The Second Phase of Sustainability in the Field of Design:

Identifying the Success Factors of Design Innovation Through Design Thinking in the Ethnic Craft Industry in Northern Thailand

By

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ABSTRACT

This paper discusses the second phase of sustainability in the field of design and identifies the success factors of design innovation in the ethnic craft industry in northern Thailand. This study explored craftspeople's capital, their means of developing it, and potential routes to sustainable development on the capital.

The literature review examines three topics: (1) ethnic identity and craft; (2) northern Thailand and hill tribes; and (3) design thinking, vulnerability, and resilience.

Empirical research was conducted with hill tribe craftspeople in northern Thailand. Seven types of capital—human, social, natural, physical, financial, cultural, and emotional capital—were identified through interviews and observation. Those types of capital indicated what the craftspeople wanted and needed.

The key findings were as follows: First, social capital has a close relationship with both human capital and emotional capital, indicating that for craftspeople, networks and membership ensure knowledge and increase connections with friends and family. Secondly, emotional capital is affected by financial capital. Financial capital refers to the monetary resources used to achieve craftspeople's livelihood objectives. The craftspeople required high order volumes to earn to more money and thus improve their economic condition; they experienced more stress when order volumes were low. Third, financial capital is not related to social and cultural capital. Graphs implied certain relationship among them, with the reasons varying depending on the individual craftsperson's environment. A high level of social and cultural capital does not affect low financial capital, and vice versa. Finally, cultural capital directly influences emotional capital because the happiness of hill tribe craftspeople is related to their identity and dignity as craftspeople.

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CHAPTER 1

INTRODUCTION

1.1 Background

What Is Sustainability? How Have Sustainability Researchers and Designers Thought About Sustainability to Date?

Over the past several decades, sustainability has emerged a major concern of the global community. The trigger was the World Commission on Environment and Development (WCED) of 1987 known as the Brundtland Report. Sustainability is often misinterpreted as exclusively focusing on ecological problems. However, the Brundtland Report did not solely discuss sustaining and expanding environmental resources; rather, it also mentioned reconciling human affairs with natural laws and to thrive in the process (World Commission on Environment and Development, 1987). The WCED (1987) highlighted various aspects of sustainable development. The report focused on economic growth for future generations to meet their own needs with political action (policies) on sustaining and expanding environmental resources. It was also for assurance of equity that the poor get their fair share of the resources required to sustain that growth (World Commission on Environment and Development, 1987).

Thereafter, sustainability has developed and broadened in domains ranging from environmental problems (e.g., climate change and biodiversity loss) to economics and social science (e.g., poverty alleviation, equal educational opportunities, and human welfare as The Sustainable Development Goals (SDGs; see Figure 1). Although the concept of sustainability to constantly pursue a better life for people on sustaining environmental resources has not transformed, sustainability policy agendas have shifted from abstract to detailed and varied. Sustainability tries to encompass all human affairs rather than existing solely as a research discipline.

Figure 1 Changing understandings of sustainability and the diversification of the concept

As many researches have mentioned, sustainability and sustainable development imply the pursuit of a better life for future generations.

WCED (1987) had definesd Sustainable development as protecting the needs of the present without compromising the ability of future generations to meet their own needs

Ehrlich and Goulder (2007) defined sustainability from the economists' perspective that economists tend to claim that sustaining human welfare, not natural resources. Current consumption patterns are seen as excessive if they jeopardize the ability of future generations to enjoy the same level of well-being as the current generation.

Even though it is controversial regarding how we define future generations, we should start asking ourselves the following question: How do we ensure sustainable development for ourselves and future generations? As members of the design industry, we should also examine what that sector does to achieve sustainable development for our generation and those to follow.

Sustainability and Design

The role of design has been shifting from designing consumer products to designing consumer experiences (Brown & Wyatt, 2010). The latter task seeks to tackle problems such as helping to restructure one's business organization or creating alternative environments to traditional spaces, while the former has focused on enhancing look and functionality which is quality development, reengineering, or concurrent design (Cagan & Vogel, 2002; Brown & Wyatt, 2010). In other words, the emphasis in design has shifted from the backend to the frontend of the product development process (Cagan & Vogel, 2002). These developments have influenced the entire process, as Figure 2 illustrates.

Design thinking speaks for these changes. It emphasizes overlapping spaces rather than a sequence of orderly design steps, and it seeks to delve deeply into people's lives to go beyond the assumptions that block effective solutions (Brown & Wyatt, 2010). A holistic view of human affairs is the most important element of design thinking.

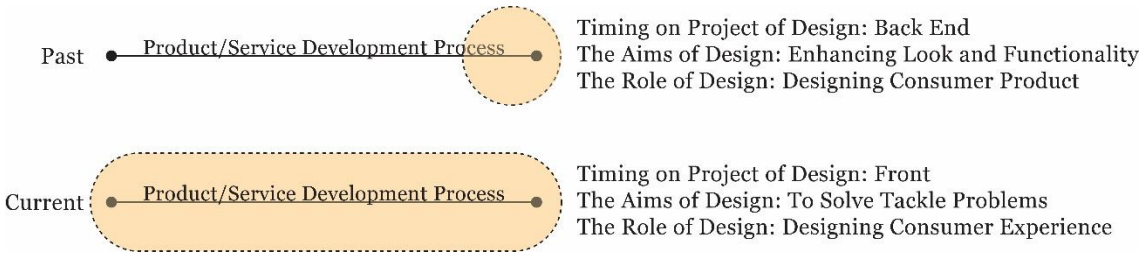

Figure 2 Changed design roles
(Adapted from Cagan & Vogel, 2002; Brown & Wyatt, 2010)

Resulting from the transformation of roles and the emphasis on design, the meaning of sustainable design has changed. The first phase, called "eco design," "green design," or "environmental design," focused largely on energy and materials (Thorpe, 2007;2012). In this first stage, sustainability meant designing products using less energy or minimizing materials' impact on the environment (Thorpe, 2007;2012;). The second phase requires an additional role of design that incorporates the economic and social aspects of sustainability (Thorpe, 2007;2012;). Table 1 shows the relationship between the environmental aspects and social aspects of sustainability in design.

Sustainable design initially primarily focused on the environmental aspect. It is now time to deliberate on what is the second phase of sustainability in design, which entails asking what is happening during this transition period and what designers should create and do during this stage.

1	**environmental aspect** related to the first phase of sustainability in design meeting needs to sustain and expand environmental resources: related to the first phase of sustainability in design
2	**social aspect** related to the second phase of sustainability in design meeting needs of equity and fair share of resources to sustain and growth: related to the second phase of sustainability in design

Table 1 Two aspects of sustainability
(Adapted from World Commission on Environment and Development, 1987; SDGs:. Sustainable Development Knowledge Platform, n.d.)

1.2 Justification and Significance

What Is the Purpose of This Study?

This study aimed to identify the best practices for design innovation in order to enhance the quality of life of ethnic design groups and their members via their capital. Hill tribes in northern Thailand were the representative design group, and they had a certain level of vulnerability and robustness with respect to this study.

This study assumed that the ethnic groups and craftspeople designing traditional items were vulnerable in four ways:

1. Spatial: living in remote areas far from major cities or markets for selling their goods
2. Financial: insufficient funds to advance the design process
3. Technical: lack of infrastructure and few educational opportunities
4. Social: ethnic minorities

Koschei (2015) asserted that any group, community, or industry has a level of vulnerability. He exemplifies himself as a designer living far from New York City. Design companies and firms in large cities could have their own vulnerabilities, but they employ strategies to overcome this obstacle. Hill tribes living in remote mountainous area in northern Thailand

also have vulnerabilities, they have survived despite adversity and changes in society on their energy, capitals.

People belonging to ethnic minorities make and sell textile items based on their farming society and unique culture. Their craft activities visually represent their cultural heritage and are valuable assets. Determining the hill tribes' capital through crafts and economic and social activities illustrates how they have led their lives—or in other words, how they have utilized their capital. The capitals are a symbol of the second phase of sustainability in design.

Why Is Studying This Topic Significant?

Hill tribes are one of ethnic groups, this paper regards them as a design groups that have had design identity on their cultural richness. Many studies on ethnic groups and ethnic craft items have focused on the commercialization of craft items in their role as souvenirs (Cohen, 1989), while other have adopted ecological perspectives (Carruthers, 2001). This paper contributes to that discussion by exploring a design asset in a specific environment. Its significant comes from demonstrating how these design groups have existed with their capital—namely, human, physical, social, financial, natural (Sustainable livelihoods guidance sheets, 1999), cultural, and economic capital. This study's findings on how these design groups have developed through using their capital can be used to make inferences about their future development.

Who Are the Stakeholders of This Study?

1. Ethnic craft industry: Making craft items is not just an activity for ethnic groups and craftspeople. It is related to these individuals' livelihoods and to the preservation of their cultural heritage. This study sought to explore how craftspeople and the craft industry

recognize and utilize their capital, what they desire on their capital in the process of crafts and their life through this paper. More knowledge of themselves could give the potential to these individuals for a better future.

2. Institutions and researchers in the design and sustainability domain: Although the design industry has comprehensively studied and incorporated sustainability issues, it has focused on making products more sustainable. As the role of design has changed from designing consumer product to problem solving, designers must consider a new phase of sustainability in design.

1.3 Scope and Limitations

What Does This Paper Explore?

Design innovation in modern society is ultimately about creating successful or marketable products to emotionally fulfill customers (Cagan & Vogel, 2002). In contrast, the design process of ethnic craft items is about not only problem solving, but also perpetuating craftspeople and their culture. The craft items are handmade and reflect age-old traditions. This study determined ethnic groups' best practices with their capital. These best practices differed from those of designers in mass-production systems.

What Is the Focus of This Paper?

1. Hill tribes in northern Thailand

Various ethnic groups living in Thailand produce distinctive textiles using a wide array of techniques, motifs, and materials, and the Thai government is involved in promoting hand-woven goods (McIntosh, 2000). Queen Sirikit supports ethnic groups through the Royal SUPPORT Foundation, which was founded in 1975 to train poor women in handicraft arts to supplement their family incomes (Royal Projects of the King & Queen of

Thailand, n.d.). Hill tribes in northern Thailand is a suitable environment for studying ethnic culture and cooperative activities on the part of institutions because of existence of full of rich ethnic culture and Thai government's willingness to support hill tribes. This study focused on hill tribes living in mountainous areas near Mae Taeng, Chiang Dao, and Chiang Mai in northern Thailand. A village's proximity to Chiang Mai, where sales markets, suppliers, and governmental agencies are located, gives the benefit that utilize these infrastructure to the tribal members living in the vicinity.

2. Hill tribes' capital

DFID (Department for International Development) proposed five basic types of capital, human, social, natural, financial, and physical capital, for livelihood (Sustainable livelihoods guidance sheets, 1999), and these served as criteria for identifying the hill tribes' assets.

Capital is realistic understanding of people's strengths, also refers to asset to convert these into positive livelihood outcomes (Sustainable livelihoods guidance sheets, 1999).

Cultural capital and emotional capital were added to reflect the tribes' characteristics as design groups based on cultural heritage. Hill tribe craftspeople's strength and weakness were determined on the basis of their level of capital.

3. Capital-based best practices for achieving design innovation

Level of capital comes up with what the hill tribes have, and this is the starting point for identifying best practices. If craftspeople from the hill tribes were to implement these best practices, they could improve their working and living environment. The best practices identified on the basis of capital levels lead to design innovation success, as this empirical research demonstrated.

The term *craftsmen* also encompasses "craftswomen" and refers to artisans. According to Dictionary.com (craftsman, n.d.), the term *craftsman* is defined as follows:

1. "A person who practices or is highly skilled in a craft; artisan."
2. "An artist."

Most of all the ethnic crafts activities are conducted by craftswomen, making crafts items is a supplementary job for the ethnic groups. However, a few craftsmen also make a different kind of craft items in hill tribes. This study is not about gender issues, but about hill tribes, the term *craftsperson* and *craftspeople* that are genderless jargon will be used.

1.4 Conceptual Framework

As Figure 3 highlights, a large part of the Thai ethnic craft industry is managed by Thai governmental organizations and fair traders. The management of hill tribe craftspeople and their craft activities by organizations that speaks for craftspeople's voice is named *institutional craftivism*, a concept adapted from that of craftivism. Craftivism includes both crafts and activism. It is a way of looking at life through creativity, and craftivists help bring about positive change via personalized activism (Greer, 2007). This jargon is further discussed in Chapter 5, the conclusion.

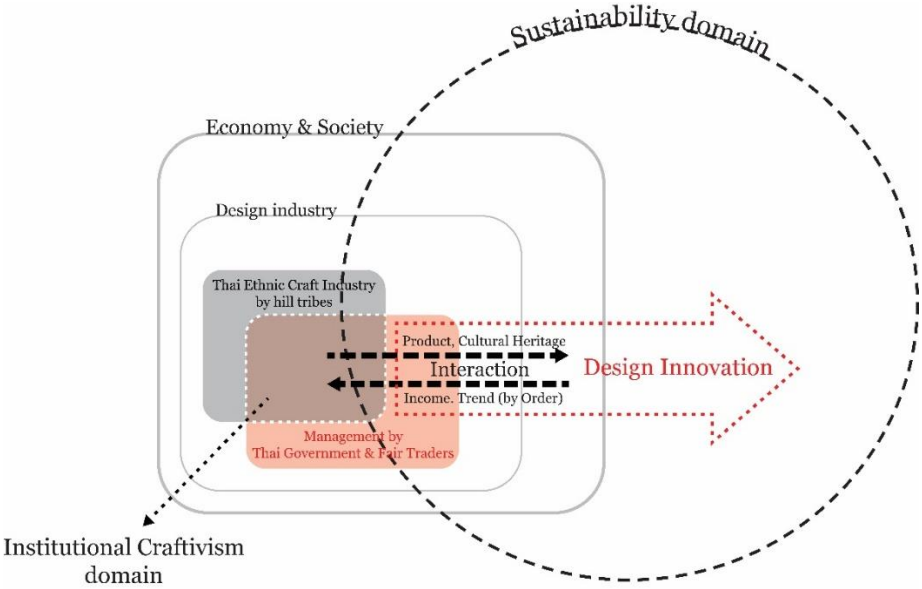

Figure 3 Conceptual framework: design innovation and sustainability

The Thai ethnic craft industry is part of the larger design industry, which is in turn an element of the economy and society. Part of the Thai ethnic craft industry belongs to the sustainability domain. The Thai ethnic craft industry interacts with the economy and society. The ethnic craft industry provides cultural craft items which is fresh and exotic objects, gets financial reward and information of change world from economy and society. The interactions are asset to go to sustainability domain. The process toward sustainability domain through interactions, or best practices, is design innovation. This study sought to determine how the Thai ethnic craft industry realizes design innovation and what it does to ensure sustainability.

