sustainability

MDPI

Article

Empowerment or Disempowerment: The (Dis)empowering Processes and Outcomes of Co-Designing with Rural Craftspeople

Baosheng Wang *, Tie Ji and Renke He

School of Design, Hunan University, Changsha 410082, China
* Correspondence: walterwang840217@gmail.com

Abstract: Despite the significance of human development for sustainability, the actual effects of craft-design collaboration on craftspeople have scarcely been discussed. Moreover, despite its wide usage, the meaning of empowerment in design discourse is unclear and its discussions are barely linked to mature ones in other disciplines. In addition, disempowerment has been mentioned far less often than empowerment. From the perspective of empowerment, this article examines the elements in the *processes* of craft-design collaborations that can exert positive or negative influence on craftspeople, and analyzes both the empowering and disempowering effects on them as co-design *outcomes*. This research builds on two empirical cases based on Tiao Hua, a cross-stitching handwork. We identify five stages of co-design processes for empowerment analysis. The data was mainly collected from the designers (D1–D16) and craftswomen (C1–C8) through observations, interviews, and reflective sessions. We sorted and codified the qualitative data as sticky note statements. Higher-level themes and sub-themes emerged from the codified statements through affinity analysis. Finally, we presented an analytical framework of craftspeople (dis)empowerment *process* and *outcome*. The (dis)empowering process covers four dimensions: *organization*, *instrumentation*, *participation*, and *interaction*, while the outcome involves *emotional*, *cognitive*, *behavioral*, and *relational* components. We contend craftspeople (dis)empowerment should be discussed *dialectically* in four aspects.

Keywords: craft-design collaboration; craftspeople (dis)empowerment; co-design; participatory design; design for sustainability; social design; capacity building

Citation: Wang, B.; Ji, T.; He, R. Empowerment or Disempowerment: The (Dis)empowering Processes and Outcomes of Co-Designing with Rural Craftspeople. *Sustainability* **2023**, *15*, 4468. https://doi.org/10.3390/su15054468

Academic Editor: Pier Luigi Sacco

Received: 5 January 2023
Revised: 2 February 2023
Accepted: 7 February 2023
Published: 2 March 2023

1. Introduction

The term empowerment has been broadly used in diverse domains of social sciences and humanities [1]. Design discussions on empowerment mainly take place in varied co-design contexts [2], such as social innovation, humanitarian technology development, and participatory design (PD) with a Scandinavian origin [3–5]. The relation between empowerment and co-design has been widely discussed in diverse social design domains. There has been a transition of co-design from designing "things" (objects) to designing "Things" (socio-material assemblies), from "projecting" to "infrastructuring" design activities [6]. Co-design has been increasingly leveraged as an empowering process of capacity building through collaboratively designed, community-specific activities [7]. Empowerment has been viewed as one of the significant goals and evaluation criteria of PD projects [8].

Despite its wide usage, however, the exact meaning of empowerment in the design discourse is unclear and its varying articulations are barely linked to the established discussions of empowerment in other disciplines [2], such as community psychology, social work, political theory, education, women studies and sociology. There is an emerging design literature that attempts to systematically conceptualize empowerment in the context of co-design or PD for social impact, building on the mature empowerment theories in community psychology, e.g., [2,3]. However, systematic discussions remain exiguous in relation to craftspeople empowerment through craft-design collaboration.

Craft empowerment through co-design between designers and rural artisans is an emerging design issue. Conventional handicrafts have often been depreciated as lowly women's or ethnic crafts [9]. However, craft value has been increasingly recognized and utilized for varied purposes, such as the craft revival in governmental initiatives and the cultural and creative industries, crafts' entry into schools and communities, and craftivism, where craft and activism meet for social good with wide social engagement, such as community embroidery projects, revolutionary ceramics, and stitching in prisons [10]. Despite its altruistic purposes, however, existing craftivism generally generates works that are artistic, conceptual, and urban-situated, without pragmatic impacts on marginalized local communities. The true value of crafts as heritage rests on the benefits they bring to local communities as developmental assets. Handicraft is consistent with the principles of sustainability for its eco-effectiveness, localism, distributed self-production, and contextualized lifestyle [11]. Hence, craft can serve as an agent for eliciting radical changes towards sustainable alternative futures and craft empowerment.

Among the three forms of craft practices, i.e., conventional craft, craft-design, and art-craft, craft-design collaboration is considered as the approach with the most potential for empowering craftspeople [9]. However, critics tend to point to the unsustainability, tokenism, and cultural imperialism of such craft-design projects as discursive, small-scale interventions [12], which have often ignored the real impacts on the craft community involved. The existing literature tends to focus more on the methods and tools to facilitate artisan participation in co-design processes, e.g., [4,13,14], than the co-design effects in terms of artisan empowerment. Despite the significance of human development for sustainability, the actual effects of craft-design collaborations on craftspeople have rarely been discussed.

Moreover, of necessity is a dialectic discussion of empowerment. Social design projects do not necessarily result in desirable social goals. Co-design endeavors that aim to empower people may have the unintended paradoxical effect of disempowering them [15]. Many alleged empowerment projects exhibit empowering "words" yet disempowering "actions", just as the saying goes: "The road to hell is paved with good intentions". However, disempowerment has been mentioned far less often than empowerment in the extant literature.

Therefore, building on the empowerment discourse, this article seeks to examine the elements in the *processes* of craft-design collaborations that can exert positive or negative influence on craftspeople, and to analyze both the empowering and disempowering effects on them as co-design *outcomes*. The work reflects an emerging field combining craft empowerment, co-design between artisans and designers, and design for sustainability.

2. Literature Review

2.1. The Construct of Empowerment

Empowerment is a process by which people, organizations, and communities gain mastery over issues of concern to them [16]. It is a multilevel construct involving three interdependent levels of analysis: individual, organizational, and community [17]. Empowerment is both a *process* and an *outcome*, i.e., it is both a *formative* construct that is formed by its components and a *reflective* construct that is manifested by its dimensions [1]. Processes involve "actions, activities, or structures" which may be empowering, and "the outcomes of such processes result in a level of being empowered" [18] (p. 45).

The development of empowerment theory has been propelled by community psychologists since the early 1980s. Rappaport suggests adopting empowerment as the disciplinary "phenomena of interest" and "world view" for directing self-determined actions towards addressing social issues [16] (p. 122). Zimmerman further presents a nomological network of individual empowerment with three components: (1) the *intrapersonal* (emotional) component referring to self-perceptions of one's competence in exerting influence on issues related to their lives; (2) the *interactional* (cognitive) component referring to the critical understandings of one's environments and their functioning and the skills required for exerting influence; and (3) the *behavioral* component referring to the direct actions to exert influence [17]. Christens expands Zimmerman's framework by adding a fourth *relational*

component, which refers to the interpersonal transactions that underpin the exertion of influence [19].

Building on self-determination theory and intrinsic motivation theory, Avelino et al. conceptualize empowerment as a process of gaining capacities in six dimensions: (1) *relatedness*: "we are related to each other"; (2) *autonomy*: "we can determine what we do"; (3) *competence*: "we are good at what we do"; (4) *impact*: "We can make a difference"; (5) *meaning*: "we believe in what we do"; and (6) *resilience*: "we can adapt and recover" [3] (p. 958). Considering its root-concept "power", empowerment is understood as a process through which "individuals, organizations, and communities develop power" [20] (p. 211). Rowlands categorizes four types of power: (1) *power over*: the controlling power to exert influence; (2) *power to*: the generative power, which "creates new possibilities and actions"; (3) *power with*: the concerted power from collective action; and (4) *power from within*: individual consciousness necessary for making a change [21] (p. 13). Following Rowlands, Zamenopoulos et al. formulate an analytical framework of empowerment to discuss the types, obstacles and sources of empowerment in the objects and processes of co-design [2].

The dialectic nature of empowerment also needs to be discussed. Empowerment is a process or outcome in which actors gain a sense of impact, competence, meaning, and choice to implement desired change, while disempowerment denotes a process or outcome in which actors lose such a sense [15]. Empowerment and disempowerment are two sides of the same coin, but disempowerment is often neglected. In fact, empowering intentions are often accompanied by disempowerment and struggle [22]. Attempts at empowerment may cause new dependency relations [23]. Empowerment should always be viewed through a critical lens.

2.2. Participatory Social Design

Participatory Design (PD) has been employed by social designers as the primary approach to making a pragmatic, lasting impact on underdeveloped communities [24]. The rationale behind PD involves *moral* and *pragmatic* factors [25]: morally, locals deserve a right to have a say on issues of concern to them; pragmatically, getting locals involved in social projects engenders job opportunities and beneficial input of indigenous knowledge and skills. Participant empowerment is also an integral part of a PD process [8], which is instrumental in eliciting "large-scale, sustainable changes" [26] (p. 199).

There are studies which clarify the stages of co-design processes. Sanders and Stappers formulate a model of the co-design process involving four stages: pre-design, generative, evaluative, and post-design [27]. They propose three types of making activities in the co-design process: *probing* for understanding people and contexts mostly in the pre-design stage, *generating* for design ideation and development generally in the generative stage, and *prototyping* for concept materialization primarily in the evaluative stage. As a useful complement, Drain et al. contend that an explicit *capacity building* activity should be added in the pre-design stage [24]. However, the activities in the post-design stage of co-design remain vague in the extant literature.

The barriers and enablers of co-design have been discussed, primarily based on the co-design projects in industries and public sectors [28,29]. Pirinen identifies twenty barrier–enabler couples involving five dimensions: *collaboration*, *organization*, *process*, *implementation*, and *methods* [29]. The co-design barriers and enablers in social design domains have also been sporadically discussed, such as the problems of sharing design agency and possible solutions [30], and the factors that affect the conduction of CCB (Creative Capacity Building) [24]. Reflecting on a project failure, Del-Gaudio et al. propose several strategies for successful PD while sharing design agency with local partners, such as design-literacy training, negotiating common interests, developing a dialectic and dialogic process, strengthening a supportive local network, and managing collaboration and competition [30]. Drain et al. identify two aspects of factors crucial to effective CCB delivery: understanding participants' *learning capacity*, *previous experience,* and *sociocultural background*; creating appropriate CCB content through *clear communication*, *contextual relevance,* and *flexibility* [24].

2.3. Craft Empowerment through Co-Design

There are adequate discussions on the conditions and practices that ensure successful co-design processes. However, *participant empowerment* is both a *means* and an *end* of co-design in social contexts [3]. Hence, in addition to several recent attempts (e.g., [2,8]), more work is needed to elaborate on the effects of co-design processes on participants, particularly the issue concerning craft empowerment through co-design.

The new design ethos emphasizes the importance of building the capacities of craftspeople and affording them "agency, free choice, and value judgments" [12] (p. 44). Some studies in this direction seek to activate craft communities to gain critical insights into local contexts, collaboratively develop a sustainable mindset to envision alternative futures, and reframe craft sustainability into actual actions, such as the social projects concerning a textile community [14] and a pottery community [4]. These efforts highlight the significance of social designers as catalysts to co-construct with locals "sustainable social infrastructures" through a creative reconfiguration of social–cultural–technical relations [4] (p. 65).

The above works of *social infrastructuring* are more suitable for the early stage of social design for craft empowerment. Craft-based product development may be an issue of mid- and long-term concern to social designers. Most relevant studies look into the dynamics of the collaboration between designers and artisans, such as the collaborative types [12] and co-design processes [13,31]. Mamidipudi characterizes three types of the roles of designers co-working with artisans: (1) *intervention*, in which designers plan while artisans implement, for an *economic* outcome; (2) *interaction*, in which designers constrain their agency and bring different craft communities together for craft production, indicating a *social* concern; (3) *mediation*, in which designers act as translator and mediator of cultures and leave room for artisans to actively shape culture, exhibiting a *cultural* concern [12]. Designer roles in *interaction* and *mediation* can be more empowering for artisans who gain dignity and status from their "knowledgeable participation" in cultural and value production [12] (p. 44).

Besides the general, macroscopic analysis of the roles of designers and artisans in their collaboration presented above, the dynamics of craft-design cooperation need to be viewed through a microscopic and process-specific lens. Moreover, artisan participation in the early stage of co-design processes, e.g., planning and ideation, remains nascent and artisans mostly participate in production activities [32]. The problems derive from various socio-cultural barriers, e.g., artisans' low design literacy and educational levels [24], designers' patronizing mindsets, artisans' sense of inferiority [4], and their different mindsets and values. Thus, more research and practice should be directed to artisan involvement in the stages other than the production stage of craft-design co-creation.

As to the empowerment concerns, there are attempts to trace the empowering effects of participatory craft projects from a macroscopic perspective. Busch and Pazarbasi propose an evaluative framework from the capabilities approach to assess project efficacy in terms of the cultivation of artisans' *internal capabilities* (skills and knowledge) and *external capabilities* (tools and environments) [33]. Aktaş and Mäkelä scrutinize how design empowers artisans in terms of their production modes, mentality, and interaction with local community [9]:

> " . . . craftspeople who use design were significantly optimistic, while craftspeople working in the conventional manner stated that felting is dying . . . Since Ayfer stepped into the field with her newly developing creative perspective for felting, she was more open to new experiments . . . craftspeople using design stated that they mentor at workshops at the local, national, and international level. This allows them to enlarge their network while obtaining inspiration from different approaches . . . overcome the limitations of locality and become more confident regarding making new experiments . . . the craftsperson develops an ability to provide opportunities and potentials for her local community . . . [a long-term result] would be support of local culture and the sustainable development of the local community." (p. 7)

However, a dialectical, intensive examination of the (dis)empowering effects of craft-design co-work on the artisans remains rather inadequate.

