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Introducing Co-learning and Co-creation to Revive Local Craftsmanship: An Experimental Study on Indigo Dyeing Craftsmanship in Sanxia, Taiwan

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ABSTRACT

In the Qing dynasty, indigo dyeing made Sanxia a major center of the dyeing and textile industries in northern Taiwan. However, complicated techniques have restrained development and innovation in indigo dyeing craftsmanship, and a lack of investment by younger designers has caused development to stagnate. The hypothesis behind this study was that cross-border cocreation is a potential method of breaking through this deadlock. Therefore, this study explored how the indigo dyeing industry could be revived through visits, observation, discussion, question identification, interviews with experts, and establishing connections among students of different ages in different schools, with their feedback to be used as study material for discussion with experts. The results from roundtables, spontaneous cross-border participation, and cocreation workshops indicated the possibility of reviving and innovating traditional craftsmanship. The results of this study could serve as a reference for (1) recreating the characteristics of indigo dyeing craftsmanship, (2) facilitating value-added regeneration of local industries, (3) reviving traditional craftsmanship, (4) providing university teachers and students with opportunities to transcend departmental and school boundaries, and (5) incorporating participation experiences into co-learning and cocreation to develop educational innovations for industry, the government, and academia in order to promote co-learning and cocreation among cross-border talent.

Keywords: Co-learning and Co-creation, Communication and Participation, Cross-border Co-creation, Design Participation, Indigo Dyeing Craftsmanship.

1. Introduction

The indigo dyeing industry in Taiwan originated in the 17th century. Indigo blue dye production and its dyeing techniques were essential industries in Taiwan in those days and also crucial sources of

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income. However, this technique and industry were interrupted for several decades. In the preceding two decades, Sanxia residents have gradually revived traditional industries and proved the feasibility of developing them further. However, considering resource limitations, skilled craftsmen and local workers have difficulty achieving sustainable development. Therefore, traditional industries require further transformation. The author of this study preliminarily investigated the developmental status of the indigo dyeing industry in Sanxia and analyzed the topics described in the following three subsections.

1.1 Insufficient craft production and limited market size

The small agricultural population of indigo plants in Taiwan results in a high price for dye, which involves a complicated and time-consuming commodity production process with high labor costs, even though consumption of related commodities is low. Therefore, the indigo dyeing craft remains limited to individual studios. Practitioners of natural dyeing and weaving primarily engage in teaching, DIY activities, and indigo dyeing demonstrations at sightseeing areas. Although these activities indicate the significance of cultural inheritance, industries related to indigo and other plant-based dyeing are fairly small scale in terms of application of their products in real life.

1.2 Lack of application in the fashion industry and insufficient investment in young artists

Younger generations lack the willingness to invest in the indigo dyeing industry, and even if they enter this industry, they are unable to strengthen the connection between design and life. Moreover, their inexperience in producing brand clothing results in limited integration of fashion in the dyeing and weaving industries.

1.3 Weak design marketing ability and restrictive local thinking

Indigo dyeing craftworks from Sanxia are not particularly innovative or fashionable, primarily because innovation for complicated traditional techniques is difficult to achieve and the number of young designers investing in the industry is low. Several other circumstances also hamper the development of the indigo dyeing industry; for example, the price of product design is higher than average; design thinking about energy conservation, health, and environmental protection is lacking in product development; development of everyday commodities or commodity industrialization is insufficient; and studios are often restricted in their quality and scale of business because they lack marketing channels and strategies.

Based on the aforementioned problems, this study aimed to improve the development of indigo dyeing craft through an experimental study of co-learning and cocreation. Therefore, to resolve the developmental problems of the indigo dyeing industry in Sanxia, adoption of a "cross-border" concept was proposed. "Cross-border" refers to not only crossing boundaries of occupations and generations but also crossing the border between Taiwan and the rest of the world for Taiwan to look to mainstream global creative craft design concepts. This was an experimental study hypothesizing that a cross-border concept could change the stagnant situation in the indigo dyeing industry. The author believed that co-learning, cocreation, and cross-age learning were suitable measures to initiate a cross-border concept through roundtables, spontaneous participation, co-learning workshops, and volunteer workshops. The aim of this study was to promote cooperation among university teachers, students, and local residents and talent so that university students, young people, and practitioners of hand-dyeing and tea-farming in Sanxia could become connected. In addition to in-depth discussions on topics related to study visits and community topics to stimulate participants' imagination, residents and related communities were invited to exchange ideas at meetings. The overall research objective was to create a new cooperation model based on interaction among people of various ages.