1.5 Research Questions

Main Question

1. How can we define the second phase of sustainability in design?

The second phase of sustainability in design focuses on social aspects, such as ensuring equity and fairly sharing resources to achieve sustaining and growth (World Commission on Environment and Development, 1987; SDGs:. Sustainable Development Knowledge Platform, n.d.). This question will begin to determine what the second phase of sustainability based on craftspeople's activities and what CAPITALs from hill tribes will be determined that support this sustainability.

Secondary Questions

1. What is design innovation in the ethnic craft industry and how to make it sustainable?

Innovation is powered by understanding what people want and need in their lives about the way products are made and so on (Brown, 2008). Being sustainable is to solve craftspeople's problems what they want and need. Through interviews and observations, the craftspeople's needs were identified.

2. What success factors lead to design innovation in the ethnic craft industry?

This study was based upon the premise that success factors lead to design innovation in the ethnic craft industry.

Success factors exist in major brands through systematic branding initiatives, great designers by education, and best-selling products that have high quality in the design industry and mass production system. If so, hill tribes and the crafts market may also have success factors that are different within the mass production system. These success factors for the ethnic craft industry have been determined through data analysis from the interviews and observations with local craftspeople and fair traders.

3. What capital do craftspeople have?

Human, social, natural, financial, physical, cultural, and emotional capital were measured to judge the degree of sustainability. The first five types of capital are general criteria in

the livelihood framework, while cultural and emotional capital were added to better understand the craftspeople's intangible assets.

It was expected that increases in capital would have positive effects in terms of design innovation. This question is valuable to encourage increasing capital to make beneficial outcomes.

1.6 Definitions

Before starting the discussion, the definitions of CAPITALs within this study needs to be understood. What are the CAPITALs in hill tribe environment and what do they mean to the craftsperson are discussed.

1.6.1 Definition of Capital

Human Capital

Human capital reflects the amount and quality of labor, encompassing training, on-the-job learning, health, hygiene, schooling (education), literacy, skilled work, adequate food, and broad socialization processes that makes use of other types of assets (Sustainable livelihoods guidance sheets, 1999; Storper & Scott, 2009; Bottomley, & Ponha, n.d.).

Human capital, which refers to the level of available manpower, may also be created via interactions between appropriately matched or complementary individuals; hence, it might play a role in local economic growth (Storper & Scott, 2009).

In the hill tribes, female craftspeople barely have an opportunity to get an education, so their illiteracy rate is relatively high. As a general standard, human capital of all craftspeople would be regarded as low level. Separated standards adapted from existing research and on general standards will be applied to this study.

Social Capital

Social capital refers to social resources, such as trust, the ability to work together, durable networks, and membership in a group (Bourdieu, 1986; Sustainable livelihoods guidance sheets, 1999). It is located within social structures, the space among people, but not within the individual (Dale & Onyx, 2005).

Social capital helps to increase people's incomes and savings rates, and it facilitates the development and sharing of knowledge. Therefore, it has a close relationship with human capital, which is the sum of human capacity in knowledge and skills (Sustainable livelihoods guidance sheets, 1999; Dale & Onyx, 2005).

Social networks are constructed by investing in the institutionalization of group relations; social relationships allow individuals to access the resources possessed by their associates (Portes, 1998). These relationships may be socially guaranteed under a common name (Bourdieu, 1986).

Craftspeople from hill tribes participate in multiple layers of relationships within religious, business, and cultural networks. According to an interview with a fair trader from Thai Tribal Crafts, the organization's networks encompass multiple tribes, which often have a shared religious background (Christian) and shared business- or trade-related motivations to continue working with the company. Moreover, hill tribe craftspeople work with friends or family members, a factor that makes work hours enjoyable and affects emotional capital.

Natural Capital

Natural capital is related to natural resource stocks. The value and productivity of this type of capital tend to change seasonally, and local people's livelihoods come from resource-based activities (Sustainable livelihoods guidance sheets, 1999). Depleting natural capital

often connect to economic growth in the short term. This is sustained only if benefits are used to increase other assets to guarantee the economy's ability to generate income in the long run (Brandt et al., 2014).

Natural capital includes the use of harvested wild resources and engagement in natural resource-based activities for spiritual and traditional purposes (Thondhlana & Shackleton, 2015). In the case of craftspeople, this factor can be related to crafts.

Generally, the depletion of natural resources is caused by the overuse of natural capital. In this study, the analysis of natural capital was divided into two components, as discussed in Chapter 4 "Research Findings."

Physical Capital

Physical capital is the basic infrastructure that helps people to meet their basic needs and to be more productive. It includes variables such as affordable transport, shelter and buildings, water supply and sanitation, energy, and access to information (Sustainable livelihoods guidance sheets, 1999). The most obvious physical capital is tools for making craft items, such as looms, sewing machines, and scissors.

High levels of human capital attract technological and private physical capital, making regions prosper. Physical capital is a factor of production in economics (Pablo-Romero & Gomez-Calero, 2013; Lewis, 2016;).

Financial Capital

Financial capital refers to the financial resources that people use to directly achieve their livelihood objectives, and it can be converted into other types of capital (Sustainable livelihoods guidance sheets, 1999). It also includes available stocks, such as cash, bank deposits, livestock, and regular inflows of money, and financial capital also helps with

transforming one's self-image, unlocking one's potential, and boosting productivity (Sustainable livelihoods guidance sheets, 1999; Akudugu, 2010;).

Financial capital results in better access to improve economic condition such as income, savings and credit, and the capability to use these resources to strengthen one's livelihood. It also improves the well-being of the poor and vulnerable (Akudugu, 2010; Bhandari, 2013;).

During the interviews, the craftspeople frequently mentioned feeling more content when they get wealth through more volumes of order to earn more income. However, financial reward for the craftspeople does not only indicate money for livelihood. Wealth for hill tribe craftspeople connotes that getting adequate financial reward about their effort to make crafts items living as a craftsperson.

Cultural Capital

Cultural capital, which consists of cultural values, practices, and social networks, is deeply connected to craftspeople's identities, and it is what distinguishes them from others (Erel, 2010).

Bourdieu (1986) asserted that three states of cultural capital exist: (1) an embodied state in the form of long-lasting dispositions of the mind and body; (2) an objectified state in the form of cultural goods, such as pictures, books, and machines; and (3) an institutionalized state, a form of objectification.

This second form of cultural capital could be a visual asset handed down from past generations, such as a distinctive color, pattern, or material. These unique assets distinguish ethnic communities from their competitors and ensure that traditions continue.

Emotional Capital

Many studies on emotional capital have discussed affection, attachment, and intimacy, all of which are connected to relationships. When social capital is based on to membership in a group (Bourdieu, 1986), emotional capital is the affective relationships among members (Reay, 2004).

Feeney and Lemay (Feeney & Lemay, 2012) defined emotional capital as a positive emotional investment into one's relationship. These positive and shared emotional experiences constitute a resource inherent to a specific relationship.

Reay (2004) stated that emotional capital emerges in affective relationships between family and friends and that it encompasses emotional resources. Feeney and Lemay (2012) discuss the reason why some relationships survive adversity or threat, and state that every relationship has an "emotional bank account" made up of the positive, shared experiences that relationship partners have had from their work.

It is easy to be ignored in the real field of workplace in a mass production system. However, it is important as a long-term care of human capital to be empowered to overcome threat and changes during work. In this study, emotional capital can be considered a craftsperson's happiness, satisfaction, and attachment between craftspeople and their job.

1.7 Summary

Which Area of Sustainability Is Discussed in This Paper?

As Ann Thorpe noted, the first phase of sustainable design focused largely on energy and materials, while the second phase requires the consideration of economic and social aspects of sustainability (Thorpe, 2007;2012;). This study aimed to integrate hill tribe craftspeople's problems and the best practices for solutions on the base of their capitals to advance the second phase of sustainability in design.

The problems and the best practices for solutions were determined by analyzing representative design groups, craftspeople from hill tribes living in northern Thailand. These individuals are designers in that they plan and create products to solve problems, considering factors like design, pattern, material, and color. The problem in question could be their own need for a traditional ceremony or the need to develop a unique market for customers. The design group's existing capital would show what capitals the design group needs and indicated the direction that it should take to be sustainable.

CHAPTER 2

LITERATURE REVIEW

2.1 Ethnic Identity, Crafts, and Craft Consumers

The terms *ethnicity* and *ethnic* are often subsumed under "culture," "cultural," or "tribal." Many researchers have agreed that sharing cultural traditions and history and distinguishing an ethnic group from other groups is vitally important. The obvious differences between them are related to material culture and cover factors such as language and dialect, name, kinship structure, striking aspects of material culture, religious activities, and political structure (Bradley, 1983; Barth, 1998; Peoples & Bailey, 2012). Radical differences in, for example, clothes, architecture and village arrangement, baskets, and crops strike the outsider immediately (Bradley, 1983). The shared affiliation or the outcome of comparable cultural strategies appears as a name. For example, "Maya" refers to a unit about which generalizations concerning modern practices and historical patterns can legitimately be made (Schortman, 2017).

However, defining ethnic groups on the basis of the cultural traits they exhibit is controversial because this approach relies on the judgement of ethnographic observers instead of actors' eyes (Barth, 1998).

On the other hand, an ethnic group is named a "social" category. an ethnic group as a social category is not only sharing cultural traditions and history, but also multiethnicity which means an understanding social processes and structures (Cohen, 1978; Peoples & Bailey, 2012). In most nations, including Thailand, there is a national dominant group and a number of minorities, or "tribes," that live separate from the dominant group and are regarded as less technologically advanced. There is constant contact with outside world and a continuing flow of new traits into these societies (Bradley, 1983).

Ethnic minorities or tribes in Thailand have survived through their charming cultural richness, as well as interaction with outsiders, such as lowland people in Thailand, governmental agencies, travelers, and foreign traders.

Commonly, the concepts of "crafts" and "craftspeople" are explained via comparisons with mass production and workers. First, the traditional worker produces products by hand, while the modern factory worker uses machines (Campbell, 2005). Tung (2012) mentioned that local artists naturally make a living by selling their handmade objects at a profitable margin, while designers make a living by designing objects that go into mass production (Tung, 2012).

The category of "crafts" contains a wide array of items and activities, such as weaving, hand-block printing, embroidery, silversmithing, jewelry working, bookbinding, furniture making, (Campbell, 2005), pottery, brickmaking, lacemaking, tailoring, shoemaking (Tice, 1995), metalworking, basketry, dyeing, and wood carving.

The contrast between craft activities and mass production is not about the relationship between hand production and machine production since the worker is in control of the machine, and the machine is in control of the worker. For example, a handicraft activity entailing the complete absence of machines, such as pottery or weaving, still involves the use of "machines" (the potter's wheel and the loom; Campbell, 2005).

Harrod (1999) defined a *craft* as something made and designed by the same person. In other words, *craft consumption* refers to activities that individuals both design and consume themselves. The manufacturing processes are controlled by the "craft producers," namely, the "craft consumers" (Harrod, 1999; Campbell, 2005; Elliot, 2016).

Simply stated, "craft producers" are "craft consumers," and craft production is more humane, creative, and authentic than machine production (Campbell, 2005).

Crafts represent a traditional form of consumer goods. People can respond to diverse cultural traditions through craft consumption because crafts are a medium of communication between people living in different environments, and they represent a symbolic connection to an earlier time (Nash, 1993; Scrase, 2005). Crafts goods from the developing world are now part of the decorative arrangement as exotic and unique objects of handicraft production in first world households (Nash, 1993, Scrase, 2005).

Before discussing the craft consumer, Campbell named three consumer types:

1. Active consumers: active, calculating, and rational actors who purchase goods and services to maximize their utility according to economic theory.

2. Passive consumers: passive, manipulated, and exploited subjects of market forces constrained to consume.

3. Self-conscious manipulators: people who are attached to products and who select goods with the specific intention of using them to create or maintain a given impression, identity, or lifestyle (adapted from Featherstone, 1991).

4. The craft consumer (Campbell, 2005)

Consumer demand has shifted from price and availability to products meant to reflect individuality and design value. Moreover, aesthetic appeal, consumers are viewed as groups pursuing various goals for differentiated and higher quality products. Tung (2012) deemed this phenomena as evidence of a symbolic economy. This type of consumer thinks first, then acts later. This is self-conscious manipulators that is developed version of active consumers. Bourdieu (1985) also mentioned that self-conscious manipulators are educated consumers who can adopt “symbolic goods,” or goods with an aesthetic and social designation. The symbolism makes goods more unique and encourages consumer

attachment to them. Crafts can be symbolic goods enabling individuals to engage in authentic, expressive, and creative activities (Campbell, 2005).

The craft consumer is a person who takes mass-produced products and employs these as the raw materials for the creation of a new "product" intended for self-consumption (Campbell, 2005). Therefore, the craft consumer is a producer and a consumer in one. The term indicates that craftspeople are involved in all processes of craft manufacturing (Elliot, 2016).

The term *folk art* is used to describe the craft of "tribal" groups (Scrase, 2005). Folk art communicates the novelty of local people, local craftspeople, and cultural globalization in a machine-manufactured world. Handmade indigenous arts and crafts can be refreshing in that they relieve the tedium of the homogenization and standardization encouraged by capitalism (Carruthers, 2001).

However, the freshness and uniqueness make generalizations about folk art's potential for sustainable development difficult (Carruthers, 2001). It needs to be demonstrated enormous variation in scale, capitalization, marketing style, profitability, productivity, and organizational success. Thus, artisan production is frequently regarded as an antagonistic form of mass production or petty commodity production as part of the informal economy (Dickie & Frank, 1996; Carruthers, 2001; Scrase, 2003). Although craft production helps maintain cultural identity, as well as livelihoods and social relations in communities, it is still resistant and struggles in global economic and cultural changes (Scrase, 2003). Indigenous folk art and the ethnicity are marketed through the sale of crafts from indigenous groups. It yet has a method for more ecological trade-offs regarding natural resource use, development in equity, and cultural independence (Dickie & Frank, 1996; Carruthers, 2001).

Furthermore, the commercialization of crafts is a significant topic in various fields. As regards economic theory and policy management, certain Latin American governments have viewed the development of handicraft production as a solution to rural underemployment (Tice, 1995). For designers, the crafts not only serve as new types of artifacts, but also provide novel practical prototypes (Tung, 2012).