3. Research Questions and Methods

3.1. Research Questions

Given the aforementioned background, while enough work has been done concerning the methods and tools for facilitating craft-design collaboration, there are still insufficient discussions of the effects of co-design processes on craftspeople in terms of human development. Focusing more on human-oriented forms of assessment, the article deals with this insufficiency from the perspective of empowerment, a construct that has been well articulated in other disciplines (e.g., community psychology and social work) but remains ambiguous and unstructured in the design discourse. Unlike conventional co-design discussions that tend to emphasize more on "successful experience" than "lessons learned", this work has touched upon both aspects, taking into account the dialectic nature of empowerment. The research is aimed to formulate a tentative analytical empowerment framework for craft-design collaborations, tracing both the empowering and disempowering elements in the collaborative *process* and the corresponding *outcome* for craftspeople. The framework is in line with the notion that empowerment is both a process and an outcome from a formative and reflective perspective, respectively (Figure 1). To achieve the objective, two research questions are raised:

- What are the elements in co-design processes that can exert positive and/or negative effects on artisan empowerment? (RQ1)
- What changes, whether good or bad, have the craftspeople undergone as co-design outcomes? (RQ2)

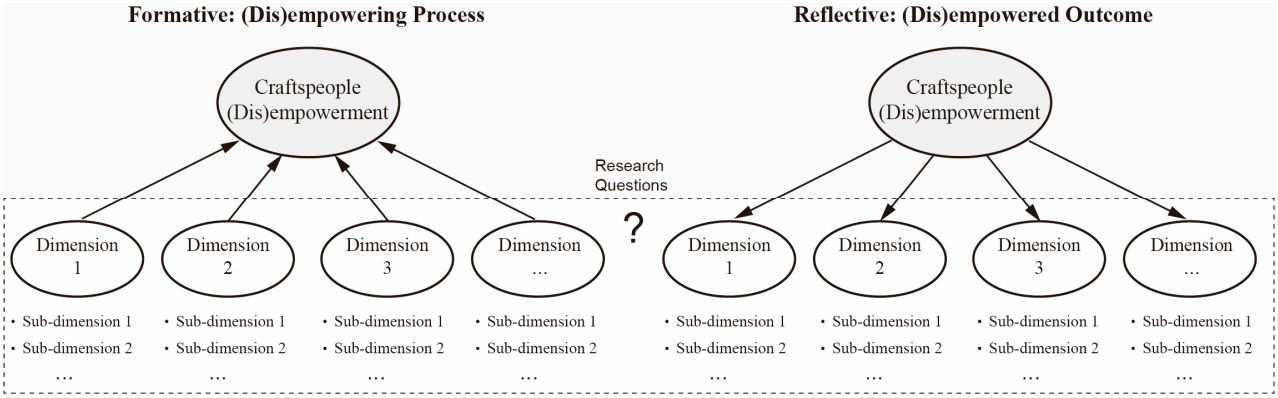


Figure 1. Inquiry into an analytical framework for craftspeople (dis)empowerment.

3.2. Methods

This research builds on two empirical cases relevant to craft-design collaboration based on Tiao Hua, a cross-stitching handwork. Taking into account the aforementioned literature concerning co-design, the co-design processes were divided into five stages, prepared for the following empowerment analysis. Artisan participation was generally present in all the five co-design stages in the two cases altogether, with different participation conditions in each case. Artisans in Case 1 mainly participated in the latter stage of the co-design process, while those in Case 2 engaged in the early stages of planning and ideation. The cases exhibited two craft-design collaborative types, and both the empowering and disempowering qualities in each of the two were examined.

Participatory action research (PAR) was conducted for a co-operative inquiry in which research was done "*with* people rather than *on* people" [34] (p. 179). PAR makes sense of the world through collective efforts in an iterative process and constantly reflects on the process to make improvements. We employed an inductive approach of grounded theory which began with research questions and the collection of qualitative data. As Rappaport

indicates, empowerment should be assessed longitudinally over time [16]; thus, we traced the (dis)empowering conditions of artisans at the beginning of, at the end of, and half a year after the projects. The data were collected from designers and artisan participants through observations, interviews, and reflective sessions. Two reflective sessions were conducted at the beginning and end of the workshop in Case 1, and three at the beginning, middle, and end of Case 2. Open-ended questionnaires for interviewing craftspeople (8 craftswomen, Case 1: C1–C6; Case 2: C7–C8) and designers (10 females and 6 males, Case 1: D1–D6; Case 2: D7–D16) were administered at the three times mentioned above (see Appendix A for more details). The raw data in the form of audio–visual recordings and field notes were transcribed and converted into coded statements. Higher-level themes, i.e., subdimensions and dimensions in Figure 1, would emerge from a review of the data.

4. Empirical Cases: The Dynamics in Co-Design Processes

We conducted two empirical projects concerning the collaboration between designers and artisans of Tiao Hua, a cross-stitching technique of the ethnic minority of Hua Yao, China (Figure 2). Tiao Hua was mostly employed to make tube skirts for individual uses. They stitch symmetric motifs directly on the cloth by counting warp and weft yarns without sample drawings. Local women used to do the time-consuming work together in public places while chatting away. Owing to modernization, this technique has been declining and inscribed on the National List of Intangible Cultural Heritage (NLICH).

Figure 2. Tiao Hua as a handicraft of the Hua Yao ethnic minority.

The two cases brought designers and Tiao Hua artisans together for culture-based product development (check the Supplementary Materials for more details about the co-designed works). We identify the craft-design collaborations in the two cases as an iterative process involving five stages: *knowledge acquisition*, *concept generation*, *preliminary prototyping*, *handcrafting*, and *evaluation* and *diffusion*. The cases represent two co-design paradigms in terms of the levels of key actors' participation in the co-design stages.

4.1. Case Study 1: Flowering Hua Yao

Flowering Hua Yao is a typical design-driven social innovation project with an explicit empowering purpose. The project involves a co-design workshop for Tiao Hua product development and a series of follow-up activities (e.g., exhibitions, awards, and graduation projects). The workshop, as the main focus of this study, was carried out in two villages

of Hua Yao and lasted three weeks in July 2015. The participants had multidisciplinary and transnational backgrounds, involving design teachers and students from several universities in Changsha, Hong Kong and London, fashion designers from South Korea, design practitioners from France and Italy working in Hermes, and local Tiao Hua artisans. We identify in this case co-design paradigm I with five stages (Figures 3 and 4).

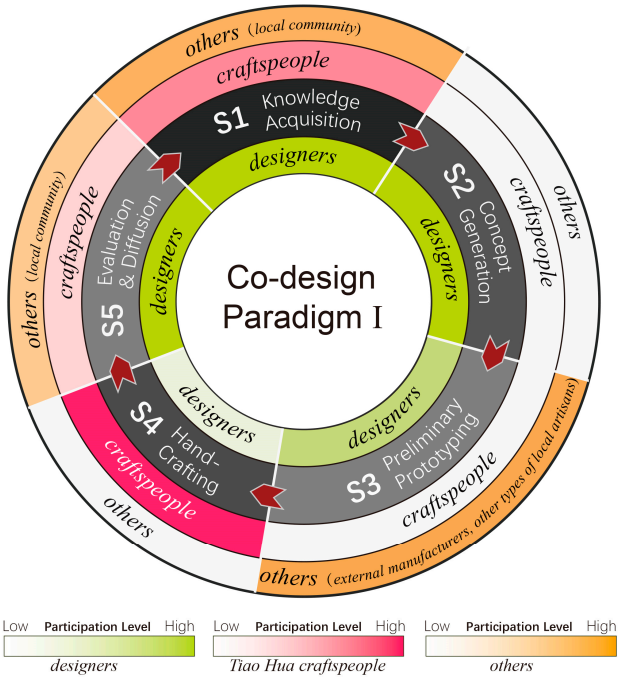


Figure 3. Co-design paradigm I.

Figure 4. The co-design stages of Case 1.

4.1.1. Knowledge Acquisition

The pre-design stage is termed by Sanders and Stappers as ambiguous "fuzzy front end", serving to identify design problems and opportunities [35]. We define this stage as *knowledge acquisition* in which key actors co-work to gain insights into local contexts, frame co-design direction and schedule, and prime participants for co-creation. Knowledge construction is a significant epistemological component of PD, underpinning its processes and outcomes [36]. We devised an approach to quickly immersing into local contexts by investigating typical figures (e.g., local leaders, artisans, businessmen, and the prestigious elderly) and events (e.g., rural markets, festivals, weddings, and funerals) in rural societies. This method might get biased or false knowledge; e.g., some interviewees "not typical enough to represent this region", and the team's failure to discover the "authentic" indigenous assets. We rectified the deficiency through a reflective community seminar with considerable local participation.

Designers became immersed into local contexts to develop trust and rapport, facilitating *informal mutual learning* and cross-pollination among participants [37]. Both designers and artisans assimilated and accommodated Tiao Hua knowledge through this social constructivist process, and formed common insights into Tiao Hua from mutual influence. The artisans' mentality and craft-design exchanges can be exemplified by the quotes of one craftswoman:

> I enjoy the atmosphere when I stitch with others in public places of the village, chattering away happily. I often reflect on my works lying in bed before sleep. I would be annoyed and could not fall into sleep if not satisfied with my works...The reason [why I put birds and plants in the stomach of a tiger] is that the tiger is pregnant and she is very hungry so she eats birds and plants . . . A bee motif is stitched much bigger than a frog one because the bee has spreading wings . . . I stitch what I see and the inspiration [of a bee motif depicted in a modern cartoon style] comes from a bee cartoon character on TV . . . [but] I prefer the traditional style because one expert once told me that exquisite traditional Tiao Hua is more valuable than simplified modern one.

We decided to conduct a co-design experiment involving local artisans to develop craft-based products for local tourism, with a purpose of craft empowerment. Tiao Hua was chosen as the targeted craft among other local crafts. The choice of Tiao Hua as the subject was based on the criteria of easy *convertibility* into modern products, superb *craftsmanship* and adequate number of *artisans*.

4.1.2. Concept Generation

Designers in Case 1 were responsible for generating design concepts without artisan participation. The absence of artisans derives from the socio-cultural barriers identified by Kam et al., such as low familiarity with design, low levels of education, and a lack of confidence in creative problem solving [38]. Hence, it is of necessity to include a proactive process of creative capacity building (CCB) to get locals equipped for co-creation [24], which was not implemented in Case 1.

The design team worked in a wooden homestay building, which is an open space convenient for in situ interactions with locals. Designers generated design concepts through divergent brainstorming and discussed the ideas in designerly languages (e.g., sketches and simulations). Several ideas were chosen for further refinement (e.g., camera strap, cloth shoes, and bamboo bag) based on their suitability for tourism and potential for giving full play to Tiao Hua skills and local resources.

4.1.3. Preliminary Prototyping

Several concepts were selected to make preliminary prototypes. As indicated in Figure 3, Tiao Hua craftspeople were absent from this stage not suitable for their cross-stitching expertise. The preliminary prototypes were made by designers (e.g., the cloth shoes made from traditional Korean technique), external manufacturers (e.g., an acrylic raincoat), or local artisans skilled in crafts other than Tiao Hua (e.g., a bamboo handbag). Tiao Hua motifs would be applied to these prototypes in the next stage.

4.1.4. Handcrafting

Handcrafting was part and parcel of the co-design process in which Tiao Hua motifs were cross-stitched to the preliminary prototypes. Craftswomen were given full play to their skills in this stage. Designers and artisans had extensive communication in a constant dynamic of conflict and compromise. Designers adopted physical materials and prototypes rather than designerly methods (e.g., sketches and digital simulations) to facilitate communication with artisans, who are used to thinking with their hands [39]. Sample-making and prototyping are effective tools for developing ideas and mobilizing knowledge during craft-design collaboration, as indicated by Mamidipudi [12].

Designers defined the motif types in a general way (e.g., floral or fauna motif), or in a specific way (e.g., a specific animal or flower), the color schemes of the cloth and threads, and the position to apply Tiao Hua. Craftswomen had their own creative ideas for motif creation. They often challenged designers' motif designs, the chromatic schemes, and the position arrangement of Tiao Hua. For instance, the craftswomen abandoned the designated colors of threads and fabric and their bold color schemes demonstrated fascinating quality. In raincoat design, besides adding Tiao Hua to the designated areas, the artisan went further to decorate the zippers and sleeve edges to make the decorations more "balanced" as a whole. This verifies the notion of Sennett that artisans may revise initial designs on the ground and provide helpful feedback, leading to design improvements [39].

4.1.5. Evaluation and Diffusion

Social design outcomes should be diffused to and assessed by the local community. The co-assessment can be a democratic process of fostering locals' *assessment literacy* [40]. A community seminar was held to diffuse and assess the results. New knowledge was constructed in this reflective session which could be used in the next co-design cycle. For instance, locals spoke highly of the tiger motifs on the cloth shoes, which symbolize a person "walking vigorously like a tiger". Some indicated that they had never seen Tiao Hua on other materials (e.g., the acrylic raincoat and bamboo handbag). These comments confirmed the prospects of utilizing local cultural symbols, exploring new Tiao Hua materials, and integrating Tiao Hua with other crafts in product development.