2. Literature review

2.1 Sanxia indigo dyeing industry

Indigo dye was once considered the "blue gold" of Sanxia. However, when chemical synthetic dyes began to appear throughout the dyeing and weaving market, they replaced natural dyes, resulting in the disappearance of traditional dyeing craftsmanship (Veal, 1969).

2.2 Overall characteristics of the Sanxia community

The National Taiwan Craft Research and Development Institute (2006) indicated that the objective of overall community planning and reorganization is to identify local characteristics. The Formosa Community of the Ministry of Culture (2010) declared that the core values of community building are primarily focused on residents. Reviewing the current situation of Sanxia indigo dyeing craftsmanship based on the aforementioned two points, this study found that having gradually lost the traditional purposes of indigo dyeing, residents have sought to make use of local characteristics and create core values for community building. However, because of the specific nature of the indigo dyeing industry, dyeing and weaving practitioners are limited by complicated traditional techniques, and the production capacity and market popularity of small studios are insufficient, resulting in considerable uncertainty regarding indigo dyeing innovation and product quality control in Sanxia. Moreover, numerous practitioners in sightseeing areas primarily provide DIY teaching services and do not focus on improving design. In addition, practitioners face challenges such as a shortage of young designers willing to invest their talent in this craft, a lack of energy efficiency, health problems, eco-friendly design ideas and product development, and insufficient experience in fashion product development. These circumstances highlight the inadequacy of focusing primarily on education and the revival of techniques to develop the indigo dyeing industry, as well as the need to include input from life aesthetics and creative design.

2.3 Participatory and empathic design

Various design concepts have developed over time (Ideas and Life, 2010), from the separation of designers and users in the past to participatory design since the 1960s, when Nordic enterprises began to explore labor empowerment and workplace democratization for employees to have an appropriate work environment and quality and for designers and users to work together to develop new technologies; this enabled workers to regain control of and identify with their work, and was the origin of participatory design to enable designer–user collaboration. In contrast to user-centered design methods, the user is considered a co-designer in participatory design. The use of appropriate methods and tools in codesign meetings to communicate with users and promote effective ideas is essential to designers (Sanders & Stappers, 2008).

Contrary to participatory design, which enables users to participate in the design process, is empathic design (Chen, 2018), which enables designers to observe and understand users' practices, emotions, and the benefits that they gain from using certain products, or to identify needs and sentiments that users cannot express. Empathic design is an emerging field of design research and has been widely explored in various disciplines including philosophy, aesthetics, cognitive psychology, medical consultation, management, interface design, interactive design, cross-cultural studies, sociology, and education. Empathic design emphasizes the deep emotional needs of modern consumers, causing them to be touched emotionally.

Some of the spontaneous participation, co-learning, and volunteer workshops in this study adopted methods such as participatory design (codesign) and empathic design to enable design students, professionals, and nonprofessionals to explore local humanities environments, fields, and areas using indigo dye, thereby developing their own independent experience and bodily and sensory awareness as a basis for developing ideas, feelings, discussions, and opinions.

2.4 Experiential design

Experience is a key economic product of the era of the experience economy. Pine and Gilmore (1998) observed that while experience has always been at the core of the entertainment industry, numerous industries unrelated to entertainment attract customers in personalized and memorable manners. Therefore, among their proposed five experience design principles, the researchers emphasized creating themes that could resonate with users in order to create an unforgettable experience. Moreover, experience should be enhanced through sensory stimulation, location, and sound to enable all involved in an event to participate in a personalized manner. An experience is an individual response to stimulation (Schmitt, 1999). Schmitt (1999) believed that to render an experience unforgettable, marketing personnel should focus more on consumers' feelings about their pleasurable

experiences. Therefore, he proposed five strategic experience modules designed to create different forms of experience for consumers, namely SENSE, FEEL, THINK, ACT, and RELATE. Users were at the center of these modules, with the ultimate objective of creating individual experiences for integration into the overall experience.

