulated a total of 1,800 participants, increasing non-indigenous participants annually.

Number of annual participants in the Life Festival

	1st 2021	2nd 2022	3rd 2023	4th 2024
No. of total participants	336	389	462	611
Indigenous	220	268	321	373
Non-indigenous	106	121	141	238

✏️ NCNU integrated SDGs with the fusion of the indigenous traditional wisdom and the philosophy of modern sustainability to establish culture inheritance and promote inclusive and symbiotic on both campus and local community.

2.Revitalizing the Plains Indigenous Culture: historical memory and innovative practice

NCNU offered "Preservation and Revitalization of Plains Indigenous Culture" course since 2018. Collaborated with Shui Sha Lian College USR to guide students conducting cutural preservation with innovative approaches in 2023. The course began on the topic of the Plains identity. Fostered students to understand Plains indigenous culture and life hacks, practice knowledge and social connection thru field trip based on six major Plains communities in the Puli region.

Teaching effectiveness and innovation

A total of 85 students enrolled in the course between 2022~2024, exploring the diversity of Plains indigenous culture thru diverse methods.

Cultivating deep thinking

Held the "Plains indigenous culture Summit Debate" during the course to guide students thinking deeply to cultivate critical thinking skills.

Cultural experience on-site

Arranged off campus visits, including Pazeh Homeland, Ailan Ship Mountain, Niumian Cultural Artifacts Museum, Siraya Tribe...etc. Students experienced personally the historical inheritance and the modern development of the Plains indigenous culture.

Cultural dialogue and identity

Invited the Babuza Teria for a speech to share the mental journey of culture, history, and seeking self-identity. This intensified students' understanding and empathy to indigenous culture.

Cultural creativity and practice

Students demonstrated their accomplishements after cultureal exploration as follows:

- Board game design
- Creation of picture book
- Puppet micro-movie
- Radio drama

These works integrated stories from Chuanshan and elements of Plains indigenous culture, demonstrating the practical achievements of cultural preservation and innovation. During the couses, students learned to utilize cultural analysis and creative expression techniques to shorten the cultural distance gradually with Plains communities, promoting inclusion and understanding of social culture.

Walked into the Pazeh ancestral hunting ground live-action puzzle game cover.

Students conducted puzzle-solving activities in Pazeh Homeland.

3. Shui Sha Lian outdoor camp: environmental exploration and cultural symbiosis

Japanese anthropologist Torii Ryūzō praised Puli as a "treasure trove for anthropologists," demonstraing the natural and cultural diversity. Shui Sha Lian College USR promoted the Shui Sha Lian outdoor camp since 2023. Upheld the philosophy of "the entire Shui Sha Lian was a learning field for faculty and students." Guided students to experience and explore this land of diverse wisdom by integrating local resources to design innovative exploration routes.

Exploration and educational practice

The Shui Sha Lian outdoor camp practiced the UN's Sustainable Development Goals (SDGs) with field-trip approaches that integrated three subjects-natural ecology, culture and history, and local industries thru a total of 19 exploratory activities (accumulted 366 participants) from 2023 to 2024.
Categorized three kinds of activities:

Natural exploration	"Firefly watching in Taomi" and "Impression of Bakei" led students to understand local biodiversity and natural resources, such as hematite.
Cultural experience	"Walked into Pazeh" and "Takuan Hydro Power Plant exploration" focused on local cultural preservation and community co-creation. This strengthened students' understanding to history and social sustainability.
Local connection	"Mushroom wandering" and "Dried flower crafting" connected the local industries development and responsible consumption, reflecting the importance of sustainable production.

Sustainable development and influence

These activities not only deepened students' literacies of sustainable topics and practical abilities but also achieved dual values of education and social responsibility. By fostering local culture inheritance, eco-conservation, and industrial innovation, this became iconic learning and sustainable action. Thru connecting campus and communities, Shui Sha Lian outdoor camp successfully built an innovative model of education, environment, and cultural symbiosis, providing a practical field of holistic education and sustainable thinking for students.

▼ The treasure of Bakei: understanding the hematite

Shui Sha Lian College cultivated students' recognition and responsibility to local environment thru diversified outdoor educational activities. By extending the philosophy of sustainable development from classroom to actual action, this reflected the key role of an educational institution in promoting Sustainable Development Goals (SDGs).