4.2. Case Study 2: Tiao Hua Talent Cultivation

The second case is a training program for fostering young talent for Tiao Hua innovation supported by the National Endowment for the Arts. Although not intentionally devised for building the capacities of artisans, the project was examined with artisan empowerment as an implicit umbrella aim. We conducted the project mostly in university spaces, which lasted for 2 months in 2018. Ten designer trainees were recruited from all across the nation, who were university teachers, students, design professionals, or freelancers with different design backgrounds (e.g., industrial product, fashion, fiber art, indigo dyeing, and lacquerware). The trainers included two Tiao Hua craftswomen, six design teachers and two craft researchers. We summarize in this case *co-design paradigm II* with five stages (Figures 5 and 6).

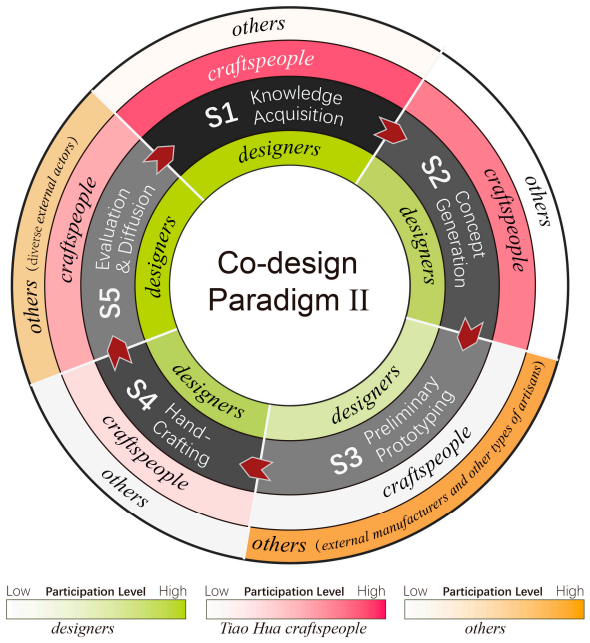


Figure 5. Co-design paradigm II.

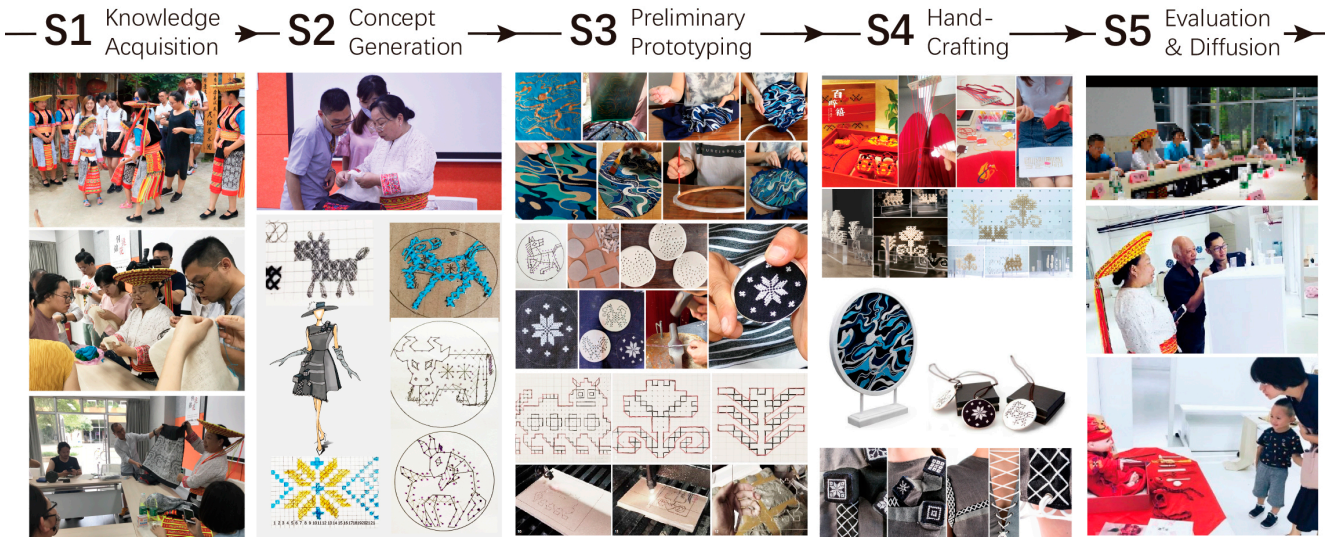


Figure 6. The co-design stages of Case 2.

4.2.1. Knowledge Acquisition

The training curriculum was created with the help of the artisan. In the first week, designer trainees acquired knowledge through lectures on Hua Yao culture and co-design methods for culture-based product development and took a field trip to Hua Yao for context immersion. Next, the trainees were given one week to learn fundamental Tiao Hua skills. The artisan was asked to present her Tiao Hua works to the designers. These old items with human traces of making and usage can trigger autobiographical memories and help form constructive dialogues among participants [41]. Designers in this case were better equipped for the subsequent generative design phases owing to the special pre-design training sessions, through which one artisan also obtained co-design knowledge.

4.2.2. Concept Generation

A variety of design concepts were developed with the Tiao Hua artisan's participation. Various mediating objects (e.g., vintage Tiao Hua samples, Tiao Hua books, and inspirational cards) were employed and frequently referred to for facilitating the craft-design communication. The artisan contributed to the process by interpreting the meanings of Tiao Hua motifs (e.g., snake as "small dragon") and assessing the technical viability of concepts (e.g., 3D Tiao Hua forms). The design concepts exhibited three features: (1) utilization of cultural symbols with propitious meanings, e.g., a baby sling with the motif of half-dragon and half carp, which means "a carp jumps over the dragon gate to become a dragon" (a metaphor of high hopes parents hold for their child); (2) transition from 2D to 3D Tiao Hua forms, e.g., a set of 3D Tiao Hua works converted from typical Tiao Hua motifs of flora and fauna; (3) a combination of Tiao Hua with other crafts, e.g., indigo dyeing bags, lacquer painting decorations, and ceramic necklaces with Tiao Hua motifs.

4.2.3. Preliminary Prototyping

The preliminary prototypes, onto which Tiao Hua motifs would be applied, were made by the designers themselves by hand or 3D printing (e.g., shoes and plastic parts), external manufacturers (e.g., clothes and acrylic frames) or external craftspeople (e.g., ceramic accessories and wooden boxes). The designers in this case often assumed the role of designer–maker and craft designer, spawned by today's design and art education concerning craft-based innovation and advances in digital fabrication technologies. The venue (university spaces) ensured easy access to modern making facilities. Unlike Case 1, no local artisans, whether Tiao Hua women or other types of craftspeople, participated in making prototypes in this case.

4.2.4. Handcrafting

The designer trainees did the embroidery work mostly by themselves with frequent consultations with the artisan for technical help. Designers encountered several challenges in this stage and managed to solve them through design thinking. One difficulty was to count the warp and weft threads of fabrics, which is a fatiguing, error-prone job for novices. The designers managed to position the designed motifs in auxiliary drawings, simulating the warp and weft threads on a computer before doing Tiao Hua. New media for Tiao Hua were also tested, such as ceramic and wood without warp and weft lines like fabrics. The designers drew auxiliary lines or dots on the materials for positioning the needlepoint. The novel media might pose other problems, e.g., the distance between the adjacent holes on ceramics, through which the needle and thread penetrated, should not be too small, which would make ceramic bisques fragile during firing, or too big, which would render the motifs lacking details.

4.2.5. Evaluation and Diffusion

The results were finally assessed and diffused through an exhibition and a seminar held in the authors' university. The visitors involved the designer trainees, the Tiao Hua artisans, design researchers and practitioners, governmental officials, and journalists from varied mass media. The events inspired wide discussions on Hua Yao culture and ethnic craft innovation. The works were highly commended in terms of their diversity, creativity, and high cultural, aesthetic value, which would offer inspiration for future product development. Some expressed their wish to visit Hua Yao for cultural experiences. However, the works were also criticized by some in terms of their loose link to authentic Tiao Hua, low market viability, and exploitation of local resources for art practices.

4.3. Refection on the Co-Design Dynamics and Paradigms

We have so far empirically conducted co-design activities and summarized two paradigms of craft-design collaboration with the same five stages. The division of co-design processes has laid a solid foundation for the later analysis of craftspeople empowerment, in the following two aspects.

The first aspect rests with its delicate, explicit segmentation of co-design processes, which is appropriate for analysis of craft empowerment. Current discussions of co-design processes are mostly based on the framework proposed by Sanders and Stappers [27,35], which involves four stages: pre-design, generative (ideas, concept, prototype, product), evaluative, and post-design. But what should be done in the pre-design and post-design stages remains implicit and not fully explored in the extant literature. The five co-design stages identified in this study delineate co-design processes in a more clear-cut and craft-specific manner. We explicitly define the pre-design stage, often viewed as "fuzzy" front end, as *knowledge acquisition*. This title indicates a clear purpose of capacity building in the pre-design stage, as proposed by Drain et al. [24]. We subdivide the generative design phase into three stages of *concept generation*, *preliminary prototyping*, and *handcrafting*. The subdivision fits well into the context of craft-design collaboration and offers an appropriate analytical lens for examining the participation levels and roles of co-design actors. We clarify the necessity of *evaluation and diffusion* activities in the post-design stage, which have substantial empowering potential. A series of relevant activities was carried out in the post-design stage, e.g., exhibitions, seminars, and multimedia publications. In line with Rabadjieva and Butzin [42], three elements of our projects were diffused: *materials* (e.g., Hua Yao culture and co-designed Tiao Hua products), *competencies* (e.g., co-design experiences and knowledge), and *meanings* (e.g., design activism for making an impact on a marginalized ethnic minority). The diffusion of social design initiatives is of significance for scaling up the *practice fields*, i.e., "bundles of similar social innovation initiatives" (p. 925), sharing experiences and receiving feedbacks, and building local, regional, national, and international co-creation networks [43]. Diffusion is an integral part of the co-design process, which may, in turn, help enhance community empowerment.

The second aspect of the segmentation of co-design processes involves its *iterative* feature, which provides the empowerment analysis with in-depth practical basis. The iterative quality of the co-design process has been empirically examined, addressing the deficiency of existing studies, which frequently refer to co-design iteration in theory but scarcely explore it in practice. Case 2 can be roughly regarded as the next cycle of the co-design iteration of Case 1. Sporadic co-design trials in Case 1 turned into systematic approaches in Case 2. Knowledge was transmitted and amplified in the iterative process in terms of *adoption of new materials*, *craft combination*, *technology appropriation* (the adoption and adaption of Tiao Hua techniques), and *cultural appropriation* (the adoption and adaption of Hua Yao cultural elements), as shown in Table 1. Iterations may lead to improvements of both the co-design process and outcome, which means greater potential for participant empowerment.

Table 1. The transmission and amplification of knowledge in the co-design iteration.

Improvement through Iteration	Case 1	Case 2
Adoption of New Materials	Acrylic Plastic (e.g., the raincoat with Tiao Hua)	Wood (e.g., the wooden box package with Tiao Hua); Ceramic (e.g., ceramic necklaces with Tiao Hua)
Craft Combination	Tiao Hua + Bamboo Craft (e.g., the bamboo handbag with Tiao Hua)	Tiao Hua + Indigo Dyeing (e.g., the indigo bag with Tiao Hua); Tiao Hua + Lacquer Painting (e.g., decorations)
Technology Appropriation	Adding Tiao Hua appliqués to new materials (e.g., the acrylic raincoat)	Applying Tiao Hua directly to new materials (e.g., ceramic, wood) aided by auxiliary drawings; Creating 3D Tiao Hua
Cultural Appropriation	Tiger motifs (e.g., shoes with tiger motifs symbolizing a strong person walking as vigorously as a tiger)	Tiger motifs (e.g., infant costume wishing the baby as robust as a tiger); a motif of half-dragon and half-carp (e.g., a baby sling symbolizing parents' high hopes for their child)

5. Theorizing Craftspeople (Dis)empowerment through Co-Design

The analytical framework of craftspeople (dis)empowerment has been proposed based on the grounded theory (Figure 7). We sorted, codified, and presented the qualitative data as sticky note statements dispersed in the co-design stages (see Appendices B and C for more details). The statements of (dis)empowering *process* and *outcome* were codified as P n_1-n_2 and O n_1-n_2, respectively (n_1 denotes the co-design stage; n_2 represents the ordinal number given to each statement). Higher-level sub-themes (subdimensions) and themes (dimensions) emerged from the codified statements through affinity analysis. One action or activity can be analyzed in multiple dimensions of the (dis)empowerment *process* and lead to several results that may fall into varied dimensions of the (dis)empowerment *outcome*.