The research design of this study was based on the proposal by Schmitt (1999) that experience involves not only the mind but also, and perhaps more importantly, the senses and flesh. Experience is essential for designers and consumers. Therefore, the design theory adopted in this study tended toward experience design that emphasizes empathy.

The experiment was designed to enable students to experience indigo dyeing craftsmanship in a perceptual manner and immerse themselves in the "realm of empathy." Students experienced and immersed themselves in the cultural environment of craftsmanship before beginning the design process. The purpose of this experiment was not to create design commodities for the market but to be inspired by the experience economy concept. In the experience economy era, the value of products is not determined simply by their appearance or the technology used to produce them but primarily by how users experience them.

Therefore, the actual indigo dyeing production process can stimulate inner feelings and transfer these feelings into the act of creation. The increasing number of DIY, experiential, and practical courses indicates that people are starting to focus on the experience and feeling of using their hands to create handicrafts. These feelings often lead to positive emotional responses when projected at the inner level (Chou, 2009). This trend is essential for attracting the younger generation to continue investing in indigo dyeing craftsmanship and to raise public awareness of this craft.

2.5 Cocreation and mixed-age learning

Cocreation arises when design becomes a means of solving social problems (Pilloton, 2009). The core concept of cocreation is participation, which refers to a combination of community, cooperative, and collaborative design (King, 1989). Cocreation emphasizes user experiences. If the proper tools are available, even individuals without a design degree can imagine a specific experience that satisfies their needs and desires (Lai, 2016).

In the field of education, mixed-age learning comprises students of various learning levels, discarding conventional age categories and grouping students based on their physical and mental characteristics. The focus is on what the student wishes to learn as opposed to what the teacher wishes to teach. The essence of mixed-age teaching is differentiated teaching and cooperative learning (Lin, 2017). Because each student progresses at a different rate, students can be divided into small groups or learn individually. Teachers are not class leaders but rather facilitators, and the initiative for learning and collaborative discussion in the classroom rests on the students.

Most design methods are based on the user and designer's identities. This is similar to the different statuses of students and teachers, age differences between children and adults, and differences in dyeing skills between artisans and amateurs. This study incorporated the educational theory of mixed-age teaching into its experience design to interpret indigo dyeing craftsmanship from a new perspective. The study experiment sought to break down conventional barriers and implement the concepts of co-learning and cocreation. The experiment was neither designer- nor user-centered because each participant was both user and designer. People of different ages and professions worked together to remove the designer–user dichotomy, thereby enabling participants to learn from one another, explore different interpretations of traditional craftsmanship, and produce design creations with imaginative life application.

The participants in this study were of varying age and each was both a student and a teacher. They adopted a co-learning approach derived from codesign, meaning that following the contemporary prevalence of DIY, everyone can become a maker after receiving basic training. Every participant was a designer and had the ability to sell self-made handicrafts (Anderson, 2013). Because everyone was a maker, the experiment placed no limits on the age or background of the participants. Based on this core concept, this study sought to indicate a new path for indigo dyeing craftsmanship and future design through co-learning and cocreation.