Local crafts have highlighted the relationship between humans and their environment within different historical, cultural, and social contexts (Tung, 2012). Therefore, traditional crafts, rooted in local knowledge and accumulated over time, are part of cultural heritage and should be preserved and revitalized. Communities also try to reorganize and adjust to changing global economic circumstances and market demands (Scrase, 2003; Tung, 2012).

2.2 Northern Thailand and Hill Tribes

Habitation, Farming, and Textiles

A total of 3,527 hill tribe villages in 20 provinces comprising 133,070 households and 751,886 persons are nestled in upper valleys and on the slopes of the remote mountains of northern Thailand. The inhabitants of these communities are called “ethnic minorities” by some and “highlanders” or “hill tribes” by others (Anderson, 1993; Fujioka, 2002). The Thai term *hill tribe* (chao khao) designates ethnic minorities as being outside Thai society. Thus, hill tribe people have been associated with migrants and non-Thais. The legal status of hill tribes fluctuates between “naturalized,” “alien,” and “illegal (Fujioka, 2002; Hares, 2009).

In the 1960s, six groups were officially designated as hill tribes: the Karen (Kariang, Yang), Hmong (Meo), Mien (Yao), Lahu (Mussur), Lisu (Lisaw), and Akha (Kaw). The largest

tribal group is the Karen (46.18%), followed by the Hmong (16.32) and Lahu (11.21%; Kunstadter, 1983; Lewis & Lewis, 1984; Cohen, 2000; Fujioka, 2002).

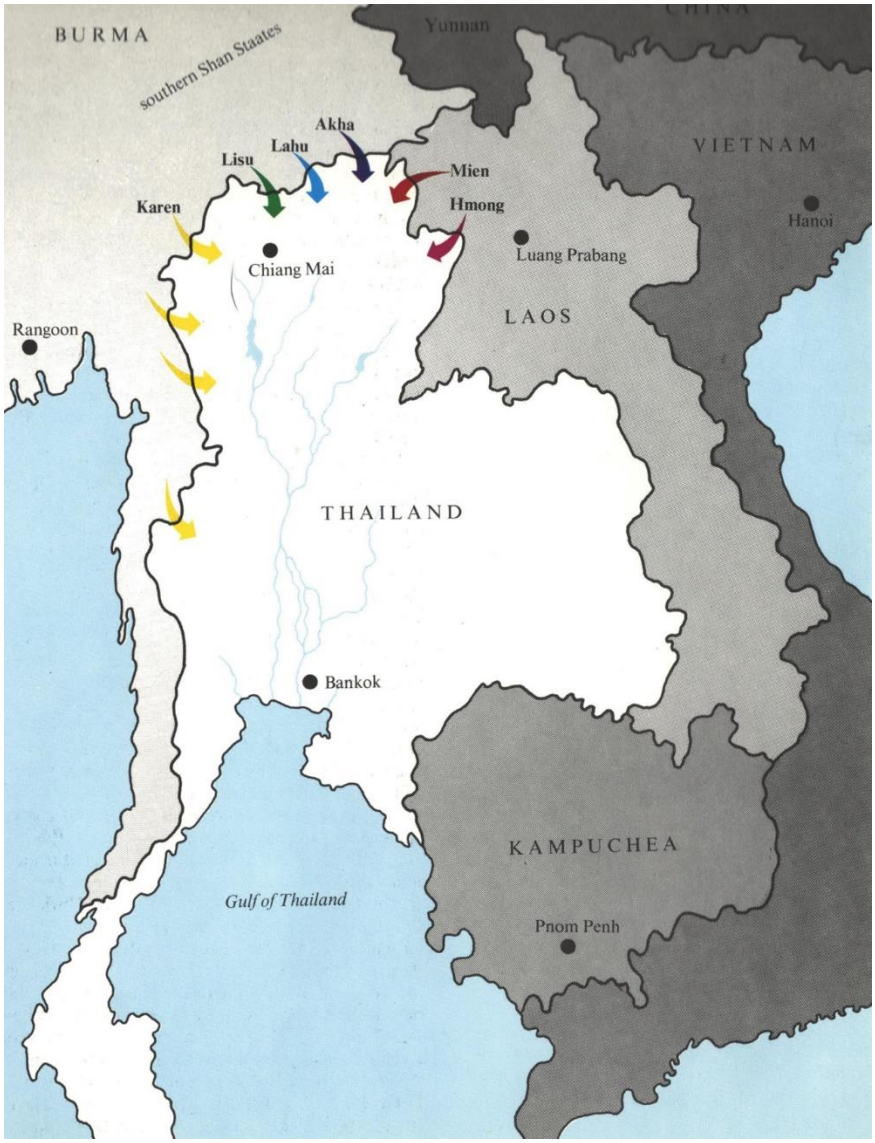

Figure 4. Map of 'Distribution of Major Tribal Village Settlements' (Lewis & Lewis, 1984)

Traditionally, these people engaged in Sweden farming as their main form of sustenance, with household-based handicraft production their secondary income source (Fujioka, 2002; Hares, 2009; Tipraqsa & Schreinemachers, 2009). The central problems are slash-

and-burn cultivation as a serious threat to the forests and the cultivation and trade of opium (Hares, 2009).

Northern Thailand has experienced rapid economic development since the 1980s. Subsequently, traditional forms of agriculture have developed into a more permanent and intensive form of land usage with improved technologies, the increased usage of external inputs, and development assistance. However, a further effect has been that closely knit hill tribe communities holding traditional values and beliefs are breaking apart and losing their identities (Fujioka, 2002; Tipraqsa & Schreinemachers, 2009).

In consequence, their culture has become "picture literature and history." For example, young women harvest hill rice while wearing their traditional costume, mothers wear heavily pleated batik skirts, and women sew elaborate tapestries (Anderson, 1993).

Despite of these crises resulting in a loss of remoteness and cultural identity, tribal handicrafts—and especially the colorful, richly ornamented costumes of the women—have taken on new significance in the economy and ethnic tourism sector and these products have been a major factor enhancing their attractiveness to tourists (Lewis & Lewis, 1998; Cohen, 2000).

Three organizations have been involved in improving the economic situation of tribal people: (1) the Thai Hill Crafts Foundation, under the patronage the princess mother; (2) Bordercrafts, sponsored by the Border Patrol Police; and (3) Thai Tribal Crafts, owned and managed by Karen and Lahu organizations (Lewis & Lewis, 1998).

Many tribal people have developed into skilled entrepreneurs, purchasing craft products from villagers and selling them in the major tourist-oriented craft markets in Thailand, such as the colorful "Night Bazaar" in Chiang Mai. However, most such crafts are imported from other Asian countries (Lewis & Lewis, 1998; Cohen, 2000).

Isolation and Alteration

Most hill tribe villages were isolated and independent from lowland society in the 1960s and 1970s. Economic development and governmental action then began to dominate the highlands. The Thai government aimed to "Thaify" and integrate the hill tribe people by turning them into self-reliant Thai citizens. It adopted this approach to solve the "hill tribe problem" associated with destruction of the forest and opium production (Cohen, 2000; Fujioka, 2002; Hares, 2009). The hill tribes' overall living conditions, such as basic health, welfare services, and village schools, were improved, but the government's efforts led to the progressive deculturation, marginalization, and pauperization of the tribal people (Cohen, 2000). As Iyer (1989) observed, the very things that one shuns and would not buy at home may seem exotic and attractive when abroad. For this reason, since the 1970s, the hill tribe people and their craft items have become more popular in the ethnic tourism sector, which portrays them as "primitive and remote" despite the fact that they are losing their cultural identity (Iyer, 1989; Cohen, 2000).

1960s: Traditional Phase

In the 1960s, the Tribal Research Institute was established on the campus of a new university in Chiang Mai. It has officially designated six groups as hill tribes: the Karen, Hmong, Mien, Lahu, Lisu, and Akha (Geddes, 1983; Cohen, 2000). Hill tribes have lived in the area for a long time, and the Thai government, anthropologists, and other parties have realized the importance of cultural richness and have started to systematically study these people since the Tribal Research Institute was established.

Tribal Crafts: Chronological Analysis

<table>
<tr><td rowspan="2">1960s
Traditional Phase</td><td colspan="3">- Tribal Research Institute established in Chiang Mai</td></tr>
<tr><td colspan="3">- Isolation and independence from lowland society</td></tr>
<tr><td rowspan="2">1970s
Hybrid of Cultures</td><td rowspan="6">- Non-governmental organizations (NGO) begin to sponsor commercialization</td><td colspan="2">- Commercialization of hill tribe craft items via ethnic tourism</td></tr>
<tr><td rowspan="2">- Resettlement of refugees from third countries</td></tr>
<tr><td>1980s
Commercialization</td></tr>
<tr><td rowspan="2">1990s
Governance</td><td>- Rapid development in Thailand</td></tr>
<tr><td rowspan="3">- Managed by government
- “Handicraft squeeze” by Erik Cohen</td><td>- Financial crisis in Thailand in August 1997</td></tr>
<tr><td>Present
Growth</td><td>- Preservation policy by government</td></tr>
<tr><td>Future
Conservation</td><td></td></tr>
</table>

Table 2 Chronological analysis of Northern Thai crafts (adapted from Cohen, 2000; Gunderson & Holling, 2002)

1970s: Hybrid of Cultures

International capitalism has always desired need for being difference with competitiveness, but it is now marked by a vast number of products and elements from different cultural environments (Carruthers, 2001). Nestor Garcia Canclini (1995) called this phenomenon as “hybrid cultures” (García Canclini et al., 1995). Commercially successful hybridization might be another element of sustainability that encourages self-reliant households, helps villagers meet basic needs, and sustains viable rural communities (Carruthers, 2001).

In the 1970s, many tribal groups and refugees started to further commercialize their craft items. At this time, several non-governmental organizations (NGOs) began to sponsor the commercialization of tribal crafts, and up until the present, that avenue has remained the principal outlet for crafts made by tribal villagers (Cohen, 2000). Akha tribal groups have moved to lowland cities in the northern provinces of Chiang Mai and Chiang Rai to engage in souvenir selling (Trupp & Sunanta, 2017). The supply of tribal products on the craft market increased dramatically from the mid-1970s onwards thanks to tribal refugees from Laos. Likewise, textile products made by Hmong refugees flooded the market in the late 1970s and early 1980s as their goods were less expensive than those of the hill tribe people from northern Thailand (Cohen, 2000). Products made by refugees also became the principal tribal items exported by foreign NGOs (Cohen, 2000).

1980s: Commercialization

Tribal refugees entered the country from the mid-1970s onwards. These individuals, and especially highly skilled women, provided an enormous potential labor force for craft production (Cohen, 2000). With increased production and an expanding local tourist market, a growing export business in tribal textiles developed (Cohen, 2000). The commercialization of ethnic crafts is complexly interwoven with a broad array of economic, religious, cultural, and political factors. The commercialized ethnic crafts, specifically produced and marketed for tourists, are also a way that indigenous peoples are resisting assimilation while moving out into the global economy (Cohen, 1989; Swain, 1993).

1990s: Governance

The gradual departure of the Hmong from Thailand during the 1980s and 1990s left a void in the tribal craft market. Local tribal craft production has lost much of its vitality over the

years (Cohen, 2000). In addition, an economic crisis, which began in mid-1997 and 1998, affected craft production (McIntosh, 2000; Cohen, 2000).

Since the economic crisis, anti-foreign sentiment has been strong, and the government has encouraged the consumption of Thai products instead of imported goods to boost the economy and promote the consumption of Thai textiles by Thais (McIntosh, 2000).

Present and Future: Growth and Conservation

Since Queen Sirikit founded the Royal SUPPORT Foundation in 1975, she has successfully opened scores of vocational training centers that have trained thousands of hill tribes, handicapped persons, and poor people to produce some of the finest quality handicrafts found anywhere in the world (Royal Projects of the King & Queen of Thailand, n.d.). From a part of the revival project of hill tribes, Thailand's first royal textile museum and conservation studio, the Queen Sirikit Textile Museum (QSTM), opened in Bangkok in 2012. Its mandate was to become a conservation destination for Asia and a leader in training and information sharing (Brennan et al., 2014).

According to a 2016 email interview with a fair trader in Chiang Mai, the fair-trade organization's entire business model is built upon preserving and perpetuating the intrinsic culture of the ethnic communities that they serve. They tell social enterprises to seek to empower the hill tribe people with whom they work by providing a market for the traditional skill and beautiful workmanship those groups have developed over the years.

2.3 Women's Entrepreneurship

Even though this study did not focus on gender issues, women's needs still must be addressed. Hill tribe craft activities have long been associated with female labor because most such activities are undertaken by female artisans. Despite this leading role, at the

ethnic group level, most women conform to societal expectations of male and female roles within their own ethnic and state societies (Ishii, 2012).

Wempi Wetipo, head of Jayawijaya Regency in Papua, Indonesia, also mentioned the irony inherent in the position of Jayawijava women: While the potential of women is highly promising, these women continue to be bound by their culture (Developing Women's Entrepreneurship in the Papua Highlands, 2010)

Kin-based indigenous communities must internally balance gender dynamics to meet external challenges to their production base, ethnic group integrity, and cultural survival (Swain, 1993). Internal (household and community) factors in ethnic communities can be seen as enabling indigenous women's empowerment through the production of tourist art, but external (market and state) factors check this development (Swain, 1993).

2.4 Design Thinking, Design Innovation, Vulnerability, and Resilience

Design Thinking and Innovation

Design has been treated as a downstream step in the development process—the point where designers, who have played no earlier role in the substantive work of innovation, come along and put a beautiful wrapper around the idea (Brown, 2008). Rather than asking designers to make an already developed idea more attractive to consumers, companies have started to ask them to create ideas that better meet consumers' needs and desires (Brown, 2008). The roles of design have transformed from designing consumer products to designing consumer experiences (Brown & Wyatt, 2010).

According to Brown (2008), *design thinking* is a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity (Brown, 2008). Design thinking taps into capacities we all have but that are overlooked by

more conventional problem-solving practices (Brown & Wyatt, 2010). To do this, the focus of innovation should be shifted from being engineering-driven to design-driven, from product-centric to customer-centric, and marketing-focused to user-experience-focused. (How Design Thinking Adds Value to Innovation, 2017).