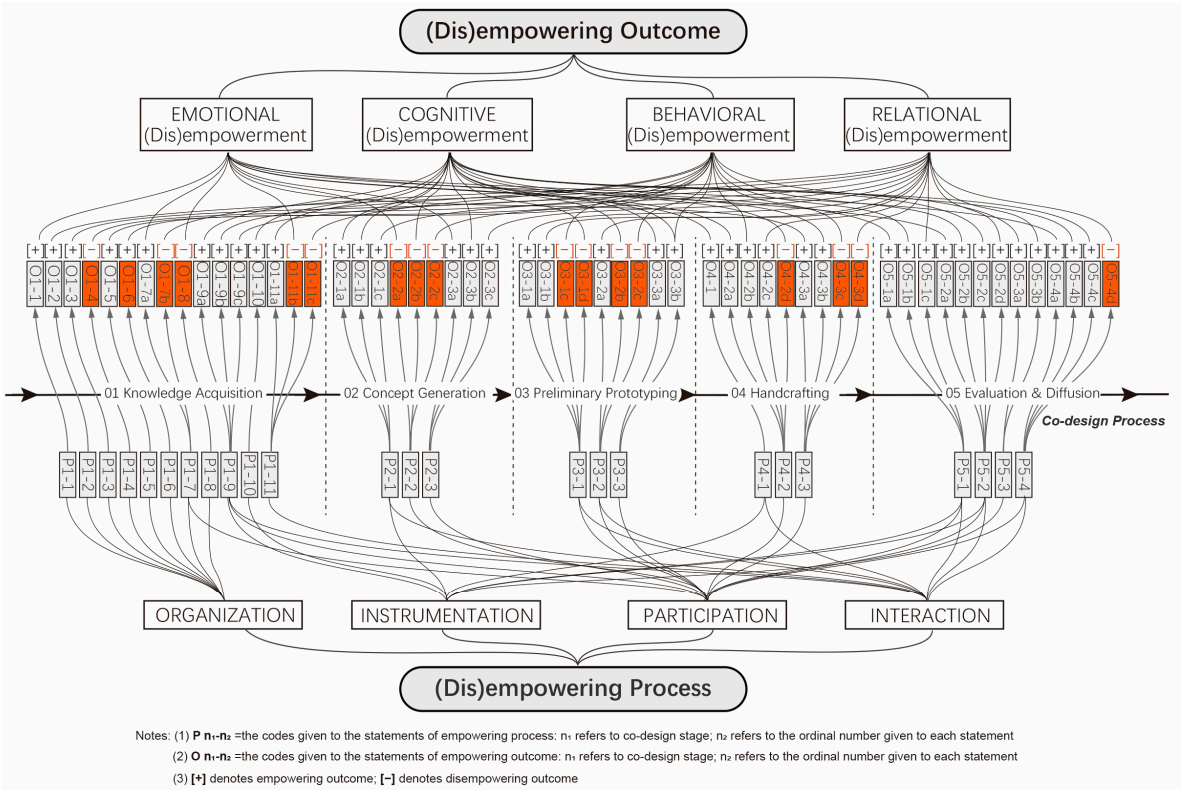


Figure 7. The analytical framework for craftspeople (dis)empowerment through co-design.

5.1. Theorizing the (Dis)empowerment Process of Craft-design Collaboration

The craftspeople (dis)empowerment *process* refers to co-design actions, activities, and contexts that have (dis)empowering effects on them. Four dimensions are identified that exhibit (dis)empowering qualities in the co-design process: *organization*, *instrumentation*, *participation*, and *interaction*. Each of the four dimensions consists of several subdimensions (Figure 8). The categorization takes into account the existing literature concerning the adoption of *activity theory* in collaborative design (e.g., [44]), theories of *participation* (e.g., [45]), and co-design barriers and enablers (e.g., [28,29]).

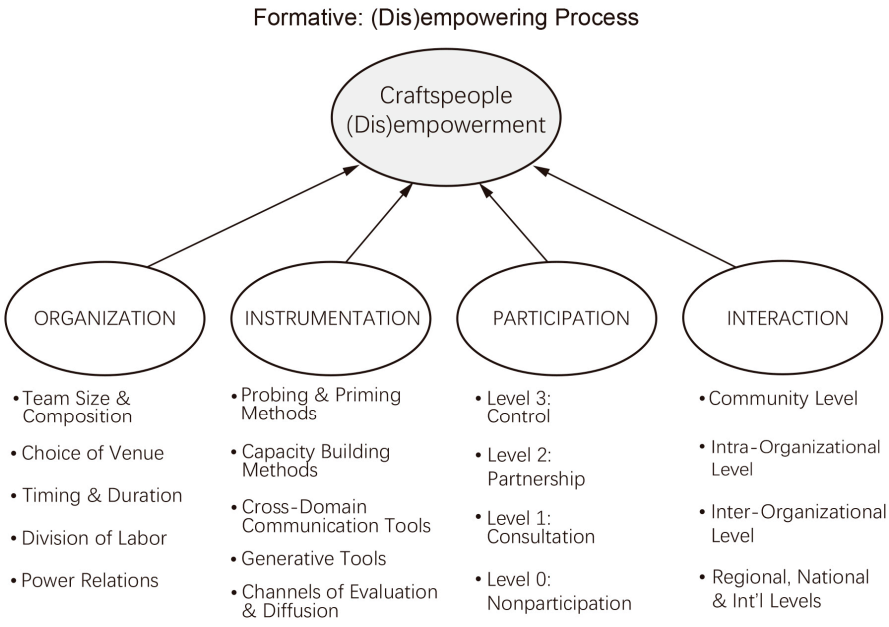


Figure 8. The theoretical framework of the craftspeople (dis)empowerment process.

5.1.1. Organization

Organization scrutinizes the (dis)empowering effects of project arrangements, including the schedule of *team size and composition*, *choice of venue*, *timing and duration*, *division of labor*, and *power relations*. As to the team size, smaller groups are instrumental in promoting in-depth communication and encouraging less-confident participants to give inputs, while large group sizes tend to hinder participants from sharing, as indicated by Drain et al. [8]. In response to our relevant question (Figure A1, Q9), the craftswomen (C1–C8) responded that a small group size of 4–8 people is suitable for craft-related communication. Two craftswomen (C2, C7) recalled their past experience of teaching Tiao Hua in vocational schools and stated that the class size of over 30 individuals was "overwhelming" and "unfriendly" for them to instruct on technical details for everyone. Only those active, extroverted students had in-depth communication with them during craft learning and design, while the timid ones, despite their interest in Tiao Hua, seldom had the opportunity to ask questions and express their ideas. We maintained small group sizes of 5–10 people in both projects, which the interviewed craftswomen generally considered appropriate. We also observed one local entrepreneur who was embarrassed by a large group of student interviewers in an interview in Case 1.

As to team composition, the multiplicity of expertise in co-design projects could enhance the quality and quantity of participation, as reflected by Calvo and Sclater [37]. In fact, collaboration is mostly achieved by *adhocracy* featured by temporary multidisciplinary participation [29]. Multi-disciplinary teams were built in both cases, which increased artisans' exposure to diversified knowledge and helped build versatile co-creation networks both within and beyond the projects. The craftswomen mostly spoke highly of the diversity and quality of the co-created works in both cases, which were "interesting", "inspiring", and "highly creative" (C2, C4, C5, C7, C8). Two craftswomen mentioned that the co-designed Tiao Hua works were much more "colorful" than those created by the vocational students in the same majors they taught in Tiao Hua classes before (C2, C7). A Tiao Hua woman (C7) was even invited by one participant specializing in art installation in Case 2 to perform Tiao Hua in an interactive installation long after the completion of the project. The lady said that she had never considered the performance of Tiao Hua itself as art, and her recognition of Tiao Hua innovation had been broadened.

The choice of venue and time may have positive or negative impacts. Unlike Case 2 conducted in a university, Case 1, as an in situ project, enabled more participation of locals, whether as residents to discuss local issues or as artisans to contribute craft skills. Designers aspiring to develop local craft should immerse themselves into local context to co-create with the artisan community, which can help ascertain craft authenticity and regional identity, and provide job opportunities [13]. Both projects were conducted in summer when locals were more available during slack farming season. The timing helped avoid the situation indicated by Drain et al., that the project schedule conflicted with that of the local community during the harvest season [24]. The long duration of Case 2 was a barrier to persistent artisan participation, e.g., the two craftswomen (C7, C8) asked for leave for private matters several times, similar to the risk of *participant attrition* mentioned by Kam et al. [38]. One craftswoman (C7) indeed complained about the long duration of the project when asked about areas of improvement at the project end. Several designers in both cases (D2, D4, D10, D16) mentioned the unavailability of the Tiao Hua artisans after the projects, who declined to attend design workshops due to the improper time (early spring semester) and long distance (another province).

The division of labor may influence the power relations within the organization. Although co-design emphasizes equal power relations, artisans are mostly in an inferior position in craft-design collaboration. One artisan (C7) in Case 2 was invited to be a member of the teaching team. "I felt being respected due to my Tiao Hua skills and a sense of having a say in the teaching schedule", as she put it. The mechanism of *teacher–student* was identified by Drain et al. as one type of unequal power relation [8], but was employed in Case 2, leading to an elevation of originally low artisan status. The choice of informants

and accommodation sways power relations as well. For instance, we chose the village head, who is not part of the Hua Yao ethnic minority, as our key informant and accommodation provider in Case 1, which might make some Hua Yao people feel a sense of distance from the design team, according to some designers' (D1, D6) observation of locals' attitudes, hence hampering their possible participation. Social designers should avoid factors that may cause power concentration "in the hands of local elites" [24] (p. 117).

5.1.2. Instrumentation

Instrumentation examines the (dis)empowering effects of the tools and methods used to facilitate co-design activities, which include *probing and priming methods*, *capacity building methods*, *cross-domain communication tools*, *generative tools*, and *channels of evaluation and diffusion*. In the pre-design stage of knowledge acquisition, the community seminar has been adopted by us during over a decade of social design experiences as an effective method to probe into local context and prime locals for collective action to make meaningful changes through a sense-making process. From the perspective of community empowerment, they were given an opportunity to voice themselves, which is of special significance in rural China with traditional hierarchies. For instance, in the first community seminar, local villagers pointed out some misconceptions about Tiao Hua in our investigations and that a few local artisans were not typical enough of this region. One village leader asked us whether we could create an "authentic" movie about Tiao Hua, as he found a movie of this sort by one national media had disappointingly deviated from the reality. Social designers tend to emphasize "cultivating" local people's critical thinking; in reality, the locals often do not lack a critical mindset, but need a chance to express it. Moreover, Hua Yao ethnic minority people and Han people coexist in this area and often have some trivial disputes in daily life. They reached consensus in this seminar on their belonging to the same unique community characteristic of Tiao Hua, among other cultural and natural assets. Both the craft techniques of Hua Yao people and the business savvy of Han people are indispensable for the proposed culture-based development agenda for this region.

A capacity building course was embedded in the pre-design stage in Case 2, as suggested by Drain et al. [24]. The course involved different sessions concerning co-design tools and methods, approaches to developing culture-based products, and the status quo of cultural and creative industries. Although specifically devised for designer trainees, one Tiao Hua woman (C7), also a mentor in Case 2, attended all the lectures. She reflected at the end of the project that, "It is these initial design and culture lectures introducing design knowledge that got me quickly accustomed to coworking with the designers later." As we observed, she indeed exhibited better performance than the other craftswoman (C8) in the same project, in terms of ideation and prototyping communication. The capacity-building activities in the pre-design stage might play a part in this disparity.

In the generative phases, mediating objects (e.g., vintage Tiao Hua samples, Tiao Hua books, prototypes, and inspirational cards) and generative tools (e.g., storyboards, brainstorming, and collage) in Case 2 were employed to facilitate craft-design communication. The visuality and physicality of the artefacts and tools fitted well into artisans' working mode of thinking and doing with eyes and hands [39]. The artisan (C7) said that she learnt these methods and tools and managed to apply some of them (e.g., intermediary objects, and designers' creative use of auxiliary drawings to mimic the warp and weft yarns of cloth as Tiao Hua beginners) to her Tiao Hua classes in primary schools afterwards.

Community seminars, exhibitions, and multi-media publications were employed for evaluating and diffusing the co-design outcomes. Artisans, through participation, enhanced their assessment literacy, gained access to larger resource networks, and fostered their activism to actively seek governmental and social support. For instance, when asked about their thoughts on the co-design outcomes at the end of both projects, some artisans (C2, C7, C8) began to use designerly, evaluative language—e.g., "rich cultural meaning", "user-friendly", "eco-friendly", "bold color matching", and "versatile"—compared to the general words that they had used during the co-design processes, e.g., "beautiful",

"interesting", "strange", and "high-class". The tones of the artisans' evaluative words became increasingly definite, while they, in the beginning, spoke often in a hesitant manner, and sometimes even murmured their opinions. As one designer trainee (D10) in Case 2 observed, the artisan (C7) discussed with a governmental official from the cultural sector the support they need to inherit Tiao Hua during the exhibition seminar.

5.1.3. Participation

Participation explores the (dis)empowering effects of the engagement levels of co-design participants (especially artisans). Building on the eight-rung *ladder of citizen participation* formulated by Arnstein [45], we summarize four subdimensions of analysis according to varied participation levels: *nonparticipation* (Level 0 or L0, referring to absence from co-design activities), *consultation* (Level 1 or L1, referring to limited power to influence co-design activities), *partnership* (Level 2 or L2, referring to equalized power to engage in co-design activities), and *control* (Level 3 or L3, referring to full power to implement co-design activities). The participation levels of varied stakeholders in each of the co-design stages of the two cases are presented in Table 2.

Table 2. Participation levels in the two cases.