3. Methods

3.1 Strategy

(1) Promotional strategy:

In this study, the promotional strategy for indigo dyeing craftsmanship mainly exhibited the following three stages.

i.Identifying problems in indigo dyeing culture in Sanxia

First, interdisciplinary cooperation among universities was conducted to encourage students to identify problems related to indigo dyeing culture in Sanxia. Cultural history, culture and creativity, and volunteer teams in the Sanxia community were invited to participate in strategic alliances. In-depth discussions about visits and community issues were initiated to stimulate new ideas and facilitate the participation and identification of residents and interested communities. Through joint reviews and meetings, these activities connected people of different ages for interaction and mutual education.

ii. Facilitating participation in innovative social design

Participation of university teachers and students in innovative social design was facilitated by establishing connections among university teachers and students, local high school students, residents, and local talent to assist in nurturing design talent in urban and rural areas. Local cultural assets and historical and cultural characteristics were introduced to community residents through indigo dyeing activities, and the needs of residents were incorporated for talent cultivation in urban and rural areas.

iii. Understanding the essence of cocreation

Residents of the region were assisted in understanding of the essence of cocreation. Through designs created by cross-disciplinary university students and cross-domain collaboration among designers, the participants worked together to integrate their design efforts with local humanities and craftsmanship. The exploration of ecological topics was gradually implemented in local cocreation through appreciation of the natural environment and experiences of other cultures.

3.2 Procedure

(1) Activity planning

Talent distribution, training, and participation is necessary for implementing teacher–student participation in innovative social design and requires onsite observation and participation in indigo dyeing activities. Accordingly, establishing students' independent learning skills is the optimal solution to innovative education. This study was conducted from April 2017 to January 2018 for a total duration of 9 months. Registration for the experiment was conducted online. In addition to university teachers and students, craftsmen and retired and middle-aged adults participated in the experiment. Co-learning and cocreation of indigo dyeing craftsmanship were achieved in four stages, the third and fourth of which were practical stages. The four stages were as follows:

i. Stage 1—Roundtables. Roundtable discussions among experts and scholars in the first stage provided the foundation for this experimental study.

ii. Stage 2—Field visits and onsite participation. Two field trips were organized in this stage with a view to promoting the activity themed "Participation and Design—The Experience in and Sharing of Indigo Dyeing Craftsmanship." The second stage involved the participants (hereinafter referred to as "the students") visiting indigo dyeing craftsmen and experiencing the techniques, environment, and cultural context of indigo dyeing craftsmanship.

iii. Stage 3—Co-learning workshop for students of different ages. This stage consisted of four activity sessions that engaged students of varying age in the dialogue and creation of a slow green lifestyle. These activities involved the exchange and promotion of ideas that encompassed exercise, food, and green fashion. In this third stage, teachers provided themes that required students to apply indigo dyeing craftsmanship in their artwork and learn basic indigo dyeing skills (Figure 1).

Stage 4—The cocreation and codesign workshop comprised 4 days of indigo dyeing activities. Students of various backgrounds, occupations, and ages were first divided into groups to enable the students to create works freely. Based on the mixed-age and co-learning concepts, new ideas were incorporated into innovative craftsmanship. Collaborative activities with craftsmen in Sanxia attracted residents and communities interested in natural dyeing to interact and exchange experiences with one

another through a cross-disciplinary and mixed-age design. The interaction and co-learning activities cross-linking people of all ages inspired creativity and new imagination.

Through cross-departmental and cross-border cooperation among university students and professional designers, service design capacities were combined to realize local cocreations, promote indigo dyeing craftsmanship, and redevelop the characteristics of the local community. For the cocreation and codesign workshop, four activity sessions were held in this stage, involving dynamic and static activities. Green living artworks co-created by designers, university teachers and students, craftsmen, and local employees (including retired and middle-aged adults) are shown in Figures 2 and 3. Students of various backgrounds, occupations, and ages were grouped in this stage, during which they were free to create their own artworks to demonstrate various possibilities of craftsmanship through the introduction of novel ideas based on the concepts of mixed age groups and co-learning.

The research process encompassed five stages to enable students to gradually understand the spirit of co-learning and cocreation, which consist of communication and participation, experience and observation, thinking and learning, design and cocreation, and schema drafting (Figure 4).

Figure 1: Students participating in the indigo dyeing process

Figure 2: Students of different ages discussing and participating in indigo dyeing design I

Figure 3: Students of different ages discussing and participating in indigo dyeing design II

4. Research framework

The ultimate objective of this study's experimental design was to introduce a green lifestyle in the future. This would be accomplished first by identifying problems through empathic experience at the co-learning workshop, followed by independent learning, crossing professional boundaries, and creating value. The research framework is shown in Figure 5. The periphery of the figure indicates strategies, whereas the center of the figure indicates objectives. The content of the framework is described as follows.