It focuses on not only creating products and services that are human centered, but the process itself which is also deeply human (Brown & Wyatt, 2010). In other words, it begins with understanding of what is customers' unmet or unarticulated needs (How Design Thinking Adds Value to Innovation, 2017). A better starting point is to go out into the world and observe the actual experiences of people as they improvise their way through their daily lives; insight is one of the key sources of a better starting point of design thinking (Brown & Katz, 2011).

At present, human-centered design can be a process that starts with people and ends with innovative solutions tailor-made to suit their needs. It is all about building a deep empathy for the design's intended audience and eventually releasing the innovative new solution in the world (An introduction to Human-Centered Design [PDF], n.d.).

Human-centered design should embrace all problems, even intractable ones like poverty, gender equality, and clean water, are solvable (The Field Guide to Human-Centered Design (Rep.), 2015). Namely, design innovation consists of giving solutions to people in vulnerable situations.

Design innovation relies on reusing existing knowledge or recombining existing knowledge in new and innovative ways (Pannozzo, 2007). The existing knowledge of a craft is viewed as tacit, where specialized skills are embedded in a person or within a local community (Tung, 2012). To understand the factors responsible for design innovation in ethnic groups, one should examine the local community and the principles inherent and embedded in members' minds, lives, and culture.

Harrod (1999) has defined a *craft* as "made and designed by the same person." In other words, a craft producer is a craft consumer. While design thinking in a mass-production system solely involves community interactions between designers and consumers, when it comes to craft activities in ethnic groups, both intra-community interactions and extra-community interactions are possible.

Shared principles of sustainable development include diversity (both biological and cultural), inherited ecological knowledge, community, smallness of scale, connection to place, concern for equity (distributional and intergenerational equity), and popular participation (Carruthers, 2001). With this palette of ideals as a point of departure, the paper now turns to the proposition that cottage-industry and folk-art craftsmanship might contribute to the larger goal of nourishing viable and sustainable rural communities (Carruthers, 2001).

Vulnerability and Resilience

Vulnerability is a term that is generally used to refer to certain populations, such as children, pregnant women, elderly people, and sick people, unable to resist or recover from the impacts of disasters or disease (Blaikie, 1994; Wisner & Adams, 2002). Contributors can vary according to the discipline and can include poverty and its common consequences, such as malnutrition, homelessness, poor housing, and destitution (Wisner & Adams, 2002) in sociology or economics and cataclysms, such as flood, drought, or earthquake, in ecology. Vulnerability has frequently been characterized as a function of both a system's exposure and sensitivity to stress and its capacity to absorb or cope with the effects of these stressors (Eakin & Luers, 2006).

Resilience is often defined as the opposite of vulnerability. In particular, *resilience* is the capacity of a system to undergo disturbance and maintain its functions and controls

(Gunderson & Holling, 2002; Eakin & Luers, 2006). *Resilience* is regarded as a similar concept to robustness that has been developed in ecology (Holling 1973), measures the amount of change or disruption that is required to transform the maintenance of a system from one set of mutually reinforcing processes and structures to a different set of processes and structures (Anderies, et al., 2004).

It is also the ability to sustain a shock and continue to function and, more generally, cope with change (Walker et al. 2004, 2006) so as to still retain essentially the same function, structure, identity, and feedbacks (Walker et al. 2004). Within the scientific domain, resilience has evolved into an intellectual framework for understanding how complex systems self-organize and change over time (Anderies, et al., 2013).

Vulnerability and resilience are often observable in the field of design in the form of designers or design firms with inadequate work environments. These labels may apply to those living in remote area far from markets or lacking infrastructure, and handicraft production systems with low productivity. How they overcome these deficits and sustain the lifespan of the people and products is vulnerability

Koschei (2015) discussed regional vulnerability as a designer as follows:

> There are days when it seems like every good designer lives in San Francisco and works on consumer-facing products. He does not live in SF, or New York, or any other well-known tech hub; he is not involved in consumer-facing design; he works on internal tools for large enterprises, in an isolated work environment. There are different opportunities in different regions; remote work is a much different experience than being part of an on-site team, no matter how remote you think you are, there are ways to be involved with the greater design community (Koschei, 2015).

He proposed socializing to be more resilient for example start writing online to communicate with people far away from him, join conversations, and collaborate on a side project (Koschei, 2015). He found the *robustness* in his working condition to overcome his regional vulnerability.

Robustness is the idea that systems work well even when the information available about them is incomplete or imperfect (Anderies et al., 2013). It is related to a reduced sensitivity of outputs to shocks when a computational method or system (mechanical or biophysical) works well (Anderies et al., 2013).

As discussed in Chapter 1, ecologists often focus on sustaining natural resources, while economists tend to emphasize ensuring human welfare (Ehrlich & Goulder, 2007). Common and Perrings (1992) stated that resource, or capital, allocation embraces both economic and ecological concepts of sustainability. Equitable access to capitals and trade-offs among capitals to ecological, social, and economic is fundamental to its realization (Dale 2001; Robinson and Tinker 1998).

2.5 Summary

Every group or community has a certain level of vulnerability, and the same is true of ethnic communities in northern Thailand. They have suffered historical, political, ecological, and cultural changes over the generations. Despite this confusion, their crafts have maintained traditions, guaranteeing both cultural originality and flexibility in the face of external changes. It is to be discussed that how these hill tribes have linked resilience and robustness to achieve a higher quality of life as a vulnerable group of designers.

Diversity was the starting point of this study. The foundation was questions about the number of differences in design society that have been recognized and analyzed by

institutions. If there is a majority, there are also minorities within it. Minority groups in society have vulnerabilities related to problem solving. If we can determine which practices could help to solve these problems, mitigating that vulnerability would become a possibility. This paper demonstrates that design is a tool for enhancing quality of life and solving problems related to sustainability and sustainable development.

CHAPTER 3

METHODOLOGY

3.1 Research Design

Misunderstandings and Expectations

Ethnic communities are often regarded as groups that have some degree of vulnerability, such as a lack of infrastructure. As a rule of thumb, they lack access to technological developments, and as a result of unreliable markets, their incomes are more variable than those of more established designers involved in mass-production systems. Nevertheless, the financial rewards or infrastructure of craftspeople in ethnic communities cannot be compared to those of designers in cities.

Success factors in design vary according to the company's identity, target users, and market segment. The most important factor requiring firms' attention, however, is keeping their design identity.

Design identity often emerges when a company's products all share a specific look. Numerous automakers have made designs that remind a certain impression to imprint their brand image on customers. Ethnic communities already have rich design identities. They have talent regarding color combinations, patterns, and shapes.

Through interviews and careful analysis, craftspeople's assets were determined.

Location and Date

One-on-one interviews and observations were conducted near Chiang Mai in northern Thailand between December 20-24, 2016. Chiang Mai is the largest city in close proximity to hill tribes in northern Thailand, and 28% of hill tribes live in the Chiang Mai area (Kunstadter, 1983). Chiang Mai is a city that allows access to hill tribes (in this case, for

research), museums on the native culture of northern Thailand, and workshops and classes offering instruction in hill tribe craft techniques.

Figure 5 Location of Thailand and Chiang Mai, adapted from Google maps

Figure 6 Location of Mae Taeng area and Chiang Dao, adapted from Google maps

Sampling Strategy

The snowball technique was used to find and contact local craftspeople in Northern Thailand.

First, research was conducted on Thai traditional craft items, organizations related to traditional craft in Thailand, and fair-trade organizations selling ethnic items to identify ethnic craft experts in Thailand. After a preliminary analysis of the findings and discussions with people involved in the craft industry, the researcher narrowed to textile items made by hill tribes. 'Thai Textiles: The Changing Roles of Ethnic Textiles in Thailand" by Linda McIntosh was used as a reference and the Thai Craft Fair Trade organization and a fair trader were selected as the starting point for planning the empirical research. Teachers, universities, organizations, and a fair trader in Chiang Mai were introduced to the researcher by Dr. McIntosh. An interested party in Thai Craft Fair Trade in Bangkok, Thai Tribal Crafts Fair Trade, the only fair trader dealing in tribal craft items in Chiang Mai in Thailand, was selected as an agency from which to conduct interviews with local craftspeople. Many craftspeople from hill tribes in northern Thailand produce items and sell them abroad under the management of Thai Tribal Crafts Fair Trade. Interviews were conducted with five participants from hill tribes and one fair trader.

In addition, two interviewees were selected by a professional tour operator working with hill tribes to ensure that different perspectives were incorporated. Participants were randomly selected when the research team visited their village.

Data Collection Methods and Participants

A total of eight subjects (n=8) participated in this research. One-on-one interviews were conducted with seven local craftspeople from hill tribes living in Chiang Dao, living near the Mae Taeng area, and living in Chiang Mai, and one email interview was held with a fair trader in Chiang Mai. Furthermore, observations (n=7) of the one-on-one interview participants were conducted to supplement the interviews.

The seven local craftspeople were divided into three groups according to region and management organization.

Group	Participant number	Status	Gender	Ethnic Origin	Region
1	P1* (Participant 1*)	Craftsperson	Female	Lisu	Lisu village near Mae Taeng
	P2* (Participant 2*)	Craftsperson	Female	Lisu	Lisu village near Mae Taeng
	P3* (Participant 3*)	Craftsperson	Female	Lisu	Lisu village near Mae Taeng
2	P4* (Participant 4*)	Craftsperson	Female	Lahu	Chiang Mai
	P5* (Participant 5*)	Craftsperson	Female	Lahu	Chiang Mai
3	P6* (Participant 6*)	Craftsperson	Female	Palong	Palong village in Chiang Dao
	P7* (Participant 7*)	Craftsperson	Female	Akha	Akha village in Chiang Dao

Table 3 Participant list for the one-on-one interviews

Participants list for the email interview

Participant number	Status	Gender	Nationality	Region
P8* (Participant 8*)	Fair trader	Male	American	Chiang Mai

Table 4 Participant list for the email interview

* Used terms of P1 to P8 or Participant 1 to Participant 8 rather than using participants' names are based on consent form.

The first group included three Lisu craftspeople living near the Mae Taeng area. Those participants had lived in their village and made craft items with their mothers and

grandmothers since they were children. They made textile pieces using traditional methods exclusively for Thai Tribal Craft Fair Trade, and that organization managed the volume of orders, design, and payment.

The second group comprised two Lahu craftspeople. They lived in Chiang Mai, focusing on refining textile pieces made by various ethnic groups to create final products ready to be sold to end customers. Although they did not live in their villages, their homes were in close proximity, and the participants visited each other—a practice similar to that seen in families in tribal villages. Even though these Lahu craftspeople did not make their traditional craft items themselves, they were proud of dealing with hill tribe products.

The third group included one craftsperson from the Akha tribe and one craftsperson from the Palong tribe who were randomly selected in their villages. Their crafts and their villages were managed by projects overseen by Thailand's royal family (Royal Projects of the King & Queen of Thailand, n.d.).

These craftspeople were all women. In addition to their work producing craft items, they were also engaged in housework, child care, and farming. The participants had different living environments, income levels, and education levels. Tables 3 and 4 provide a summary of the participants.

Interviews and Observations

One-on-one interviews were conducted for 30-60 minutes in the participants' work spaces, which invariably were the same as their living spaces. Before, during, or after the interviews, the interviewees demonstrated their work. After the interviews, observations were conducted, and these were of shorter duration than the interviews themselves. The interviews and observations were recorded and analyzed. The 23 interview questions were categorized by the type of capital (using the previously provided framework), and the

observations comprised a supplementary research method. The interview questions were asked in English by a researcher, then translated to Thai by an interpreter from Thai Tribal Craft Fair Trade. The respondents answered in Thai, with their words then translated to English by the interpreter. Observations were made to ensure that the participants' unintentional actions and environments and recorded.

Figure 7 Interview with participant 1 in the Lisu village

Figure 8 Interview with participant 2 in the Lisu village

Figure 9 Interview with participant 3 in the Lisu village

3.2 Analysis

The interviews were analyzed according to the rubric in Table 3. The result is illustrated in the design innovation asset heptagon (Figure 10). Moreover, scores from various levels were calculated to categorize the interview groups and the craftspeople (Table 7). These heptagons served as the basis for the analysis of each of the seven craftspeople using the capital indicator (Table 5). This categorization was made on the basis of the interviews.

The analysis relied on the following tools:

1. Rubric for ranking capital: The capital rubric pictured in Table 5 served as a reference for ranking each participant in the design innovation asset heptagons. The rubric was derived from both the literature review and the interviews.

Capital rubric

	Very high	High	Moderate	Low	Very low	Center
Human capital	Craftspeople have regular assistants to help whenever they are busy or need support.	Although craftspeople have regular assistants, they are supplementary workers with fewer skills than the craftspeople themselves.	Craftspeople do not have regular assistants, but they hire assistants as needed when they are busy.	Whenever craftspeople are busy, they ask someone for help.	Craftspeople always are shorthanded, and no one can help them.	No craftspeople
Social capital	Official and unofficial work groups are always defined by positive relationships.	Work groups almost always feature positive relationships.	Work groups often feature positive relationships.	Work groups sometimes feature positive relationships.	Craftspeople rarely have relationships, either officially or unofficially.	There are no relationships among craftspeople.
Natural capital	There are plenty of materials from nature that can be used to make craft items.	Craftspeople often use material from nature for their items.	Craftspeople sometimes obtain materials from nature for use in craft items.	Craftspeople sometimes obtain materials from nature.	Craftspeople rarely obtain materials from nature.	No natural materials are used.
Physical capital	Craftspeople have enough tools to make craft items, and they do not need more tools.	Craftspeople have adequate tools. Additional tools would be helpful, but not necessary.	More tools would boost productivity.	Craftspeople have the minimum tools needed to make items.	Craftspeople do not have their own tools and must borrow them.	Craftspeople have no tools to help them with their work.
Financial capital	Craftspeople earn a stable and sufficient income through their work.	Income cannot support an entire family but is a stable and helpful supplement.	Income is stable but more orders are needed for the work to constitute a viable supplementary income source.	Craftspeople sometimes can earn money through their work.	Craftspeople's works are less valued from a financial point of view.	There is no financial reward for craftspeople's work.
Cultural capital	Tradition is sustained by craftspeople themselves, and they are aware and proud of their status as craftspeople.	Tradition is sustained under outside management, but craftspeople are still aware and proud of their status as such	Attempts are made to preserve tradition as a tribal asset, but only by outside management.	The craft tradition is enacted by few craftspeople.	The craft tradition is only remembered by older generations and is no longer enacted.	No one can remember how to make traditional craft items.
Emotional capital	Craftspeople are completely satisfied with their lives as craftspeople.	Craftspeople are considerably satisfied with their lives as craftspeople.	Craftspeople are moderately satisfied with their lives as craftspeople.	Craftspeople are slightly satisfied with their lives as craftspeople.	Craftspeople has a lack of awareness as craftspeople.	Do not care about hill tribes and craftspeople.