	Stakeholders	S1 (Knowledge Acquisition)	S2 (Concept Generation)	S3 (Preliminary Prototyping)	S4 (Hand-Crafting)	S5 (Evaluation & Diffusion)
Case 1	Artisans	L1	L0	L0	L2, L3	L1
	Designers	L2, L3	L3	L3	L0, L1	L2, L3
	Others	L1, L2 [1]	L0	L1 [2]	L0	L1, L2 [3]
Case 2	Artisans	L1, L2	L1	L0	L0, L1	L1, L2
	Designers	L2, L3	L3	L2, L3	L3	L2, L3
	Others	L0, L1 [1]	L0	L1, L2 [4]	L0	L1 [5]

[1] Local community. [2] Local artisans skilled in crafts other than Tiao Hua and external manufacturers. [3] Local community and the general public. [4] External artisans with different skills and manufacturers. [5] Invited experts and the general public.

In S1, two community seminars were held in Case 1 to probe into local contexts, mobilize local residents to reach consensus on a development agenda, and evaluate and diffuse co-design outcomes. There were no such community-based collective activities in Case 2, mostly conducted in an ex situ context, despite its involvement of a short in situ field trip, which might hamper its potential impact on local community, as questioned by some designer trainees when asked to review the project in the end (D7, D10, D14). In Case 2, however, one artisan (C7) was invited to co-devise the innovation-oriented training curriculum, which raised her awareness of fostering students' creativity through Tiao Hua, and enhanced her self-esteem and perceived control over the project, as she stated:

> I have been invited to teach Tiao Hua in primary and vocational schools. The courses are mostly aimed to enable students to master the basic skills of conventional Tiao Hua. The teaching contents are not difficult and I generally follow the schools' teaching arrangements and Tiao Hua textbooks. The curriculum of this project emphasizes Tiao Hua innovation which is hard yet interesting. It is the first time I take part in "designing" such a curriculum [with an innovation-orientation] and have a say on the teaching contents (personal interview in exhibition seminar, C7, August 2018).

In the generative stages (S2: concept generation, S3: preliminary prototyping, S4: handcrafting), Tiao Hua artisans in both cases were absent from S3, which is beyond their expertise. The involvement of external manufacturers in S3 (Case 1, 2), e.g., prototyping an acrylic raincoat and a cloth baby sling, deprived locals of opportunities to participate.

The artisans in Case 1 were absent from S2 but played a major role in S4; in Case 2, it was the other way around. Artisan participation in the early stage of co-design remains rare currently, hence the significance of involving the artisan in concept generation (Case 2) in terms of fostering the artisan's ability to ideate, despite her low participation level (L1). S4 is the stage that provides room for artisans to exert their Tiao Hua capability. Case 1, with a high level of artisan participation (L2, L3) in S4, seems to have better empowering effects on artisans than Case 2, with low levels of artisan engagement (L0, L1) in terms of job prospects, as indicated by Tung [13].

In S5, there was more indigenous participation (e.g., community seminars) in Case 1 than Case 2, despite the low participation levels (mostly L1, occasionally L2), hence its higher empowering potential in terms of community building. The exhibition and seminar held in the urban context in Case 2 drew wide public attention and possible external resources to Hua Yao development, as reflected by some designers (D10, D16), but low local participation may hamper its impact on local community (D7, D10, D14).

Generally, more participation means more empowerment. Yet it is not necessarily the case. We will conduct a dialectic discussion later in 5.3.

5.1.4. Interaction

Interaction probes into the (dis)empowering effects of various types of communication among different stakeholders at the *community*, *organizational*, and *regional*, *national*, *and international levels*. Artisans generally played the role of *active citizen*, *craft practitioner*, or *craft representative* in varied levels of interaction. Interaction at the community level in Case 1 assisted local residents in developing self-determination, democracy, and collectivity to make changes towards sustainability as *active citizens*. Promoting active citizenship should be one of the significant goals of social projects conducted in rural contexts lacking participatory culture.

Interaction also occurred at the organizational level involving intra-organizational (within the project) and inter-organizational (between the project team and other organizations) communication. Organizational interaction mostly took place in the generative phases of co-design, in which key stakeholders (artisans, designers) communicated with each other and with other participants. In organizational interaction, artisans offered domain-specific expertise as *craft practitioners*, fostered their co-design capabilities, and involved themselves in co-creation networks (e.g., the integration of local artisans skilled in varied crafts). The third type of interaction happened at the regional, national, or international level. Artisans attended these activities (e.g., exhibitions and conferences) as *craft representatives* and gained access to larger networks of political, social, and industrial resources.

5.2. Theorizing the (Dis)empowerment Outcome of Craft-design Collaboration

The craftspeople (dis)empowerment *outcome* is manifested in *emotional*, *cognitive*, *behavioral*, and *relational* dimensions. As shown in Figure 9, the theoretical framework of the (dis)empowering outcome is adapted from the established empowerment theories of community psychologists Zimmerman [17] and Christens [19], taking into consideration relevant discussions in the design discourse (e.g., [2,24,33]).

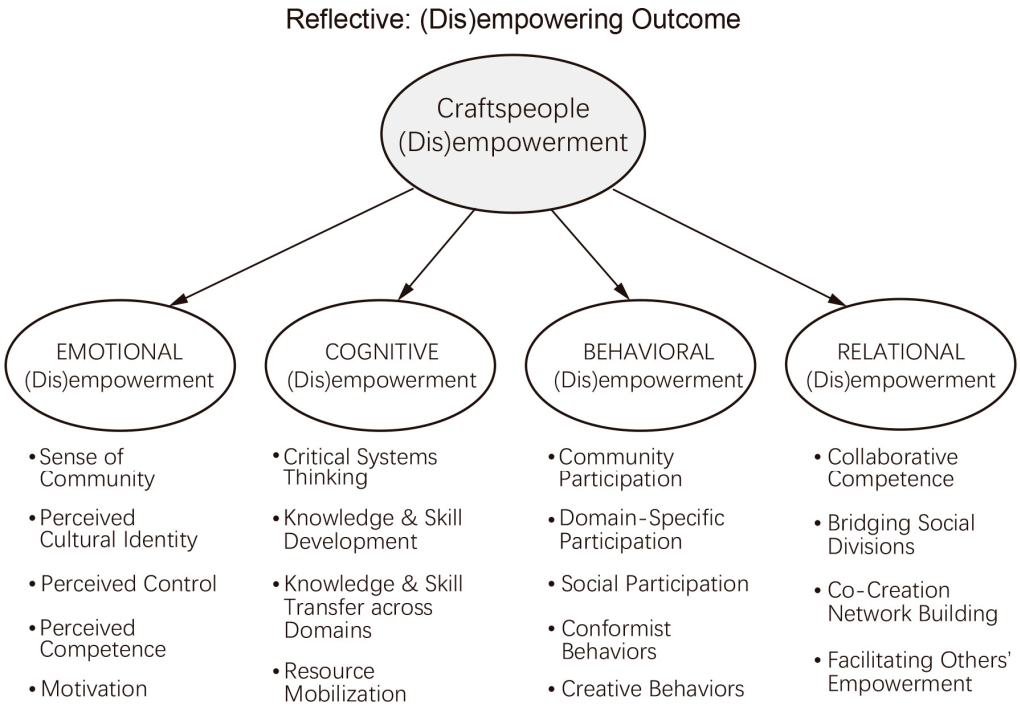


Figure 9. The theoretical framework of the craftspeople (dis)empowerment outcome.

5.2.1. Emotional (Dis)empowerment

The emotional dimension of craftspeople (dis)empowerment involves artisans' *sense of community* and *cultural identity*, *perceived control* over craft issues, and *perceived competence* and *motivation* to exert influence on those issues. Local residents, including artisans, can enhance the *sense of community* and *cultural identity* through their quality participation in social projects which make possible interactions at various levels, e.g., community seminars, university workshops, academic conferences, and exhibitions. The development of identity and collectivity through sense-making processes is a significant condition for and output of co-design projects conducted in rural societies, which have seen cultural homogenization and increasingly declining social capital during modernization.

According to the artisans' (C1-C6) answers to relevant questions before and after Case 1 (see Appendix A, Figure A1, Q2, Q3, Q7), several signs of enhanced cultural identity and sense of community can be recognized. The average number of items as regional symbols mentioned by each interviewee had increased from two (two NLICH items, i.e., Tiao Hua and Wuwa Folk Song, in order by number of mentions) to four (Tiao Hua, events involving the folk song and cosmetics, rites of passage, and food, in order by number of mentions). In the end, the artisans generally (C1, C2, C4, C6) indicated their pride in their colorful assets and their initial neglect of some of their "treasures", e.g., rites of passage and food. The community achieved consensus on the agenda of developing culture-based tourism in the community seminar. Some artisans (C2, C4) had shown changes of opinions concerning the prospect of hometown development, from full of "uncertainty" and "obstacles" to having a "bright prospect" based on its featured cultural elements. One artisan (C2) even intended to use local rituals (e.g., the wedding, birth ceremony) as Tiao Hua motifs. She could employ this either as teaching material of local culture in primary schools or as promising tourism products conveying indigenous culture to outsiders.

The practices of elevating artisans' status in co-design power relations (e.g., artisan tutorship in Case 2) and increasing artisans' quality participation in the co-design phases (e.g., artisans' major role in making Tiao Hua in Case 1, and artisan participation in curriculum design and concept generation in Case 2) assisted in fostering artisans' *perceived control* over co-design activities and *perceived competence* as craft practitioners to contribute their expertise. As one artisan put it:

> I haven't been to a university before and never thought I could stand on the podium of a famous university to teach [Tiao Hua]. It is my great honor to receive an official letter of appointment from a university. I didn't expect I could have a say as an ordinary person in this project [Case 2]. It is an affirmation of my personal value and Tiao Hua value . . . The exhibition and seminar provide me much inspiration for developing Tiao Hua . . . I realize we could do more for Tiao Hua. [I have] full confidence in its future development (interview, C7, August 2018).

The choice of project time and venue may influence locals' *motivation* to participate. Conducting an in situ social project during the agricultural off-season tends to stimulate locals' participating enthusiasm. Motivation of local participation is a challenge for social designers and the participation is sometimes driven by external motives; e.g., we felt the same as Drain et al., that rural people tend to think the outsiders "have a lot of money so they are going to ask for this" [24] (p. 116). A possible solution may be to stimulate the *intrinsic* motivation of locals through mobilization activities (e.g., community seminars in Case 1) to cultivate self-determination and reach consensus. It is the intrinsic motivation rather than extrinsic one that can sustain persistent local commitment.

5.2.2. Cognitive (Dis)empowerment

The cognitive dimension of craftspeople (dis)empowerment includes *critical systems thinking*, *knowledge and skill development*, *knowledge and skill transfer across domains*, and *resource mobilization*. Community-building activities facilitated by social designers tend to foster locals' *critical systems thinking*, an ability to critically examine stereotyped assumptions and address wicked issues drawing on a holistic, appreciative understanding and utilization of local assets. For instance, in the community seminars of Case 1, the locals critically reflected on the label of their hometown "being good for nothing" and framed development proposals by linking indigenous asset inventory with tourism development. Moreover, the artisans' ability to express *critical* opinions on design ideas was enhanced, or, more accurately, elicited, particularly in S4 (handcrafting), which fits into their Tiao Hua expertise, e.g., their refusal to use the threads and cloth with the color schemes chosen by the designers.

The creative capacities of artisans were enhanced through both projects. Particularly in Case 2, the artisan played an integral role in the pre-design training sessions, concept generation, evaluation, and diffusion, which was beneficial for her *knowledge and skill development* in relation to co-design literacy. The creativity of the co-design products in terms of new Tiao Hua materials (e.g., ceramic and wood), cultural appropriation (e.g., the utilization of cultural symbols), and technology appropriation (e.g., conversion from 2D to 3D Tiao Hua forms) impressed many people and provided the artisans much inspiration for Tiao Hua innovation; e.g., one artisan (C8) mentioned converting a typical local hat into a necklace when asked about her future plan for Tiao Hua work. There was also *knowledge and skill transfer across domains* by artisans; e.g., the craftswoman (C7) in Case 2 used co-design tools and methods—e.g., mediating objects—and revised Tiao Hua techniques for novices in her Tiao Hua classes in primary schools. Designerly ways of obtaining creative resources helped foster artisans' capacity of *resource mobilization*, an ability to identify and gain access to resources for individual development, e.g., the artisans in Case 2 (C7, C8) learned from the designers the methods of searching on such websites as Pinterest and Dribble for inspirations.

5.2.3. Behavioral (Dis)empowerment

The behavioral dimension of craftspeople (dis)empowerment comprises their self-determined behaviors of *community participation* as active citizens, *domain-specific participation* as craft practitioners, and *social participation* as craft representatives, as well as their behavioral changes in a *conformist* or *creative* manner. Fostering a CoP (Community of Practice) [46], i.e., active citizenship with high degrees of *community participation* for a

collective goal, is a taxing task for social designers working in undemocratic rural contexts. The community seminar in Case 1 was an effective method to trigger active citizenship, but barriers to inclusive participation were observed, as indicated by Drain et al., such as the seating arrangement, with significant figures (e.g., leaders and experts) sitting in the front, reflecting the unequal power relation that may hinder equal participation, and the gender imbalance, with male domination of discussions [24].

Artisan participation in the co-design activities of the two projects occurred in a passive way, i.e., the artisans were invited to contribute their craft expertise as craft practitioners (*domain-specific participation*) or attend exhibitions or seminars as craft representatives (*social participation*). However, we still consider passive participation as behavioral empowerment, which is an important first step to future self-determined behaviors to make changes. Promising signs emerged, as one craftswoman expressed her intention to cooperate with designers in the future for souvenir development (C7).