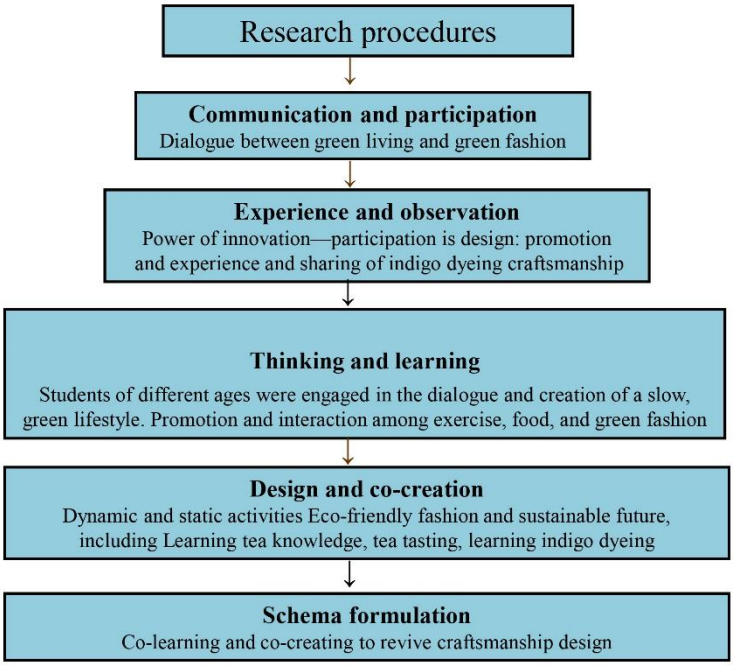

Figure 4: Research flowchart

(1) Identifying problems: Propose topics such as connecting local perspectives with local industries and implementing relevant strategies of grounded adaptation through communication with and participation of schools and students in social innovation.

(2) Self-directed learning: Teachers from various departments, fields, and schools lead students of different ages in experiencing local culture and learning with local craftsmen; this process encourages future designers to gain a deeper understanding of local culture and introduced innovative design thinking, communication and participation. In addition, teachers and students practice cocreation and co-learning strategies to enhance their understanding of the humanities and natural environment of Sanxia.

(3) Interdisciplinary profession: Experience-based activities that enable students to identify, understand, and analyze problems in the current situation of local craftsmanship. Student participation in local learning activities and design workshops related to the humanities and natural environment enable them to learn critical thinking skills, develop concern for the humanities, and understand the power of social participation. These skills and abilities could be incorporated into local social innovation to create flipped classrooms, optimize higher education, and promote the development and transformation of higher education, thereby encouraging younger generations to develop diverse skills and foster creativity.

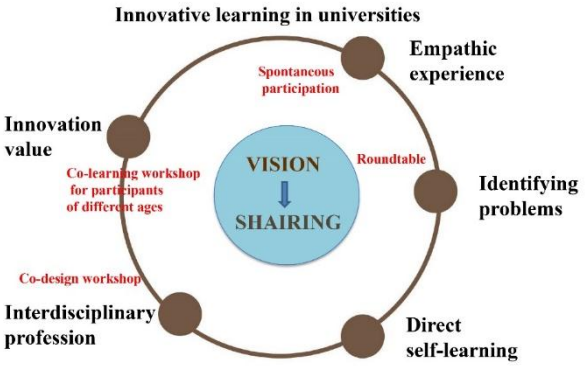

Figure 5: Research framework

(4) Innovation value: The long-term objective was to formulate a lifestyle incorporating the humanities and the natural environment. The strategic goal was to cultivate talent with a future vision and concern for the humanities and cooperate with Sanxia craftsmen in training local people as indigo dyeing craftsmen, in order to improve the entrepreneurial environment and attract young entrepreneurs. All of these measures were aimed at facilitating the future development of indigo dyeing, tea culture, health preservation, sustainable natural resources, and green living.