Table 5 Capital rubric

2. The design innovation asset heptagon: The design innovation asset heptagon consists of the seven types of capital, as illustrated in Figure 10. It has “five rankings”, and the center indicates that the asset type does not exist. Each interview participant’s capitals are ranked from very low to very high, moving from the center to the outer edge. Each craftsperson’s position on the heptagon was determined using the capital rubric.

The design innovation asset heptagon

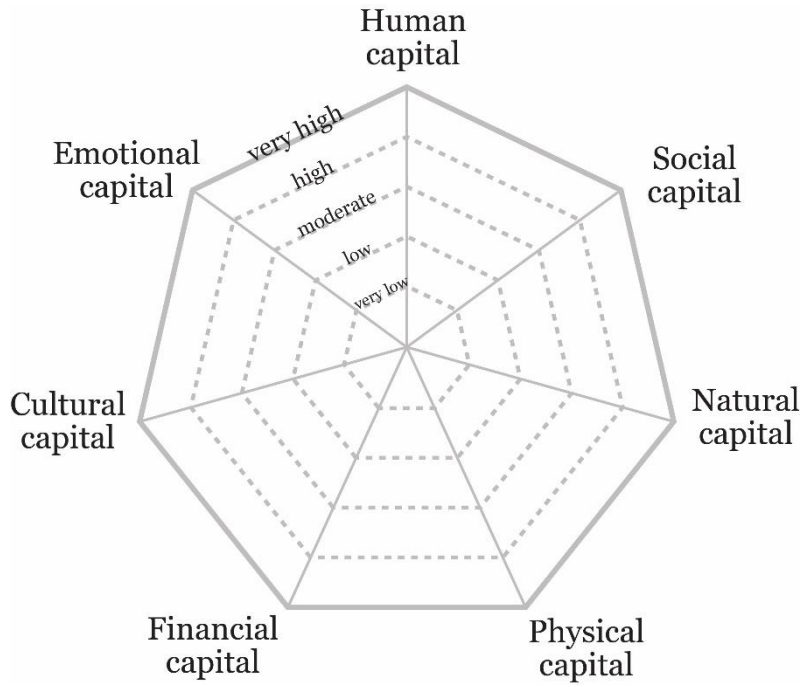

Figure 10 The design innovation asset heptagon

3. 3W (What, Where, and Who) Method: The 3W method was developed for use in this study’s observations. It was adapted from the AEIOU method (Table 6), a supplementary interview method. The 3W approach is less detailed than AEIOU, and its goal was to reveal the interview participants’ unintentional actions and environments.

The AEIOU (Activities, Environments Interactions, Objects, and Users) method and the 3W method

AEIOU (Martin et al., 2012)	3W method: Adapted from AEIOU
Activities Interactions Objects	What do hill tribe craftspeople do?
Environments	Where are hill tribe craftspeople?
Users	Who are hill tribe craftspeople?

Table 6 The AEIOU method and the 3W method

The analysis and findings are discussed in Chapter 4, "Research Findings."

CHAPTER 4

RESEARCH FINDINGS

4.1 Background

Premises and Findings

This study generated four findings via the literature review and interviews. These are discussed in Section 4.3, "Findings."

Finding 1. Social capital has a close relationship with both human capital and emotional capital, indicating that networks and membership ensure knowledge and lead to greater empathy with friends and family of craftspeople.

Finding 2. Emotional capital is affected by financial capital. Financial capital refers to the financial resources used to achieve one's livelihood objectives. Craftspeople require higher order volumes to earn more money to improve their economic condition, and they experience more stress when orders volumes are low.

Finding 3. Financial capital is inversely related to social and cultural capital.

Thus, when financial capital is high, social and cultural capital are low. Sharing a heavy workload with assistants helps craftspeople to cope and earn a high income. Financial capital connects to cultural capital in succession of traditional technique through working together.

Finding 4. Cultural capital directly affects emotional capital because the happiness levels of hill tribe craftspeople are related to their identity and dignity as craftspeople.

4.2 Data Analysis

The data analysis was based on the individual interviews and observations.

The individual analysis examined the participants' interview responses and the observations. One interview with a fair trader provided supplementary results in Chapter 4.3 findings section. The individual analysis approach was used to evaluate the interviews with the craftspeople following the below steps:

1. Participants' positions on the design innovation asset heptagon extracted from interviews and observations
2. Description of the participants, including their locations and activities
3. Photo of participants
4. Quotations from participant interviews; notable parts of the interviews
5. Supplementary explanations of the quotations from the interviews

The observations were analyzed in terms of commonalities shared by the participants and any remarkable findings, as enumerated below:

1. Where do they practice craft activities?
2. How do they practice craft activities?

[Group 1] Participant 1: craftsperson from the Lisu tribe living in a Lisu village

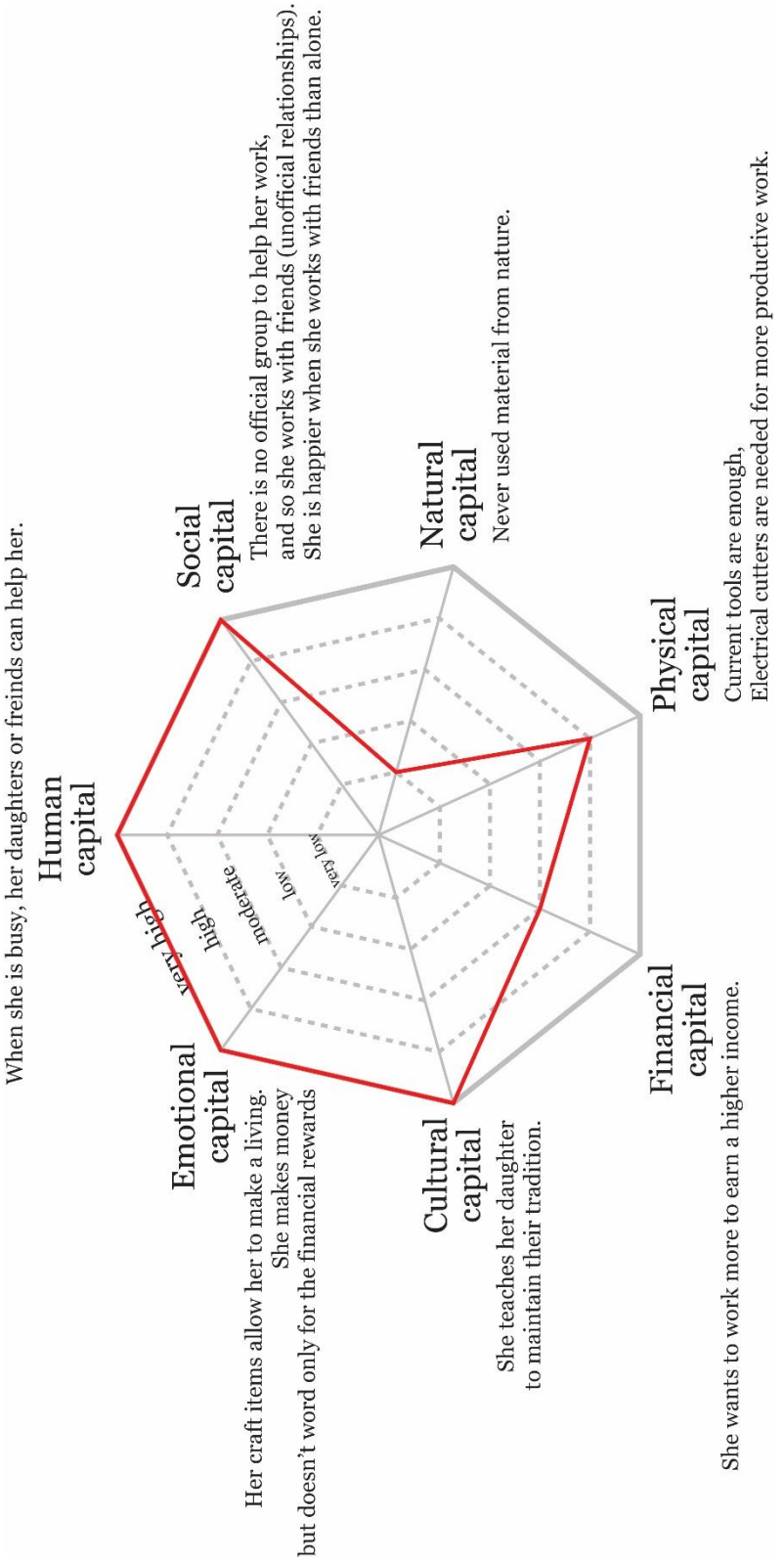

Figure 11 The design innovation asset heptagon for participant 1

The first participant started to make textile items 36 years ago to help her mother, and her grandmother was engaged in the same work. Her house was located near the entrance to the village, and villagers freely visited her house and greeted one other. She wore traditional costumes as everyday clothes.

She had never gone to school and could not write. Given her illiteracy, she used her thumbprint in lieu of her signature on the consent form.

However, she was highly experienced and had seen changes over the generations, especially technological changes related to tools and gadgets. Her family did not have a sewing machine when her grandmother's generation, but at the time of the interview, she had two electric sewing machines one is brand new and another is 45 years old.

Figure 12 Front yard of participant 1's house

Figure 13 Participant 1's work

> "We didn't have a sewing machine in my grandmother's generation; everything was hand-stitching; the quality was very low. The next generation had a sewing machine—it was a manual, 45 years old now."
>
> "We had five official groups to make handicraft items about 30 years ago, but we don't have it. Now we help each other as friends and family members."

Twenty years ago, there were official groups with whom craftspeople could work. That option does not exist anymore because order volumes through Thai Tribal Craft Fair Trade has decreased. One reason is higher competition in the local market. This information was triangulated through observations of a night market in Chiang Mai. In the marketplace, numerous products featuring ethnic designs were sold for low prices. Many were not authentic craft items but were mass produced in factories. Official groups have been replaced with friends and families in the same village. Talking and spending time together while working gives joy to these craftspeople.

[Group 1] Participant 2: craftsperson from the Lisu tribe living in a Lisu village

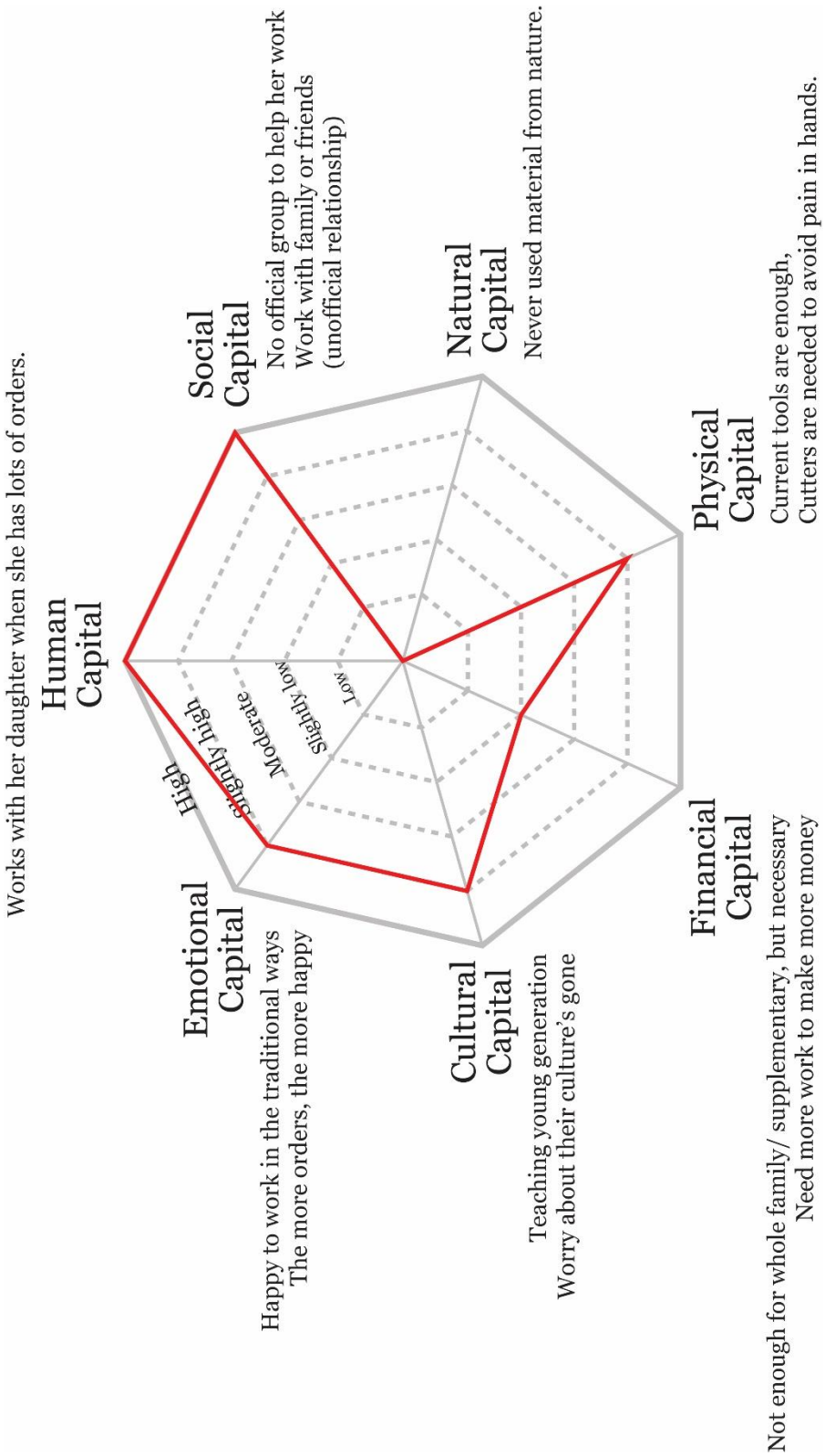

Figure 14 The design innovation asset heptagon for participant 2

Participant 2's family emigrated from China when she was a child. She spoke Chinese and signed the consent form using Chinese characters. In northern Thailand, the mountain slopes are occupied by hill tribes (i.e., the Karen, Hmong, Mien, Lahu, Akha, and Lisu) that arrived from southwestern and south-central China (Lewis & Lewis, 1998). The Lisu migrated from the headwaters of the Salween River in China into northern Burma and then into Thailand (Lewis & Lewis, 1998).