Artisans experienced two types of behavioral changes: *conformist behaviors*, e.g., one artisan who had trialed simplified, modern Tiao Hua finally chose to stick to conventional style swayed by experts' opinion (C2, C3, C4, C7); and *creative behaviors*, e.g., one artisan began to teach pupils to make creative products besides mimicking traditional Tiao Hua (C2, C7, C8); some artisans began to frequently use social media to share their activities and works after the projects, possibly influenced by our lectures on personal branding (C7, C8).

5.2.4. Relational (Dis)empowerment

The relational dimension of craftspeople (dis)empowerment covers *collaborative competence*, *bridging social divisions*, *co-creation network building*, and *facilitating others' empowerment*. Bearing in mind Getha-Taylor's competency study [47], we identify the improvements of artisans' *collaborative competency* as follows: (1) understanding goals and roles, e.g., the artisan (C7) in Case 2 knew better her roles and project objectives through co-devising the training curriculum with designers; (2) negotiating/influencing, e.g., artisans in Case 1 (C2, C4, C5) critically challenged designers' motif designs and managed to express their own ideas to reach consensus; the artisans in Case 2 began to use boundary-spanning language (the auxiliary drawings created by designers that mimic the warp and weft yarns for novices) to clarify complex Tiao Hua techniques (C7, C8); (3) organizational awareness and commitment, e.g., one artisan in Case 2 finished work on time initially but often worked overtime with designers after developing bonds with them (C7); another (C8) exhibited a collective awareness by saying "our works" rather than "their works" when referring to the works during media interviews.

Community mobilization activities in Case 1 were instrumental in building communities of practice (CoP) and *bridging social divisions*, particularly in our targeted area with diverse cultural contexts where the Hua Yao ethnic minority coexists with Han majority. However, design interventions may also cause social divisions as the power elevation of one party means the power loss of the other (e.g., the growing disparity between artisan participants and non-participants), as pointed out by some designers (D3, D11, D12, D15). Moreover, *co-creation networks* were being built during the conducting of both projects in which social designers created an enabling environment connecting Tiao Hua artisans with other stakeholders (e.g., artisans skilled in other crafts, manufacturers, and officials). Several designer interviewees (D1, D3, D7, D16) were optimistic about the potential coalition of Tiao Hua with other craft communities (e.g., bamboo work, textile, lacquering, and natural dyeing) for future tourism development, when asked about the future of Tiao Hua-based product development. Compared with individual empowerment, a higher level of relational empowerment is *the facilitation of others' empowerment*. Positive signs were the artisan's (C2, C7) intention to unite more local Tiao Hua women for product development (e.g., Tiao Hua bags and phone protective cases). One artisan (C7) has already involved creative Tiao Hua into current teachings in elementary schools, which mostly focused on imitating traditional Tiao Hua before, ignoring the cultivation of students' creative capacities.

5.3. Dialectic Discussion of Craftspeople (Dis)empowerment

The empirical cases demonstrated two main co-design paradigms in craft-design collaborations for culture-based product development. Both empowering and disempowering elements were identified in each of the two cases. Thus, no definite conclusion can be drawn regarding which paradigm is better than the other in terms of craftspeople empowerment. Craftspeople (dis)empowerment should be discussed dialectically in terms of the *participation* levels, *interaction* levels, the *duality* of empowerment, and the dichotomy between in situ and *ex situ*, *endogeneity*, and *exogeneity*.

The first topic of the dialectic discussion is the "right" *participation levels* of artisans for their empowerment. Since participation is a prerequisite for empowerment [16], it seems that an ideal empowerment process entails artisans' maximum participation in all co-design stages. However, full participation is not only unpractical due to the limitations of artisans' capabilities, but also not an optimal option to achieve empowerment. For example, in the stage of S4 (handcrafting), the designer trainees in Case 2 played a major role in making Tiao Hua, while artisans in Case 1 were mostly responsible for this task. S4 is the stage that can maximize artisans' Tiao Hua expertise and artisans' absence from this stage seems to be detrimental to their empowerment in terms of job opportunities. However, the results of Case 2 with less artisan participation fare better than those of Case 1 in terms of creativity, artistry, and technicality, which offer new inspiration to artisans. Hence, the best effects of S4 on artisans may need both designers and artisans to maximize their expertise. Regarding the stage of S3 (preliminary prototyping), which is beyond Tiao Hua expertise, artisans' absence in both projects is a sensible choice, which leaves room for other actors' participation (e.g., ceramic, bamboo artisans and manufacturers). As to other co-design stages (S1, S2, S5) with rare artisan participation today, we believe the notion "more participation, more learning" is right.

The second aspect of the dialectic discussion rests with the "right" degree of interaction for craftspeople empowerment. Artisans' exposure to the outside world is necessary for their empowerment, be it at the community, organizational, or regional, national, and international level. Yet the interactions do not always yield beneficial results for the artisans. The insistence of authoritative experts on the authenticity of Tiao Hua may dampen artisans' passion for innovation, while the infiltration of homogenized mass culture and over commercialization can make them deviate too far from the essence of the craft. In addition, as some designers indicated (D10, D13), artisans have been too often exploited as a "mascot" on many occasions, and onerous, ostensible activities have deprived them of energy and time for craft creation.

The third lens through which we dialectically view craftspeople empowerment lies in its *dual*, *context-specific* nature. The duality of empowerment means that an action or activity, whether intentional or unintentional, may have both beneficial and adverse effects on artisans. For instance, empowered participants gained more power over non-participants; experts' preference for conventional Tiao Hua encouraged artisans to inherit authentic Tiao Hua while hindering their enthusiasm for innovation. Moreover, an empowering process in one place may not yield the desired results in another, e.g., the artisan's participation in the tutorship, concept generation and seminar in Case 2 may prove infeasible in other projects, as the craftswoman in Case 2 (C7) has excellent personal capabilities as a national ICH inheritor that most artisans cannot match.

Lastly, empowerment discussion should consider the dichotomy between in situ and *ex situ*, *endogeneity*, and *exogeneity*. Case 1 validates the significance of situation-based actions for promoting *instantaneous co-operation* drawing on the *clustering* of local resources and capabilities [48], hence the capacity building and job prospects for locals. The ex situ conducting of Case 2 in the urban environment also exhibits advantages, such as access to making facilities and larger networks of potential actors for Hua Yao development. Admittedly, Case 2 was criticized for its separation from local context and exclusion of local talents. The designer trainees in Case 2 continued to diffuse Tiao Hua after the project in different ways (e.g., awards, papers, and exhibitions), but "it is the young in the local

community that matter most for Tiao Hua development in the long run", as some designers (D7, D10, D14) put it. Hence, the optimal choice for artisan empowerment is a mixture of in situ and *ex situ*, *endogeneity*, and *exogeneity*, which is similar to the *cosmopolitan localism* suggested by Manzini and M'Rithaa [49]. On this basis, the building of *localized craft co-creation networks* should be prioritized, e.g., the engagement of external manufacturers in making prototypes (Case 1, 2) denies the chance of local participation; involving local artisans (e.g., bamboo crafter and natural dyer) in prototyping (Case 1) may be a better choice for local empowerment.

6. Conclusions

Referring to the mature empowerment theories in other disciplines, we propose an analytical framework of craftspeople (dis)empowerment *process* and *outcome,* examining and categorizing the (dis)empowering elements in the collaborative process and the corresponding outcome for craftspeople. The (dis)empowering process covers four dimensions: *organization*, *instrumentation*, *participation*, and *interaction*, while the outcome involves *emotional*, *cognitive*, *behavioral*, and *relational* components. Several subdimensions are summarized under each dimension. We believe craftspeople (dis)empowerment should be discussed *dialectically* in terms of the appropriate levels of *participation* and *interaction* of artisans, the *dual*, *context-specific* nature of empowerment, and the dichotomy between in situ and *ex situ*, *endogeneity*, and *exogeneity*. The (dis)empowerment framework remains relevant to social designers with an aspiration for craft empowerment who can use it as a practice guide and an evaluative framework.

There are several future research directions on the basis of this work. The theoretical framework of artisan (dis)empowerment can be refined by follow-up studies that choose more diversified co-design contexts and more types of handicrafts as research subjects, and conduct more co-design iterations with persistent commitment. A more inclusive artisan involvement would lead to deeper insights into craft empowerment at the community level rather than mostly at the individual one. The adoption of the discourse of *craftivism* and *community of practice* (CoP) in future work would enrich the discussion of participatory craft empowerment through co-design in rural contexts.

Supplementary Materials: For more details about the co-design works of the two cases, please refer to: *Case 1*: https://www.dropbox.com/s/w43n8chipjtikqu/Case%201-Flowering%20Hua%20Yao-Co-design%20Works.pdf?dl=0 (accessed on 4 January 2023); *Case 2*: https://www.dropbox.com/s/k0g8bxlu67k7kwq/Case%202-Tiao%20Hua%20Talent%20Cultivation%20Project-Co-design%20Works.pdf?dl=0 (accessed on 4 January 2023).

Author Contributions: B.W. designed the research and wrote the manuscript; T.J. and R.H. led the projects. All the authors conducted the field surveys. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the China National Social Science Fund (17CG216), Hunan Science and Technology Key Research Project (No. 2022GK2070), and Hunan Social Science Foundation (No. 19YBA085).

Institutional Review Board Statement: Ethical review and approval were waived for this study due to relevant local and national legislation that indicate ethics approval is not required for this type of study.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

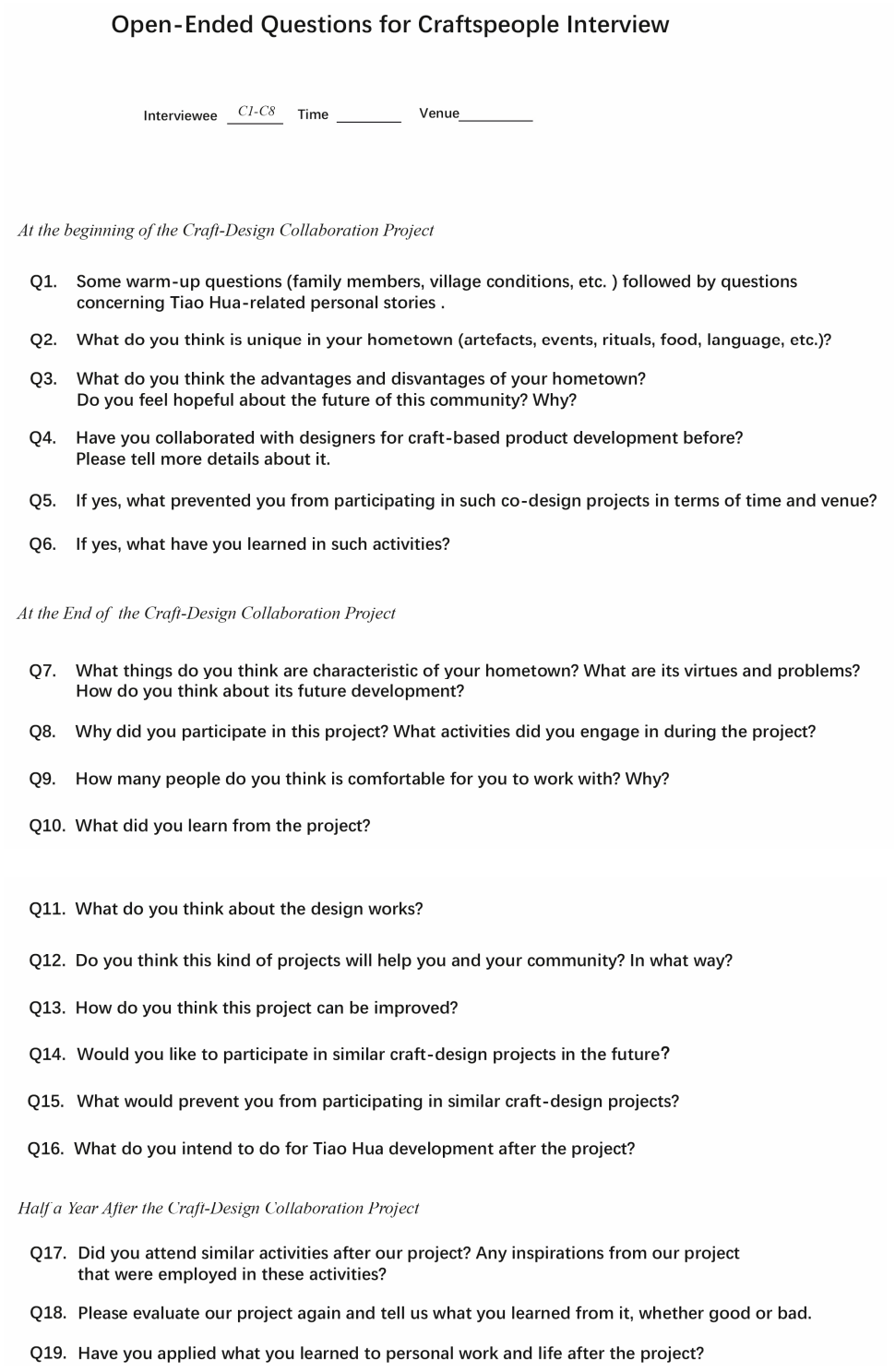
Data Availability Statement: Data is contained within the article (in the Sections of Appendix A and Supplementary Materials).