5. Results and discussion

5.1 Research results: Feedback on cocreation and co-learning experiences

Cocreation and co-learning break down occupational and age differences in the design process and enable people to learn a subject without being students or teachers. Although inheritance of craftsmanship and craft techniques are essential, the experiment in this study focused on diverse ideas and user experiences that students expressed before learning techniques. Their imagination and experience brought meaning to traditional craftsmanship, providing it with sufficient creative capital to continue thriving in the new era. Introducing new meaning and cultural context to traditional craftsmanship in a new era requires time and effort. One limitation of this study was that it did not focus on creation in traditional craftsmanship. However, it could serve as a model of reference and replication for developing cocreation and co-learning, and also provide a guide for the development of design creation.

After each activity, the students expressed their thoughts about indigo dyeing craftsmanship as well as relevant activities or suggestions for promoting indigo dyeing craftsmanship. The following sections describe the content of this student feedback. Based on the development of co-learning suggested by experts and scholars, feedback was divided into questions and experiences to indicate the preliminary experimental results of this study. The content provided by students was primarily obtained from course records, whereas content of professional opinions was derived from the records of the Memory of Sanxia symposium in August 2017. According to student feedback on the aforementioned four stages, some students identified current problems of indigo dyeing craftsmanship in Sanxia, whereas others merely shared their opinions on the activities. These opinions were not necessarily from students with a professional background in design or community building; however, their input might provide unintentional solutions to developmental problems in Sanxia's indigo dyeing craft.

(1) Participate and experience to identify problems

i. Problem I. Difficulty of industrializing indigo dyeing craftsmanship in Sanxia

Regarding industrialization of indigo dyeing craftsmanship in Sanxia, students participating in the activities noted that promotion of such craftsmanship in the community was limited. Although an indigo dyeing festival is held every year to celebrate this craft, indigo dyeing is still uncommon in the community outside this annual event. Instead, the Jin Sanxia Croissant has become synonymous with the region. Similarly, the chairman of the Taiwan Urban and Rural Development Association remarked that if the indigo dyeing festival was held for just one day a year, people would only wear an indigo-dyed shirt once

a year, implying that the industry could never be revived. Specifically, if indigo dyeing craftsmanship cannot maintain a connection with contemporary life and values to become part of Sanxia residents' life and display aesthetics unique to each generation, indigo dyeing craftsmanship might never be successfully transformed and integrated into modern lifestyles and industries.

ii. Problem II: Lack of positioning for indigo dyeing craftsmanship in Sanxia and difficulty of reaching community consensus

Regarding the positioning of Sanxia indigo dyeing craftsmanship, some students noted that numerous indigo dyeing practitioners in Sanxia were only concerned about their current situation, such as how many DIY or teaching opportunities they would have. This lack of clear positioning in Sanxia indigo dyeing craftsmanship is the result of a lack of leadership with ideas for integration in local industries. The chairman of the Taiwan Urban and Rural Development Association remarked that every dyeing practitioner in Sanxia considered his or her technique to be superb but that no representative dyeing master could be found. In contrast to the woodcarving art of Daxi, the positioning of workers, craftsmen, and masters in the Sanxia indigo dyeing industry was not explicit. The spirit of craftsmanship needs to be passed down with the positioning of the art clearly rooted within the values of the contemporary era.

5.2 Analysis of experience

(1) Demonstrating craftsmanship features through storytelling

After participating in a course, one student suggested that design could be introduced into indigo dyeing craftsmanship through incorporation of tea and indigo dyeing to create stories and arouse interest among younger people. In addition, holding design competitions could be another option benefitting local industries and participants, with participants gaining visibility and prizes while the culture of indigo and tea is promoted. Specifically, indigo and tea dyeing could be used to produce different colors in dyeing work. Raw materials of indigo dye could be used in conjunction with one another to produce works of different coloration. Moreover, local culture could be fully integrated into daily life to produce works with practical applicability.