As with participant 1, participant 2 wore a traditional costume as everyday clothes.

Her work desk was located in the yard in front of the main entrance of her home. As she worked, she could look into the house through a large window.

Figure 15 Participant 2's work space

Figure 16 Participant 2 making a traditional textile item.

> "When I don't have task of handicraft items, I go to work on the farm. When I have a lot of orders from customers, I work with my daughter. I work as a skilled craftsperson, and my daughter works as an assistant in charge of easier parts. Also, I used to work with my friend."

Daughters play a highly important role in hill tribe culture when it comes to ethnic crafts. They can be successors, assistants, and colleagues. These daughters' role affects human, social, and cultural capital. Many daughters stay in their village after graduation for craft activities. Luckily, this participant lived with her daughter, and this younger woman was performing the role of a supplementary worker.

[Group 1] Participant 3: craftsperson from the Lisu tribe living in a Lisu village

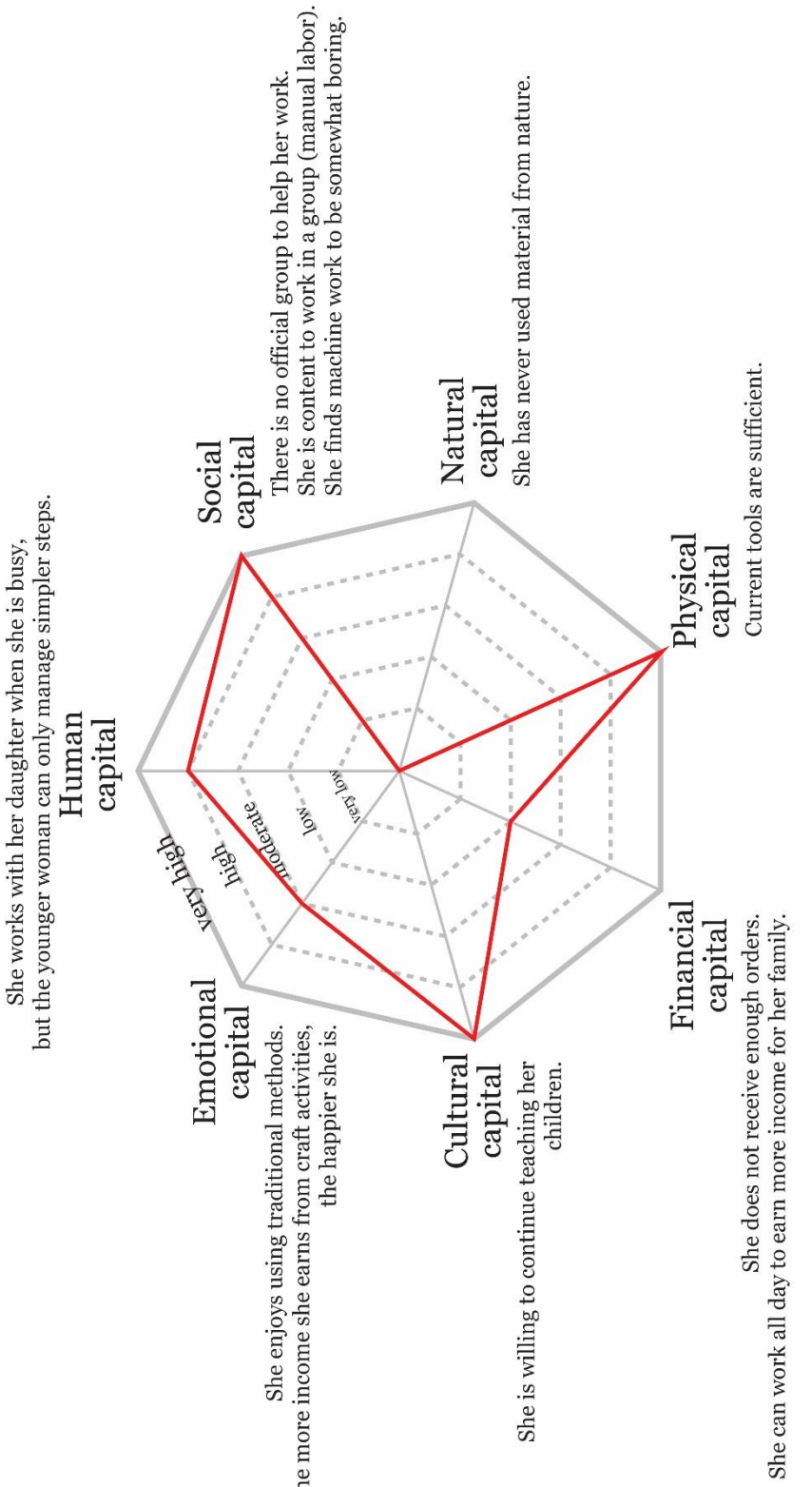

Figure 17 The design innovation asset heptagon for participant 3

Participant 3 wore a traditional costume as everyday clothes, as was the case with participants 1 and 2. The men and children in the village did not wear traditional costumes. Her work desk was located in her house next to a window. Her husband also made craft items with metal, and their house did not feature a distinctive boundary between the working space and living space.

She made her textile pieces using a sewing machine situated next to the window, and that location allowed her to observe both the inside and outside of the house. It permitted the participant to observe her children during work and to talk with friends as they passed through the alley in front of her house—all without having to stop working.

Figure 18 Participant 3 talking with friends at her window

Figure 19 Participant 3 making textile pieces with a sewing machine

> "If I have sufficient funds to buy more tools, I want to buy a cutter, but I'm quite okay without the cutter now."
>
> "If I didn't have this work, I wouldn't have enough money for my family, so this is very helpful. I'm happy to have more work orders from Thai Tribal Crafts Fair Trade and to continue to work. Still, I don't care to work all day without break time."

A responsibility for continuing her tribe's traditions and the mindset of a craftsperson meant that this participant had a high level of cultural capital and physical capital. She had responsibilities related to her roles as a mother, worker, and local craftsperson. She did not complain about a lack of capitals except financial capital. She mentioned a strong desire for more demand for her products to permit her to earn more money, and this statement is reflected in the low level of financial capital assigned to this participant in the heptagon. She exhibited a professional attitude toward her work.

[Group 2] Participant 4: craftsperson from the Lahu tribe living in Chiang Mai

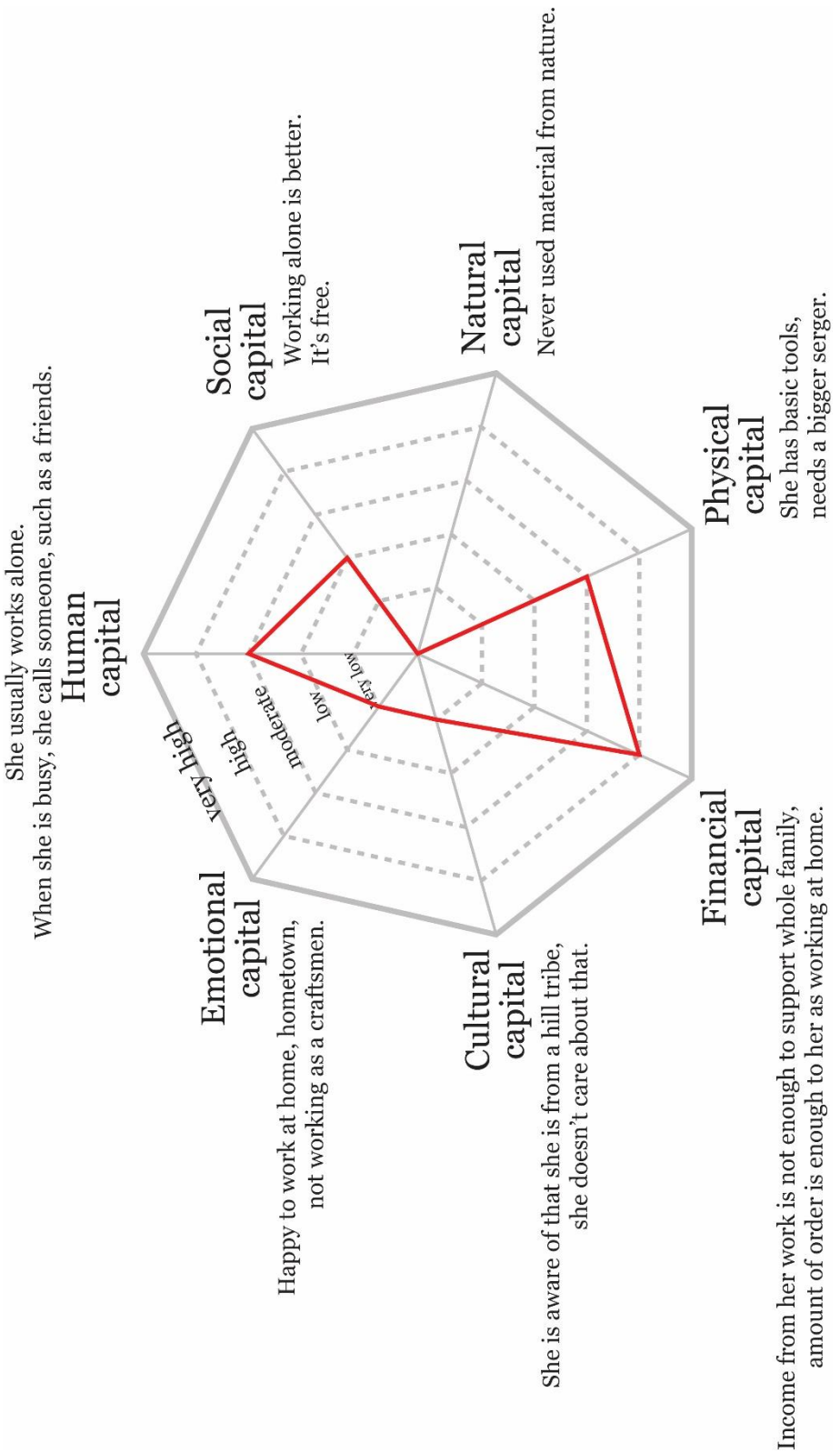

Figure 20 The design innovation asset heptagon for participant 4

Participant 4 was involved in refining and finishing final product for Thai Tribal Crafts Fair Trade. She was from the Lahu tribe but did not make traditional Lahu textile items. Instead, she finalized the textile pieces made by various hill tribe craftspeople. She was aware of belonging to a hill tribe and was not concerned about succession or the disappearance of the Lahu tradition.

As with the other participants, she worked in her house, with her workspace located between the kitchen and living room. The location of her work area was ideal for overseeing both family affairs and craft activities.

She often visited a neighboring colleague, participant 5, they sometimes work together and provides her services for a while. This is not unusual for craftspeople living in villages or other rural areas. However, her design innovation asset heptagon suggests she has low levels of cultural and emotional capital. Section 4.3, "Findings," has more details.

Figure 21 Participant 4's work space

Figure 22 Participant 4's work space

> "I don't need to work more to make more income. The current volume of orders is enough. I worked in a factory under a mass-production system in Taiwan, but I'm happier to be here."

This participant had less capitals except financial capital than the other interviewees, but had a relatively high level of financial capital. For craftspeople, a high level of financial capital has a different meaning than for workers in mass-production systems or factories. Farming is the primary income source for hill tribe members, and crafts are only supplementary work. For participant 4, finishing craft items from hill tribes supplements her family's income. High financial capital does not mean making enough money to support oneself and one's family. Rather, income from craft activities reflect the time and effort put into the product.

[Group 2] Participant 5: craftsperson from the Lahu tribe living in Chiang Mai

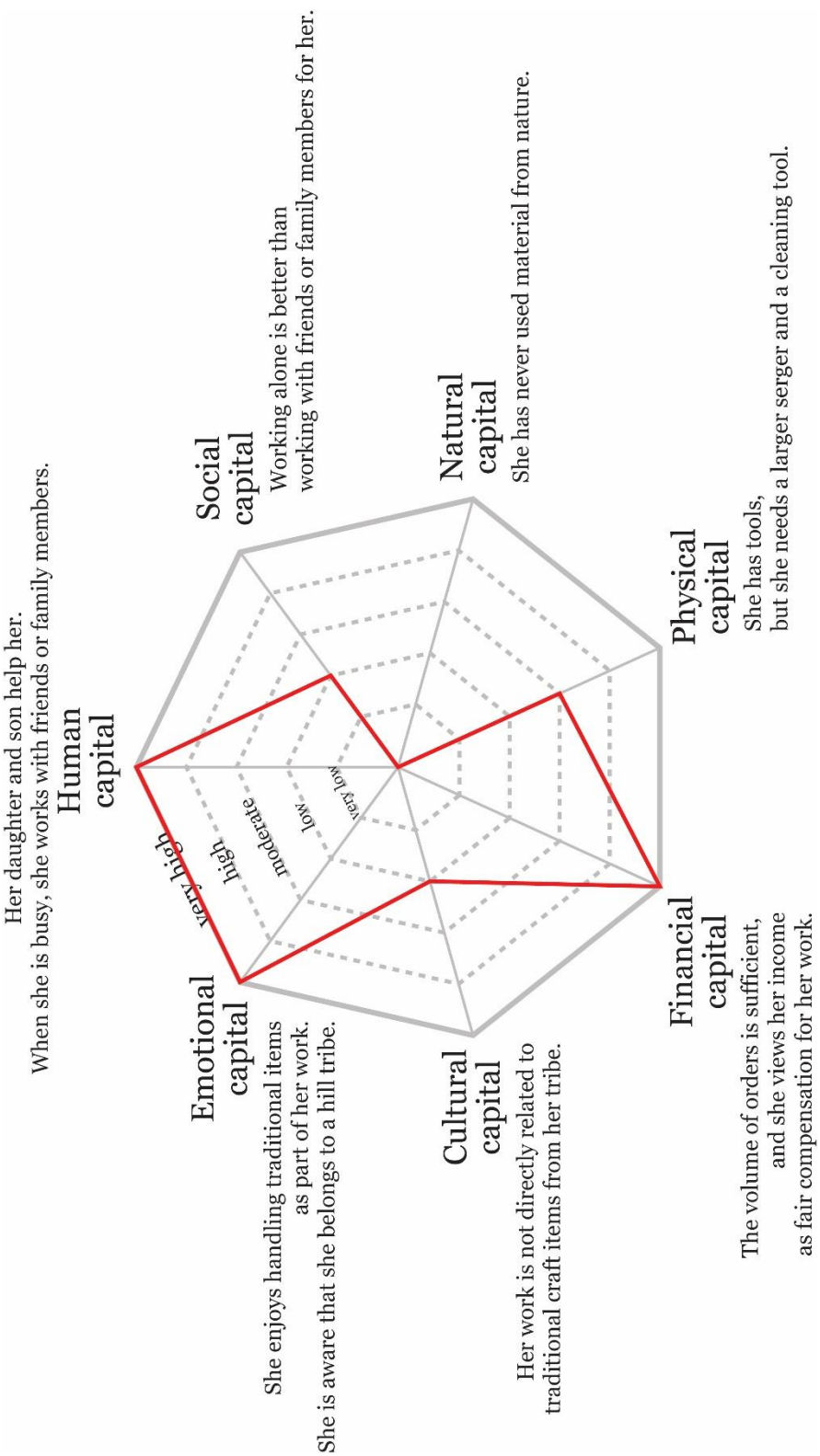

Figure 23 The design innovation asset heptagon for participant 5

Participant 5 received training on sewing machine techniques 20 years ago from Thai Tribal Craft Fair Trade. Since then, she had worked with Thai Tribal Craft Fair Trade. She also worked in the house; her sewing machines and her serger, an overlock sewing machine, were in the living room. Her workspace was very clean and tidy and looked professional.