Acknowledgments: Our thanks go to all the participants in the two empirical projects and to those who have lent a helping hand in the completion of this work.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Open-ended questionnaires for interviewing craftspeople (eight craftswomen, Case 1: C1–C6; Case 2: C7–C8) and designers (10 females and six males, Case 1: D1–D6; Case 2: D7–D16) were administered at the beginning of, at the end of, and half a year after each of the two projects, respectively. The specific questions are shown in Figures A1 and A2.


Open-Ended Questions for Craftspeople Interview

Interviewee C1-C8 Time _____ Venue_____

At the beginning of the Craft-Design Collaboration Project

Q1. Some warm-up questions (family members, village conditions, etc.) followed by questions concerning Tiao Hua-related personal stories .

Q2. What do you think is unique in your hometown (artefacts, events, rituals, food, language, etc.)?

Q3. What do you think the advantages and disvantages of your hometown? Do you feel hopeful about the future of this community? Why?

Q4. Have you collaborated with designers for craft-based product development before? Please tell more details about it.

Q5. If yes, what prevented you from participating in such co-design projects in terms of time and venue?

Q6. If yes, what have you learned in such activities?

At the End of the Craft-Design Collaboration Project

Q7. What things do you think are characteristic of your hometown? What are its virtues and problems? How do you think about its future development?

Q8. Why did you participate in this project? What activities did you engage in during the project?

Q9. How many people do you think is comfortable for you to work with? Why?

Q10. What did you learn from the project?

Q11. What do you think about the design works?

Q12. Do you think this kind of projects will help you and your community? In what way?

Q13. How do you think this project can be improved?

Q14. Would you like to participate in similar craft-design projects in the future?

Q15. What would prevent you from participating in similar craft-design projects?

Q16. What do you intend to do for Tiao Hua development after the project?

Half a Year After the Craft-Design Collaboration Project

Q17. Did you attend similar activities after our project? Any inspirations from our project that were employed in these activities?

Q18. Please evaluate our project again and tell us what you learned from it, whether good or bad.

Q19. Have you applied what you learned to personal work and life after the project?

Figure A1. Open-ended questions for craftspeople interview.

Open-Ended Questions for Designers Interview

Interviewee D1-D16 Time _____ Venue_____

At the beginning of the Craft-Design Collaboration Project

Q1. Have you ever collaborated with craftspeople for craft-based product development before? Please tell more details about it.

Q2. If yes, what do you think the benefits and drawbacks of such projects in terms of promoting the development of craftspeople and local community?

At the End of the Craft-Design Collaboration Project

Q3. What activities did you and the craftspeople participate in during the project?

Q4. What is the proper team size of craft-design collaboration projects? Why?

Q5. What do you think would prevent craftspeople from participating in similar craft-design projects?

Q6. Do you think this project will help promote the sustainable development of craftspeople and local community? In what way?

Q7. What did you learn from the craftspeople during the project?

Q8. How do you think this type of project can be improved?

Q9. What do you intend to do for the betterment of Tiao Hua craftspeople after the project?

Half a Year After the Craft-Design Collaboration Project

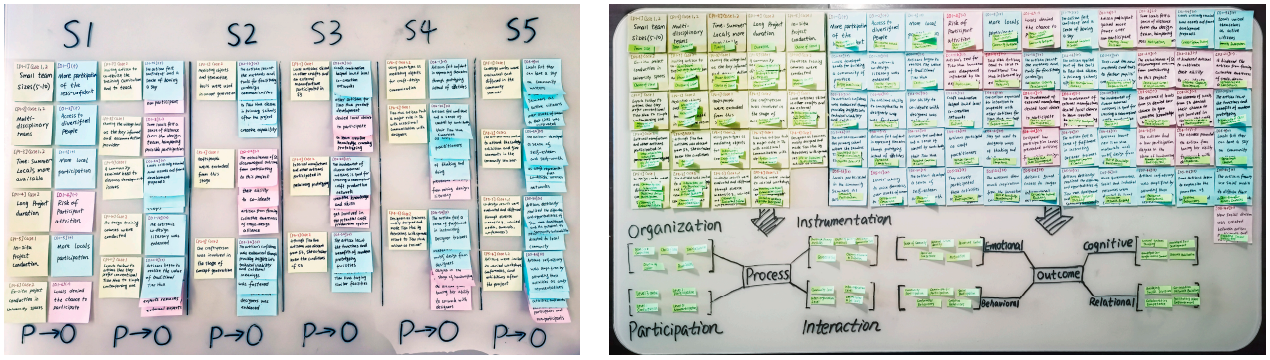
Q10. Have you attended similar Tiao Hua-related activities after the project?

Q11. How do you think these activities assist in promoting the sustainable development of Tiao Hua craftspeople and indigenous communities?

Figure A2. Open-ended questions for designers' interview.

Appendix B. Analysis of the Data

The yellow notes denote the statements of the (dis)empowering process, blue notes denote the statements of the empowering outcome, and pink notes denote the disempowering outcome. The green strip notes represent the subdimensions of the (dis)empowering process and outcome.



(**a**) (**b**)

Figure A3. Analysis of the data: (**a**) Transcribing and codifying statements; (**b**) The affinity analysis.

Appendix C. Coded Statements of the (Dis)empowering Process and Outcome

The statements of the (dis)empowering *process* and *outcome* are codified as P n_1-n_2 and O n_1-n_2, respectively. n_1 denotes the co-design stage; n_2 is the ordinal number given to each statement. (+) and (−) represents empowering and disempowering effects, respectively.

Table A1. Coded statements of the (dis)empowering process and outcome.

Co-Design Stages	*(Dis)empowering Process (Actions, Activities and Contexts)*	*(Dis)empowering Outcome (Co-Design Effects on Craftspeople)*
Knowledge Acquisition (S1)	The team sizes were small with 5–10 people (Case 1, 2) [P1-1] ***Organization**: Team Size*	Small team sizes tended to stimulate quality participation and less-confident participants were encouraged to give inputs [O1-1] (+) ***Emotional**: Motivation, Perceived Competence*
	Multidisciplinary teams were established (Case 1, 2) [P1-2] ***Organization**: Team Composition*	Artisans gained access to diversified domains of people [O1-2] (+) ***Relational**: Co-Creation Network Building*
	The project was conducted in summer time when locals are more available (Case 1, 2) [P1-3] ***Organization**: Timing*	More locals participated in the co-design projects as active citizens or craft practitioners [O1-3] (+) ***Behavioral**: Community Participation, Domain-Specific Participation*
	The project lasted for a long duration of two months (Case 2) [P1-4] ***Organization**: Duration*	Local artisans found it hard to fully participate in the co-design process [O1-4] (−) ***Behavioral**: Domain-Specific Participation*
	The project was carried out in local context (Case 1) [P1-5] ***Organization**: Choice of Venue*	More locals took action to participate in different ways [O1-5] (+) ***Behavioral**: Community Participation, Domain-Specific Participation*
	The venue was a university space with easy access to making facilities (Case 2) [P1-6] ***Organization**: Choice of Venue*	Locals were mostly denied the chance to participate due to the ex-situ conduction of the project [O1-6] (−) ***Behavioral**: Community Participation, Domain-Specific Participation*
	The artisan was invited to teach and co-devise the curriculum (Case 2) [P1-7] ***Organization**: Division of Labor, Power Relations; **Participation**: Level 2: Partnership*	The artisan felt confident and a sense of having a say [O1-7a] (+) ***Emotional**: Perceived Competence & Control* The artisan participant gained power over non-participants [O1-7b] (−) ***Relational**: Bridging Social Divisions*
	The village head who was not ethnic Hua Yao was chosen as the accommodation provider and key informant (Case 1) [P1-8] ***Organization**: Choice of Venue, Power Relations*	Some Hua Yao people had a sense of distance from the design team, hampering their possible participation [O1-8] (−) ***Emotional**: Motivation*
	A community seminar was held to discuss development issues (Case 1) [P1-9] ***Participation**: Level 1, 2; **Instrumentation**: Probing & Priming Methods; **Interaction**: Community Level*	Locals critically examined local assets and framed development proposals [O1-9a] (+) ***Cognitive**: Critical Systems Thinking* voiced themselves as active citizens [O1-9b] (+) ***Behavioral**: Community Participation* and developed community cohesion for building a community of practice (CoP) [O1-9c] (+) ***Relational**: Bridging Social Divisions*
	Pre-design training courses were conducted (Case 2) [P1-10] ***Instrumentation**: Capacity Building Methods*	The artisan enhanced co-design literacy by attending the courses as one of the trainers [O1-10] (+) ***Cognitive**: Creative Capacity Development*
	Experts talked to artisans that they prefer complex traditional Tiao Hua to simplified contemporary ones (Case 1) [P1-11] ***Interaction**: Intra-Organizational Level*	Artisans began to realize the value of conventional Tiao Hua [O1-11a] (+) ***Cognitive**: Critical Thinking* Artisans' enthusiasm for innovation was dampened [O1-11b] (-) ***Emotional**: Motivation* They tended to stick to traditional Tiao Hua influenced by the experts [O1-11c] (−) ***Behavioral**: Conformist Behaviors*
Concept Generation (S2)	Mediating objects (e.g., vintage Tiao Hua samples and inspirational cards) and generative tools (e.g., collage and story boards) were used (Case 2) [P2-1] ***Instrumentation**: Craft-Design Communication Tools, Generative Tools; **Interaction**: Intra-Organizational Level*	The artisan learnt the tools for facilitating co-design communication [O2-1a] (+) ***Cognitive**: Creative Capacity Development* and applied part of them to primary school classes afterwards [O2-1b] (+) ***Cognitive**: Skill Transfer across Domains* to foster children's creative ability [O2-1c] (+) ***Relational**: Facilitating Others' Empowerment*
	Tiao Hua craftspeople were excluded from this phase (Case 1) [P2-2] ***Participation**: Level 0: Artisan Nonparticipation*	The exclusiveness of S2 discouraged artisans from contributing to the project [O2-2a] (−) ***Emotional**: Perceived Control, Motivation* hindered artisans to cultivate their ability to ideate[O2-2b] (−) ***Cognitive**: Creative Capacity Development* and to form collective awareness of the craft-design alliance [O2-2c] (−) ***Relational**: Collaborative Competence*
	One Tiao Hua craftsperson was included this phase (Case 2) [P2-3] ***Participation**: Level 1: Consultation*	The artisan's confidence was enhanced through providing insights into technical viability and cultural connotations [O2-3a] (+) ***Emotional**: Perceived Competence*Her ability to conceptualize in designerly ways was fostered [O2-3b] (+) ***Cognitive**: Creative Capacity Development* and her ability to co-ideate with designers was enhanced [O2-3c] (+) ***Relational**: Collaborative Competence*
Preliminary Prototyping (S3)	Local artisans skilled in other crafts (e.g., bamboo) and an external manufacturer participated in S3 (Case 1) [P3-1] ***Participation**: Level 0: (Tiao Hua) Artisan Nonparticipation; **Interaction**: Inter-Organizational Level*	Craft combination helped build local co-creation networks [O3-1a] (+) ***Relational**: Co-Creation Network Building* One artisan expressed her intention to organize other artisans for Tiao Hua product development [O3-1b] (+) ***Relational**: Facilitating Others' Empowerment* The involvement of external manufactures denied locals' chance to participate [O3-1c] (−) ***Behavioral**: Domain-Specific Participation*and to learn creative knowledge concerning prototyping [O3-1d] (−) ***Cognitive**: Knowledge Development*
	Tiao Hua artisans were excluded from S3, yet external manufactures and artisans skilled in other crafts (e.g., carpentry and ceramics) in other regions participated in S3 (Case 2) [P3-2] ***Participation**: Level 0: (Tiao Hua) Artisan Nonparticipation; **Interaction**: Inter-Organizational Level*	The involvement of diverse external artisans opened up opportunity for creating a trans-regional craft production network [O3-2a] (+) ***Relational**: Co-Creation Network Building* The absence of locals from S3 denied their chance to acquire creative knowledge and skills [O3-2b] (−) ***Cognitive**: Knowledge & Skill Development* and to get involved in the potential craft production system [O3-2c] (−) ***Behavioral**: Domain-Specific Participation*
	Although the Tiao Hua artisan was generally not engaged in S3, she as mentor generally knew the conditions of preliminary prototyping(Case 2) [P3-3] ***Participation**: Level 0, 1: (Tiao Hua) Artisan Nonparticipation, Consultation*	The craftsperson learnt the benefits and functions of modern prototyping facilities [O3-3a] (+) ***Cognitive**: Knowledge & Skill Development* and recommended the primary school where she teaches Tiao Hua buying similar facilities [O3-3b] (+) ***Cognitive**: Knowledge & Skill Transfer across Domains; **Behavioral**: Creative Behavior*