(2) Diversified marketing methods

In addition to marketing products through a story-based approach, some students mentioned use of performing arts such as music, and dance to promote products. In addition, the possibility of dyeing involving different materials should be tested. However, factors such as sales channels, cost, market value, and targeted consumers and their corresponding appeals should also be considered.

(3) Integrating public-related elements into design

A practical suggestion by students was to integrate elements related to the public into indigo dyeing craftsmanship, such as incorporation of dyes and cosmetics and application of indigo dyeing in production of cloth for tea sets instead of using plastic bags. Some students also suggested products that are embedded with cultural features, including indigo-dyed bags and wallets.

(4) Using government resources to establish a local indigo dyeing center

Some students stated that a feasible approach is to use government resources to develop and promote indigo dyeing craftsmanship in Sanxia. Moreover, by establishing a local indigo dyeing center, the municipal office and bureau of culture could help promote the curriculum on behalf of the community. The government could even produce advertisements centered on local indigo dyeing to promote relevant craftsmanship.

(5) Student recognition of the cocreation concept

The students provided positive feedback on co-learning and cocreation. After completing several courses, a number of students stated that they had gained opportunities to socialize, expand their interpersonal relationships, make new friends, and learn more from their senior counterparts from various industries. They believed that gathering and mixing people of different ages and professions to take classes and make art works could inspire participants to identify the characteristics of each person and learn from one another. By the end of the course, the students had learned additional indigo dyeing techniques from one another. Some students mentioned that initially they thought indigo dyeing was difficult, but after several classes they realized they could produce high-quality indigo dyeing works by devoting the necessary time and effort. As one student concluded, "The results were amazing. I learned so much from the course."

5.3 Summary

(1) Problem solving

The indigo dyeing process should maintain a connection with the values of contemporary life, and should be integrated into the lives of Sanxia residents to express generational aesthetics of life and facilitate the industrialization of indigo dyeing craftsmanship. The positioning of dyeing workers, craftsmen, and masters should be explicitly defined to reveal craft value and pass on craftsmanship.

(2) Summary of experience

i. People from various fields including potters, calligraphers, textile artists, and tea artists shared their experiences so that indigo dyeing could be integrated with other crafts. Whether it was indigo dyeing, tea-related knowledge, textile art, or ceramics in life cultures, these cocreation activities enabled the students to understand indigo dyeing craftsmanship and increased their interest in it.

ii. The teaching of the indigo dyeing process was different from that in other courses. Teachers were assigned groups to guide students' creative ideas and provide them with diversified and in-depth thinking. The cocreation process, from the display to the presentation of their results, enabled the students to learn from one another and gain valuable experience.

iii. Experience was essential for integrating feelings into the design process. The process of producing a work afforded sensory experiences. As Merleau-Ponty stated, people's bodies always receive specific perceptions from specific senses, and thus habitual physical experiences and perceptions are formed. Through accumulation of physical experiences, the self is connected with the world and becomes the source of adjustments and creations. Therefore, instead of the function of created works, the experience gained in the process was most essential for the students.

iv. In the indigo dyeing process, students expanded their interpersonal relationships and benefited from exchanging ideas with experts from different fields. This illustrated the crucial concept of codesign described by Sanders and Stappers (2008). Works were not produced by a single designer but rather created according to user-centered principles and generated from group meetings where appropriate methods and tools were discussed.

As this summary indicates, the students' works were naturally aligned to their life experiences. When inspired by the experiences applied in their designs, they naturally achieved the goal of codesigning rather than designing for users from the perspective of designers. Therefore, the boundaries between designers and users were blurred in the process of learning and sharing. The focus was not on techniques or the form of the crafts conforming to tradition; instead, students incorporated their perceptions of life and understanding of indigo dyeing into their works, and thus were able to bring new life to an old craft. The purpose of the sharing and co-learning experiment was not to create works but to focus on process.