She demonstrated the same habits as local craftspeople in a village. She worked with her daughter, son, or friends when busy, and she often visited her friends and colleagues. She mentioned her desire for her daughter to continue with the same work, and this participant was also aware of being from a hill tribe and took pride in that heritage.

Figure 24 Participant 5's work space

Figure 25 Participant 5's work space

"I wish my daughter would keep doing this work because it is good for women who stay home. However, my daughter got a job already, and she is not interested in this work anymore."

"I'm happy to handle traditional items because I belong to one of the hill tribes."

In this study, cultural capital was defined as maintaining tradition and having awareness of one's identity as a craftsperson. Participant 5 not only made Lahu items, but also refined and finished textile pieces from various hill tribes. That she does not make her tribal craft items is why she was categorized as having a low level of cultural capital, despite feeling content as a craftsperson from one of the hill tribes.

[Group 3] Participant 6: craftsperson from the Palong tribe living in a Palong village

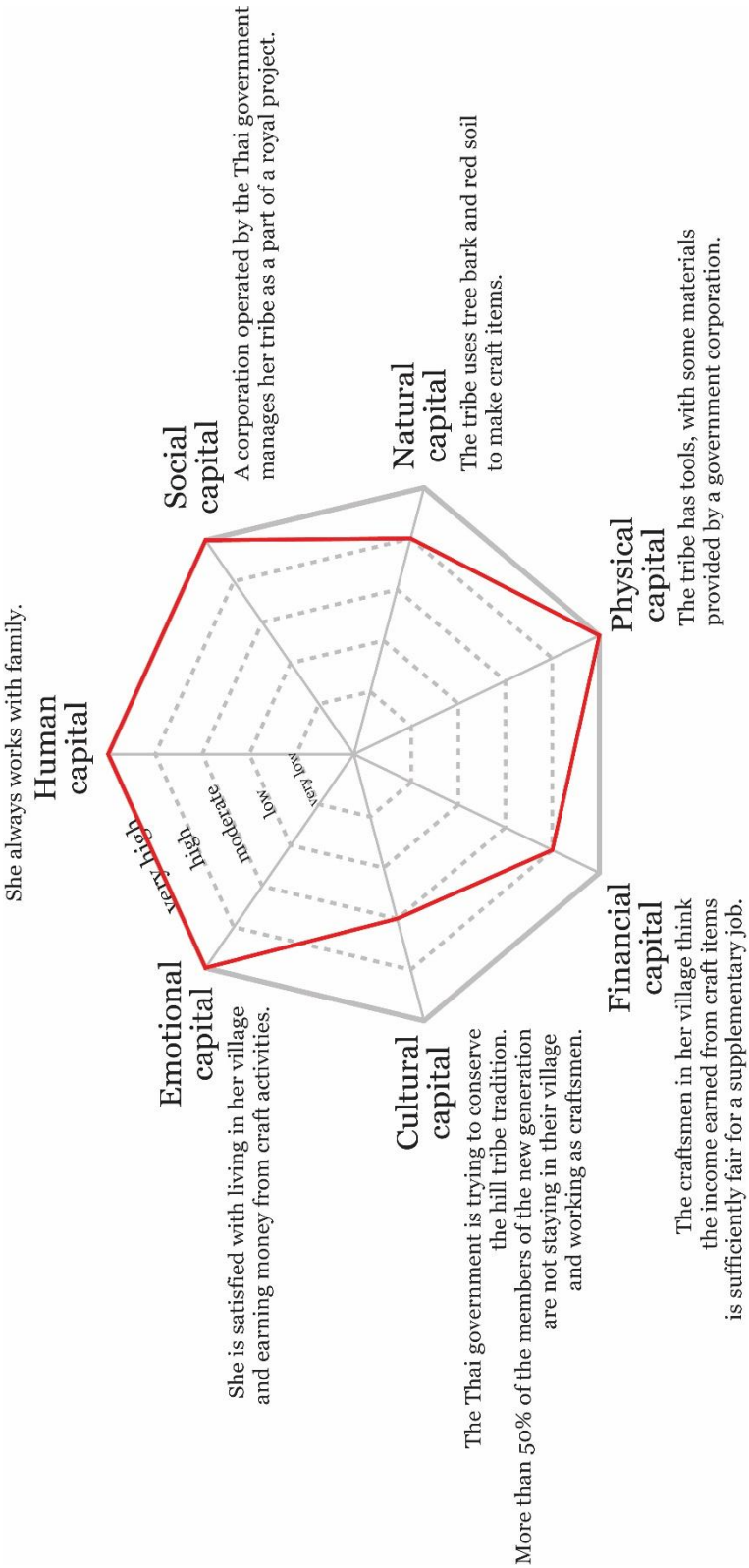

Figure 26 The design innovation asset heptagon for participant 6

The Palong village where participant 5 lives is a popular place with foreign tourists. The village residents They operate homestays, sell ethnic items, and demonstrate their craft activities to attract tourists, with a government organization managing these initiatives. Participant 6 tried to sell her craft items during the interview. There are small shops in some houses, and the resident craftspeople try to sell their craft items in this way. Some of these products did not appear to be authentic ethnic craft items.

In addition, the Palong was the only tribe in this study that used natural resources for making and selling crafts. That factor distinguished these craft items from those of the other tribes.

At the village's entrance stands a building that resembles a barn. The villagers call this small building a shop, and it is used for wellness education and teaching craft techniques to village members.

Figure 27 A common sight in this village

Figure 28 A woven item made from natural materials by participant 6

> "We have two styles of materials that are synthetic chemical, as well as bark from trees. Bark is cheap in our culture. We cut the tree bark in the forest and derive colors, such as pink, red, and green, from it. We soak the cotton in water-based dye and dry it in the sun. We make and sell dyed cotton."
>
> "If I don't have daughter, traditional techniques are finished. My children's generation learns in school. They may work in a city after that and are not interested in ethnic crafts. Others, after they finish their school, are interested in making handcraft items, but they are less than 50% of the generation."

Given the use of traditional methods to make craft items, the design innovation asset heptagon should indicate a high level of cultural capital, but it instead points to a moderate level. This anomaly is due to the fact that although the Thai government wants this tradition to be continued, only one generation is still making use of traditional techniques in participant 6's village.

[Group 3] Participant 7: craftsperson from the Akha tribe living in an Akha village

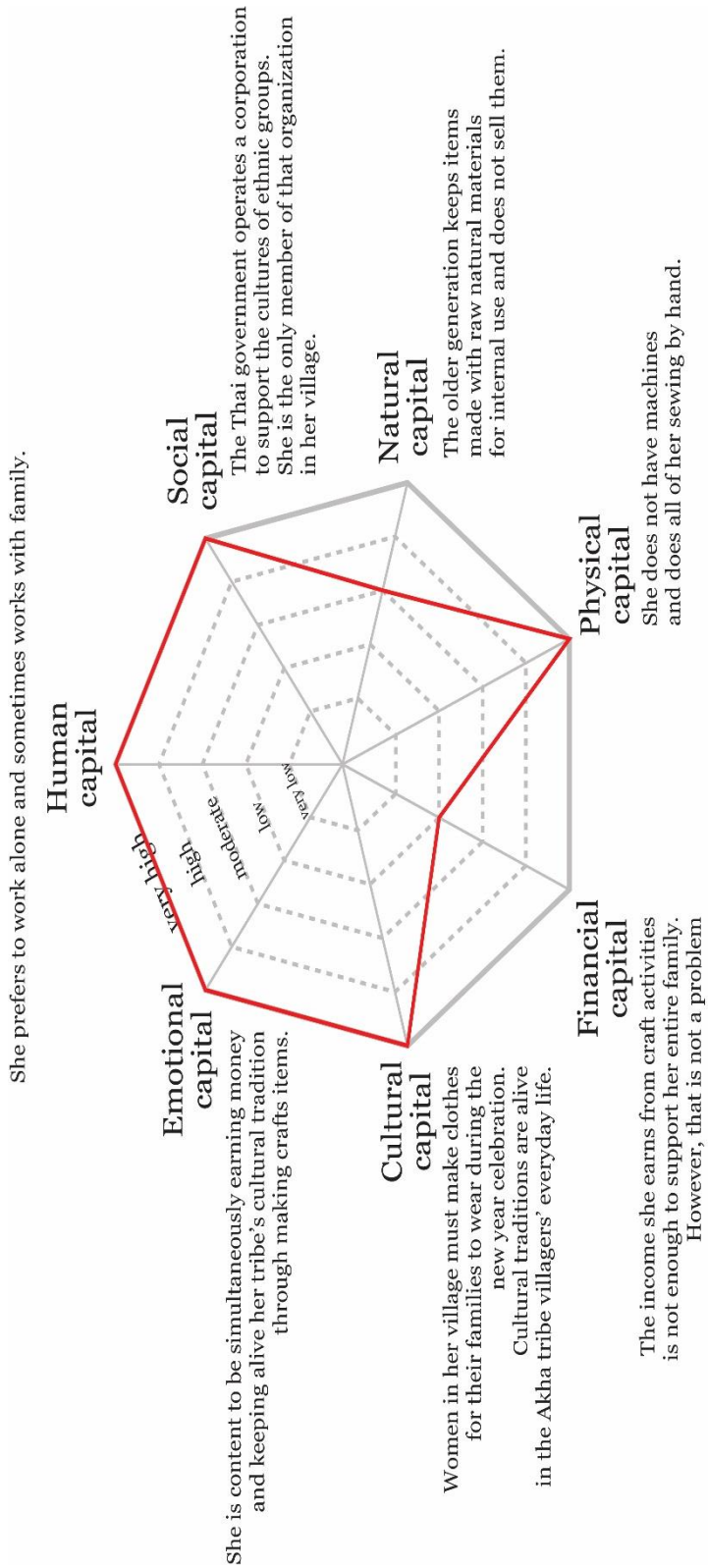

Figure 29 The design innovation asset heptagon for participant 7

Participant 7 was the only interviewee who read and signed the consent form on her own; the other craftspeople needed help reading the text and required in-depth explanations. In addition, she was one of interview participants who enjoyed working alone. Her answers slightly differed from those of the other participants.

Participant 7 simultaneously managed three jobs: hand stitching embroidery, selling commodities at her store, and caring for her 19-month-old daughter. Her work space consisted of a small desk next to her store. The general layout was the same as that described for the other participants: The work space was in the home and permitted participant 7 to oversee both family affairs and craft activities.

She stated maintaining tradition is more important than earning money though crafts.

Figure 30 Participant 7's work space

Figure 31 Participant 7's hand-embroidery

"Handmade products are good and more beautiful than machine-made products, even if it's slow."

"I work with my family, but sometimes I want to work alone because it's quiet."

"This work is a hobby, but I do this to make money and maintain my tribe's culture. This is what should we do."

"A teacher from a corporation operated by Thai government gives patterns to make craft items; the pattern is newly made. We also keep our original one."

As her answers demonstrate, she was proud of maintaining her crafting culture. Even though she did not earn enough money to support her entire family, she was still satisfied because she enjoyed the crafting process and the opportunity to continue traditions.

Observation

The observations, a means of supplementing the interview results, provided two findings. The first pertained to *where* the participants practiced craft activities, and the second concerned *how* they carried out these undertakings. The former finding suggested commonalities among the interviewees, while the latter revealed their varying viewpoints.

1. Working Space Coexists with Living Space.

The craftspeople's working space overlapped with their living space. For example, individual participants worked in a corner of the front yard, at a window seat in the living room, and on a path next to a shop. As housewives and mothers, they struggled to find time exclusively for working, and so they permitted their working space to blend into their living space. This could be an inconvenient element in a mass-production system, and this work environment might appear to be inefficient. However, for the participants, this method indicates that the environment effectively permitted them to simultaneously manage multiple tasks, such as caring for children, completing housework, and working.

Figure 32 The Lisu tribe: work space next to a window

Figure 33 Lisu tribe: work space in the front yard

Figure 34 Akha tribe: work desk next to a shop

2. Group Working

This observation suggests two reasons that hill tribe craftspeople work together: (1) to ensure cooperation and (1) to enjoy the work process. The former is connected to human capital and cultural capital, and the latter to social capital and emotional capital. Among all tribal people, the family is the most important social unit (Lewis & Lewis, 1984). Many of the interview participants mentioned daughters and friends and worked with their daughters, family members, or friends. This network supports the development of human capital, permitting the new generation to learn from the current generation. Moreover, a network of friends and families in an informal environment prevents long working hours from triggering boredom. This result implies that working together boosts levels of emotional capital, which can also be understood as 'relationship wealth' (Feeney & Lemay, 2012).