Table A1. *Cont.*

Co-Design Stages	*(Dis)empowering Process (Actions, Activities and Contexts)*	*(Dis)empowering Outcome (Co-Design Effects on Craftspeople)*
Hand-crafting (S4)	Using prototypes as the mediating objects for craft-design communication (Case 1, 2) [P4-1] ***Instrumentation**: Cross-Domain Communication Tools; **Interaction**: Intra-Organizational Level*	Craftspeople felt comfortable and confident in expressing themselves through prototypes instead of sketches [O4-1] (+) ***Emotional**: Perceived Competence*
	Tiao Hua craftspeople took a major role in this phase with occasional communication with designers (Case 1) [P4-2] ***Participation**: Level 3: Artisan Control*	Artisans felt confident and a sense of control [O4-2a] (+) ***Emotional**: Perceived Competence & Control* through contributing Tiao Hua expertise [O4-2b] (+) ***Behavioral**: Domain-Specific Participation* They critically challenged designers' designs and expressed their ideas to reach consensus [O4-2c] (+) ***Relational**: Collaborative Competence* Designers' low participation levels prevented artisans from raising design literacy [O4-2d] (−) ***Cognitive**: Knowledge & Skill Development*
	Designers as trainees mostly designed and made Tiao Hua by themselves with sporadic resort to the Tiao Hua artisan as trainer (Case 2) [P4-3] ***Participation**: Level 0, 1: Artisan Nonparticipation, Consultation*	The artisan felt a sense of fulfilment in instructing the designer trainees [O4-3a] (+) ***Emotional**: Perceived Competence & Control* and learnt new Tiao Hua materials and motif designs from designers [O4-3b] (+) ***Cognitive**: Skill & Knowledge Development* The artisan's low participation degrees in S4[O4-3c] (−) ***Behavioral**: Domain-Specific Participation* prevented her from honing her ability to co-work with designers in terms of craft innovation [O4-3d] (−) ***Relational**: Collaborative Competence*
Evaluation& Diffusion (S5)	Co-design works were evaluated and diffused in the community seminar (Case 1) [P5-1] ***Instrumentation**: Channels of Evaluation & Diffusion; **Participation**: Level 1: Artisan Consultation; **Interaction**: Community Level*	Craftspeople felt that they can have a say on community matters [O5-1a] (+) ***Emotional**: Perceived Control* by participating in an inclusive community meeting as active citizens [O5-1b] (+) ***Behavioral**: Community Participation* and their ability to voice their opinions was cultivated [O5-1c] (+) ***Relational**: Collaborative Competence*
	The artisan was invited to attend the co-design exhibition and give comments in the seminar (Case 2) [P5-2] ***Instrumentation**: Channels of Evaluation & Diffusion; **Participation**: Level 2: Partnership; **Interaction**: Regional & National Levels*	The artisan developed a sense of self-esteem [O5-2a] (+) ***Emotional**: Perceived Competence* by actively attending these activities as craft representative [O5-2b] (+) ***Behavioral**: Social Participation* The artisan drew from the works inspirations for Tiao Hua innovation [O5-2c] (+) ***Cognitive**: Skill & Knowledge Development*and gained access to larger interpersonal networks [O5-2d] (+) ***Relational**: Co-Creation Network Building*
	Co-design results were evaluated and diffused through diverse means (e.g., media, awards, and conferences) (Case1, 2) [P5-3] ***Instrumentation**: Channels of Evaluation & Diffusion*	Artisans critically realized the difficulties and opportunities of Tiao Hua development and its potential to community sustainability [O5-3a] (+) ***Cognitive**: Critical Systems Thinking*More governmental, social and industrial resources were gradually directed into local community [O5-3b] (+) ***Relational**: Co-Creation Network Building*
	Artisans were invited to varied workshops, conferences and exhibitions after the project (Case 1, 2) [P5-4] ***Participation**: Level 1, 2: Consultation, Partnership; **Interaction**: Organizational, Regional, National & International Levels*	Artisans' self-efficacy was amplified [O5-4a] (+) ***Emotional**: Perceived Competence* Some artisans began to frequently use social media to diffuse their activities and works [O5-4b] (+) ***Behavioral**: Creative Behaviors* which was influenced by individual branding lectures [O5-4c] (+) ***Cognitive**: Knowledge & Skill Development* New social divisions were created between participants and non-participants [O5-4d] (−) ***Relational**: Bridging Social Divisions*

References

1. Rodrigues, M.; Menezes, I.; Ferreira, P.D. Validating the formative nature of psychological empowerment construct: Testing cognitive, emotional, behavioral, and relational empowerment components. *J. Community Psychol.* **2018**, *46*, 58–78. [CrossRef]
2. Zamenopoulos, T.; Lam, B.; Alexiou, K.; Kelemen, M.; Sousa, S.D.; Moffat, S.; Phillips, M. Types, obstacles and sources of empowerment in co-design: The role of shared material objects and processes. *CoDesign* **2021**, *17*, 139–158. [CrossRef]
3. Avelino, F.; Dumitru, A.; Cipolla, C.; Kunze, I.; Wittmayer, J. Translocal empowerment in transformative social innovation networks. *Eur. Plan. Stud.* **2020**, *28*, 955–977. [CrossRef]
4. Kang, L. Social design as a creative device in developing countries: The case of a handcraft pottery community in Cambodia. *Int. J. Des.* **2016**, *10*, 65–74.
5. Ertner, M.; Kragelund, A.M.; Malmborg, L. Five Enunciations of Empowerment in Participatory Design. In Proceedings of the 11th Biennial Participatory Design Conference, New York, NY, USA, 29 November–3 December 2010.
6. Bjögvinsson, E.; Ehn, P.; Hillgren, P.A. Design things and design thinking: Contemporary participatory design challenges. *Des. Issues* **2012**, *28*, 101–116. [CrossRef]
7. SCRIBD. Available online: https://www.scribd.com/document/191799251/From-engaging-to-empowering-people-a-set-of-co-design-experiments-with-a-service-design-perspective (accessed on 16 December 2013).
8. Drain, A.; Shekar, A.; Grigg, N. Insights, solutions and empowerment: A framework for evaluating participatory design. *CoDesign* **2021**, *17*, 1–21. [CrossRef]
9. Aktaş, B.M.; Mäkelä, M. Craft Dynamics: Empowering Felt Making through Design. In Proceedings of the 7th Nordic Design Research Conference, Oslo, Norway, 15–17 June 2017.
10. Greer, B. *Craftivism: The Art of Craft and Activism*, 1st ed.; Arsenal Pulp Press: Vancouver, BC, Canada, 2014.
11. Zhan, X.; Walker, S. Value direction: Moving crafts toward sustainability in the Yangtze River Delta, China. *Sustainability* **2018**, *10*, 1252. [CrossRef]
12. Mamidipudi, A. Constructing common knowledge: Design practice for social change in craft livelihoods in India. *Des. Issues* **2018**, *34*, 37–50. [CrossRef]

13. Tung, F.W. Weaving with rush: Exploring craft-design collaborations in revitalizing a local craft. *Int. J. Des.* **2012**, *6*, 71–84.
14. Mazzarella, F.; Mitchell, V.; Escobar-Tello, C. Crafting sustainable futures. The value of the service designer in activating meaningful social innovation from within textile artisan communities. *Des. J.* **2017**, *20*, S2935–S2950. [CrossRef]
15. Avelino, F.; Wittmayer, J.M.; Pel, B.; Weaver, P.; Dumitru, A.; Haxeltine, A.; Kemp, R.; Jørgensen, M.S.; Bauler, T.; Ruijsink, S.; et al. Transformative social innovation and (dis)empowerment. *Technol. Forecast. Soc. Chang.* **2019**, *145*, 195–206. [CrossRef]
16. Rappaport, J. Terms of empowerment/exemplars of prevention: Toward a theory for community psychology. *Am. J. Community Psychol.* **1987**, *15*, 121–148. [CrossRef] [PubMed]
17. Zimmerman, M.A. Psychological empowerment: Issues and illustrations. *Am. J. Community Psychol.* **1995**, *23*, 581–599. [CrossRef] [PubMed]
18. Zimmerman, M.A. Empowerment Theory: Psychological, Organizational, and Community Levels of Analysis. In *Handbook of Community Psychology*; Rappaport, J., Seidman, E., Eds.; Kluwer Academic/Plenum Publishers: New York, NY, USA, 2000; pp. 43–63.
19. Christens, B.D. Toward relational empowerment. *Am. J. Community Psychol.* **2012**, *50*, 114–128. [CrossRef]
20. Speer, P.W. Social power and forms of change: Implications for psychopolitical validity. *J. Community Psychol.* **2008**, *36*, 199–213. [CrossRef]
21. Rowlands, J. *Questioning Empowerment: Working with Women in Honduras*, 1st ed.; Oxfam: Oxford, UK, 1997; pp. 13–19.
22. Boje, D.M.; Rosile, G.A. Where is the power in empowerment? Answers from Follet and Clegg. *J. Appl. Behav. Sci.* **2001**, *37*, 90–117. [CrossRef]
23. Hardy, C.; Leiba-O'Sullivan, S. The power behind empowerment: Implications for research and practice. *Hum. Relat.* **1998**, *51*, 451–483. [CrossRef]
24. Drain, A.; Shekar, A.; Grigg, N. "Involve me and I'll understand": Creative capacity building for participatory design with rural Cambodian farmers. *CoDesign* **2019**, *15*, 110–127. [CrossRef]
25. Carroll, J.M.; Rosson, M.B. Participatory design in community informatics. *Des. Stud.* **2007**, *28*, 243–261. [CrossRef]
26. Manzini, E.; Rizzo, F. Small projects/large changes: Participatory design as an open participated process. *CoDesign* **2011**, *7*, 199–215. [CrossRef]
27. Sanders, E.B.N.; Stappers, P.J. Probes, toolkits and prototypes: Three approaches to making in co-designing. *CoDesign* **2014**, *10*, 5–14. [CrossRef]
28. Kleinsmann, M.; Valkenburg, R. Barriers and enablers for creating shared understanding in co-design projects. *Des. Stud.* **2008**, *29*, 369–386. [CrossRef]
29. Pirinen, A. The barriers and enablers of co-design for services. *Int. J. Des.* **2016**, *10*, 27–42.
30. Del-Gaudio, C.; Franzato, C.; Oliveira, A. Sharing design agency with local partners in participatory design. *Int. J. Des.* **2016**, *10*, 53–64.
31. Wang, B.S.; Ji, T.; Yang, Y.Y. The Potential of Rural Crafts in Promoting Community Empowerment through Participatory Design Intervention. In Proceedings of the Cumulus Association Biannual International Conference, Nottingham, UK, 27 April–1 May 2016.
32. Suib, S.S.S.B.; Van Engelen, J.M.L.; Crul, M.R.M. Enhancing knowledge exchange and collaboration between craftspeople and designers using the concept of boundary objects. *Int. J. Des.* **2020**, *14*, 113–133.
33. Busch, O.V.; Pazarbasi, C.K. Just craft: Capabilities and empowerment in participatory craft projects. *Des. Issues* **2018**, *34*, 66–79. [CrossRef]
34. Heron, J.; Reason, P. The practice of co-operative inquiry: Research "with" people, rather than "on" people. In *Handbook of Action Research: Participative Inquiry and Practice*, 1st ed.; Reason, P., Bradbury, H., Eds.; Sage: London, UK, 2001; pp. 179–188.
35. Sanders, E.B.N.; Stappers, P.J. Co-creation and the new landscapes of design. *CoDesign* **2008**, *4*, 5–18. [CrossRef]
36. Frauenberger, C.; Good, J.; Fitzpatrick, G.; Iversen, O.S. In pursuit of rigor and accountability in participatory design. *Int. J. Hum. Comput.* **2015**, *74*, 93–106. [CrossRef] [PubMed]
37. Calvo, M.; Sclater, M. Creating spaces for collaboration in community co-design. *Int. J. Art Des. Educ.* **2021**, *40*, 232–250. [CrossRef]
38. Kam, M.; Ramachandran, D.; Raghavan, A.; Chiu, J.; Sahni, U.; Canny, J. Practical Considerations for Participatory Design with Rural School Children in Underdeveloped Regions: Early Reflections from the Field. In Proceedings of the 2006 Conference on Interaction Design and Children, New York, NY, USA, 7–9 June 2006.
39. Sennett, R. *The Craftsman*, 1st ed.; Yale University Press: New Haven, CT, USA, 2008; pp. 149–178.
40. Deeley, S.J.; Bovill, C. Staff student partnership in assessment: Enhancing assessment literacy through democratic practices. *Assess. Eval. High. Educ.* **2017**, *42*, 463–477. [CrossRef]
41. Tsai, W.C.; Hoven, E.V.D. Memory probes: Exploring retrospective user experience through traces of use on cherished objects. *Int. J. Des.* **2018**, *12*, 57–72.
42. Rabadjieva, M.; Butzin, A. Emergence and diffusion of social innovation through practice fields. *Eur. Plan. Stud.* **2020**, *28*, 925–940. [CrossRef]
43. Crosby, A. Design activism in an Indonesian village. *Des. Issues* **2019**, *35*, 50–63. [CrossRef]
44. Zahedi, M.; Tessier, V.; Hawey, D. Understanding collaborative design through activity theory. *Des. J.* **2017**, *20*, S4611–S4620. [CrossRef]
45. Arnstein, S.R. A ladder of citizen participation. *J. Am. Inst. Plann.* **1969**, *35*, 216–224. [CrossRef]
46. Wenger, E. *Communities of Practice: Learning, Meaning and Identity*, 1st ed.; Cambridge University Press: Cambridge, UK, 1998.

47. Getha-Taylor, H. Identifying collaborative competencies. *Rev. Public Pers. Adm.* **2008**, *28*, 103–109. [CrossRef]
48. Kaya, C.; Yagiz, B.Y. Design in informal economies: Craft neighborhoods in Istanbul. *Des. Issues* **2011**, *27*, 59–71. [CrossRef]
49. Manzini, E.; M'Rithaa, M.K. Distributed systems and cosmopolitan localism: An emerging design scenario for resilient societies. *Sustain. Dev.* **2016**, *24*, 275–280. [CrossRef]