6. Conclusion and recommendations

The results of this study indicated that although the students did not necessarily have a design or indigo dyeing background, through the process of experimentation, co-learning, and sharing, they could inadvertently provide answers to problems proposed by experts (in the first part of this study) as well as possible directions for the development of craftsmanship. The experts and students shared the same idea, namely that the heritage of indigo dyeing craftsmanship should keep pace with the times and its practitioners must understand the demands of consumers to achieve industrialization. Therefore, the indigo dyeing industry should seek new possibilities by training new talents. Indigo dyeing craftsmanship in Sanxia should have clear positioning similar to woodcarving art in Daxi because such positioning constitutes value in contemporary craftsmanship. This study echoed the Blue Gold Legend talent-training program being implemented at the Hakka Culture Park in Taipei. Future plans include a parent–child indigo dyeing interaction zone, indigo dyeing landscape art, and a cultural and creative center. The author of this study hopes to improve the current situation of people wear indigo-dyed shirts only on the day of the indigo dyeing festival. In the future, indigo dyeing craftsmanship should be integrated into daily life to uncover the various transformational possibilities for its related industries.

This study aimed to establish a model for transforming traditional craftsmanship based on the design processes of co-learning and cocreation, thereby contributing to future development in Taiwan. Shown as Figure 6 below.

Co-learning, co-creation, and interdisciplinary participation are were the core ideas of this study. Such was also and the purpose of the experiment in this study, whose author hopes that a new path for indigo dyeing craftsmanship may be opened through by co-creation and co-learning. The transformed craft can also be considered an organically existing, innovative, and cross-domain social enterprise—that each participant in this process can understand, interact with, and enrich the others, thereby enabling everyone to evolve together, and forming a relationship of social aesthetics. From this perspective, the altruistic effect that university education and local industries seek to create is not a matter of short-lived surprises and novelties but rather of continuing organic links between schools at different levels, whether they are independent vocational schools, public schools, or society at large. These links function like synapses in that they re-exchange messages, learn, or form a higher level of alliance.

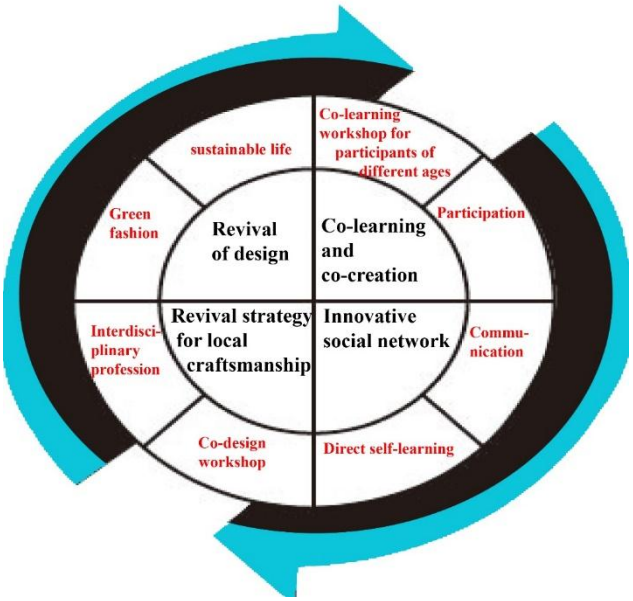

Figure 6: Schema of craftsmanship regeneration

Therefore, the author of this study hopes that people will think more deeply about the significance of the environment and social life. In addition to providing a reference for practical activities in the related industries, this study enables schools, students, teachers, professional designers, and local cultural workers to participate in the process of imagining and developing the lifestyle of green fashion through continuous and innovative communication. The results from roundtables, spontaneous cross-border participation, and co-creation workshops indicated the possibility of reviving and innovating traditional craftsmanship. The results of this study could serve as a reference for (1) recreating the characteristics of indigo dyeing craftsmanship, (2) to facilitating the value-added regeneration of the local industries, (3) the efforts of reviving traditional craftsmanship, (4) providing university teachers and students with the opportunities to transcend departmental and school the boundaries of departments and schools, and (5) incorporating participation the experiences from their participation into co-learning and co-creation to develop educational innovations for serving as a reference for the industry, the government, and academia in order to promote co-learning and co-creation among cross-border talents.

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