Figure 35 Palong tribe: group working together

Figure 36 Lisu tribe: group working together

4.3 Findings

The Design Innovation Asset Heptagon

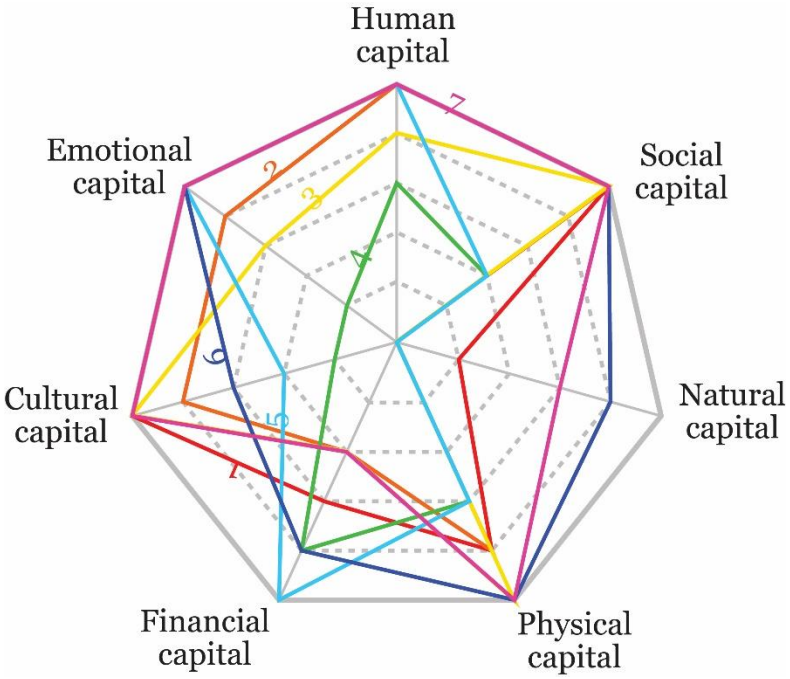

Figure 37 The design innovation asset heptagon, for all participants

Figure 37 contains a design innovation asset heptagon illustrating the combined assets of the interview participants (each participant's scores are indicated in different colors) and the distribution of those assets. Those asset lines in the area between human capital and physical capital are crowded, but in the area of natural capital, there was no crowding. This distribution of assets indicates that the hill tribe craftspeople's activities are more closely related to human, social, physical, financial, cultural, and emotional capital than to natural capital.

Table of Capital Scores

Table 7 summarizes the participants' capital scores, grouping those participants into the previously defined categories. The table is based on the design innovation asset heptagon, with the scale used in that heptagon translated into numbers, as follows: very high = 5, high = 4, moderate = 3, low = 2, very low = 1, and center = 0.

	Group 1*				Group 2**			Group 3***			
	P1	P2	P3	Average	P4	P5	Average	P6	P7	Average	Average
Human capital	5	5	4	4.67	3	5	4	5	5	5	**4.57**
Social capital	5	5	5	5	2	2	2	5	5	5	**4.14**
Natural capital	1	0	0	0.33	0	0	0	4	3	3.5	**1.29**
Physical capital	4	4	5	4.33	3	3	3	5	5	5	**4.14**
Financial capital	3	2	2	2.33	4	5	4.5	4	2	3	**3.14**
Cultural capital	5	4	5	4.67	1	2	1.5	3	5	4	**3.57**
Emotional capital	5	4	3	4	1	5	3	5	5	5	**4**
Total score	28	24	24	25.33	14	21	17.5	31	30	30.5	

Table 7 Table of capital scores

* Group 1 is comprised of the Lisu craftspeople living in a village near the Mae Taeng area. These craftspeople were managed by Thai Tribal Crafts Fair Trade.

** Group 2 consists of the Lahu craftspeople living in Chiang Mai and managed by Thai Tribal Crafts Fair Trade.

*** Group 3 encompasses the Palong and Akha craftspeople living in a village in Chiang Dao. These individuals were managed by a government organization

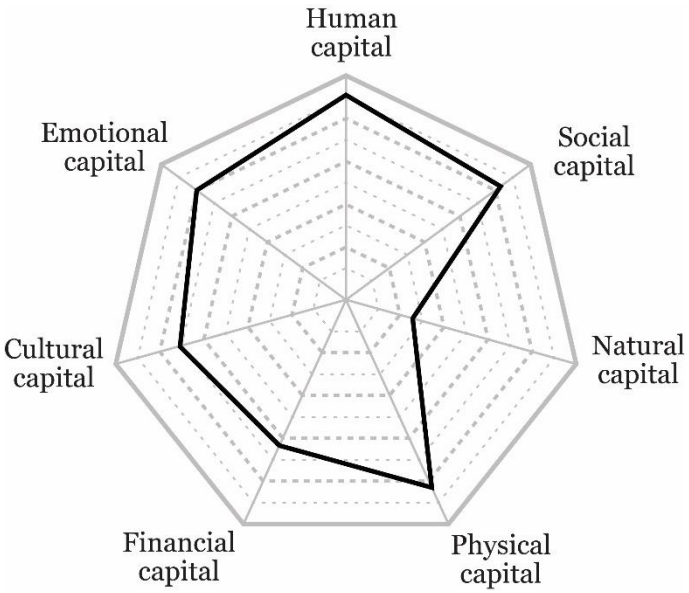

Figure 38
Average scores of capitals of whole participants

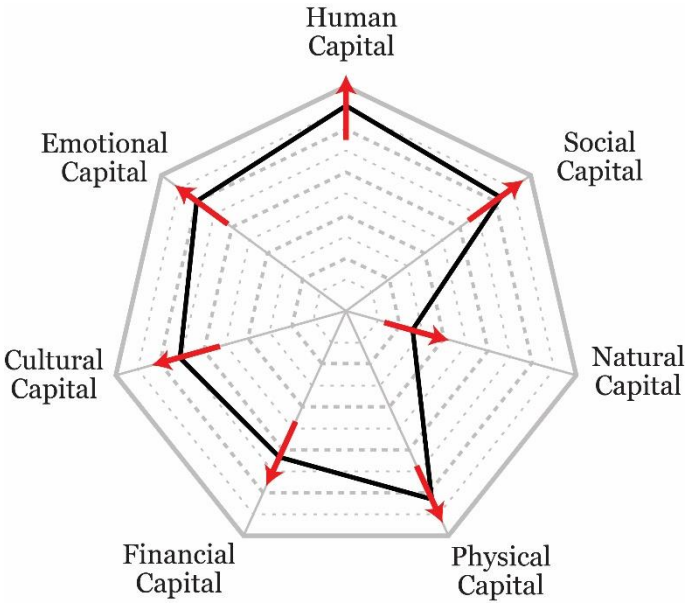

Figure 39
Sustainability through enhancing capitals

In accordance with Table 7, the average scores were calculated and then mapped onto the design innovation asset heptagon (Figure 38). These values reflected the average assets held by the hill tribe craftspeople and suggested high levels of human, physical, and emotional capital; medium levels of cultural and financial capitals; and low levels of natural capital.

Chambers and Conway (Chambers & Conway, 1992) asserted that a livelihood is sustainable when it maintains or enhances all assets. For their work to be sustainable, these hill tribe craftspeople must advance to a higher level of capital, as indicated in Figure 39.

However, the capital scores depended on the interview group. The inter-group differences and the factors responsible for them are discussed in this chapter.

Total Asset of <u>Group 1</u>

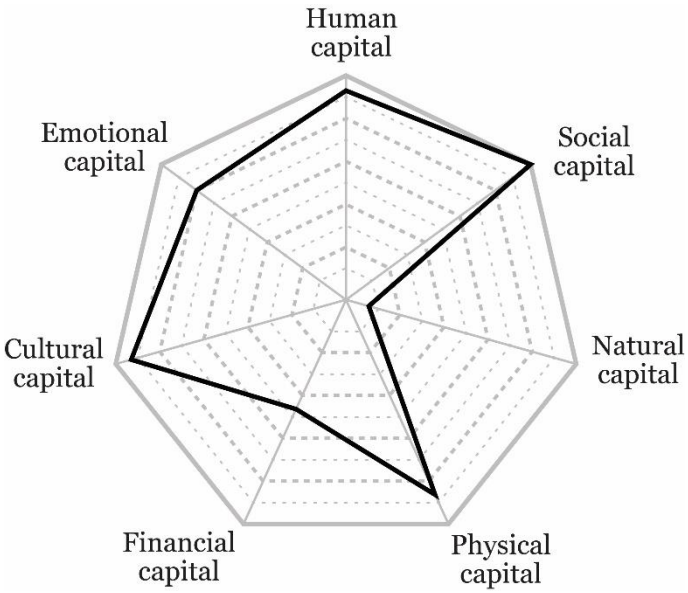

Figure 40 Total asset of group 1

Craftspeople in group 1 had high levels of social, human, and cultural capital.

This finding was based on the interviews and observation results. These participants enjoyed working together to ward off boredom. When individuals had a substantial amount of work, friends or family members volunteered to help and thus prevented overwork.

This informal group membership enhanced social capital that could control workload through manpower arrangement favorable influences Human capital, along with an enjoyable working environment and attachments between family members and friends, resulted in high levels of emotional capital through the sharing of experiences (Feeney & Lemay, 2012).

The reason for the relatively low level of financial capital was that the women needed more orders from their agency, Thai Tribal Crafts Fair Trade, to earn more income. They hoped their supplementary wages would help them to better support their families. Although they did not have enough money to support their entire family—a factor responsible for their relatively low levels of financial capital—the participants still felt content. In other words, money was not the most important element in their lives as craftspeople.

Total Asset of <u>Group 2</u>

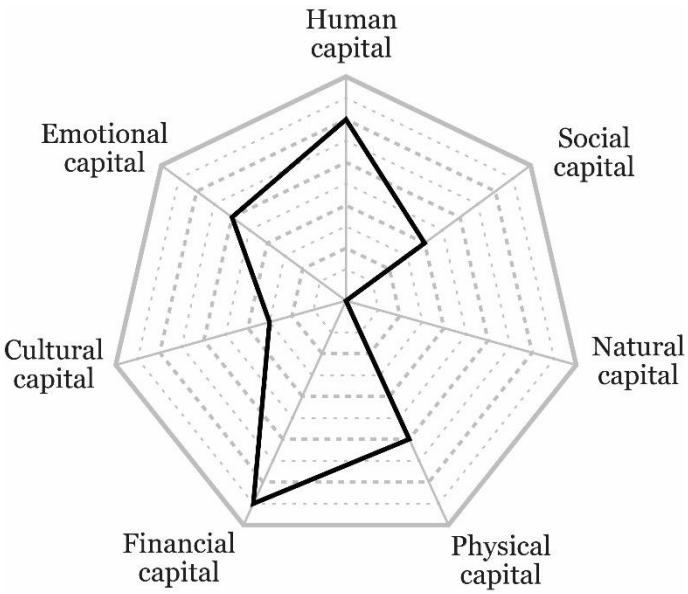

Figure 41 Total asset of group 2

Group 2 had the lowest level of capital among the interview groups. Its members had an especially low level of cultural capital, and their living and working conditions explain this divergence.

In general, living in a city implies the availability of more amenities than in a rural area as Storper and Scott (2009; 2008;) indicated: Individual workers focus on the qualitative attributes of places and migrate to cities for the relevant amenities. The group 2 participants lived in a city, and so the theory did not significantly affect them, except as regarded financial capital.

The interviewees stated that they did not work exclusively with Lahu items and that they worried about the disappearance of the Lahu tradition. They tended to work alone and lacked close connections with colleagues; these factors contributed to a decrease in their emotional capital. While they were aware of their identity as hill tribe craftspeople, the craftspeople are appeared to more satisfy than they just live as a city dweller.

On the other hand, this group had the most financial capital of any interview group. This was because the members received an adequate number of orders from their agency and their compensation matched their labor. However, they did not earn enough to support their entire family. Rather, crafts were only a supplementary source of income.

Total Asset of <u>Group 3</u>

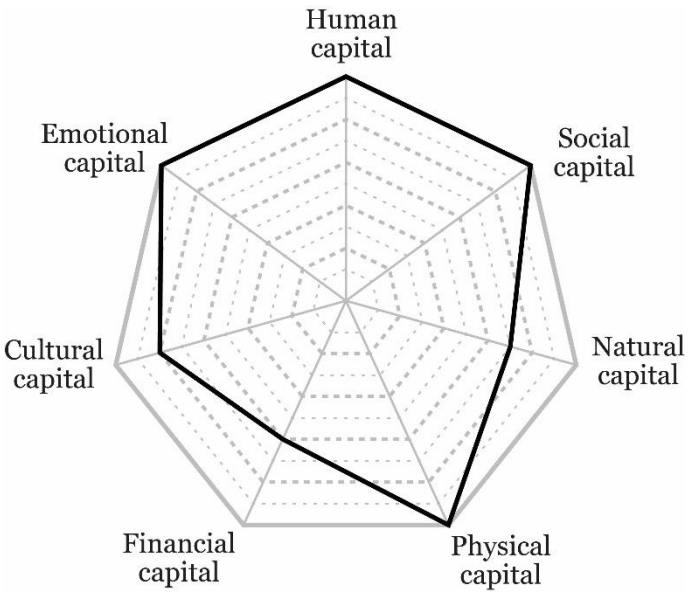

Figure 42 Total asset of group 3

Group 3 had the most balanced distribution of capital, which means that they had balanced asset that needs for their livelihoods. Unlike groups 1 and 2, they utilized natural capital, leveraging natural material from their surrounding environment. Craft items made by natural material was not solely intended for use by themselves, but they also sold them sometimes. As discussed in Chapter 1, natural capital includes use of the resources for spiritual and traditional purposes (Thondhlana & Shackleton, 2015). For example, craft items made with natural resources serve as traditional costumes for the tribes' new year celebrations.

The items these tribes produce using their own natural resources distinguish them from others. This uniqueness could help increase their cultural capital.

This group also had a relatively low level of financial capital, and the same factors responsible for that outcome in group 1 may be to blame. Although the craftspeople's income level did not permit them to support their family's livelihood, it did provide a reasonable secondary income.

Analysis

In Table 7, high scores (4 and 5) are highlighted in yellow, and low scores (1 and 2) are highlighted in blue, permitting the level of capital to be assessed at a glance. The table is followed by graphs indicating the correlations among different types of capital. This section analyzes four findings based on the scores in this table, as section 4.1, "Background" explained.

Finding 1. Social capital has a close relationship with human capital and emotional capital.

Finding 2. Emotional capital is affected financial capital.

Finding 3. Financial capital is inversely related to social and cultural capital.

Finding 4. Cultural capital directly affects emotional capital.

Finding 1. Social, human, and emotional capital

	Group 1			Group 2		Group 3	
	P1	P2	P3	P4	P5	P6	P7
Human capital	5	5	4	3	5	5	5
Social capital	5	5	5	2	2	5	5
Natural capital	1	0	0	0	0	4	3
Physical capital	4	4	5	3	3	5	5
Financial capital	3	2	2	4	5	4	2
Cultural capital	5	4	5	1	2	3	5
Emotional capital	5	4	3	1	5	5	5
Total score	27	24	24	14	21	31	30

Table 8 Analysis on table, social capital and human and emotional capital

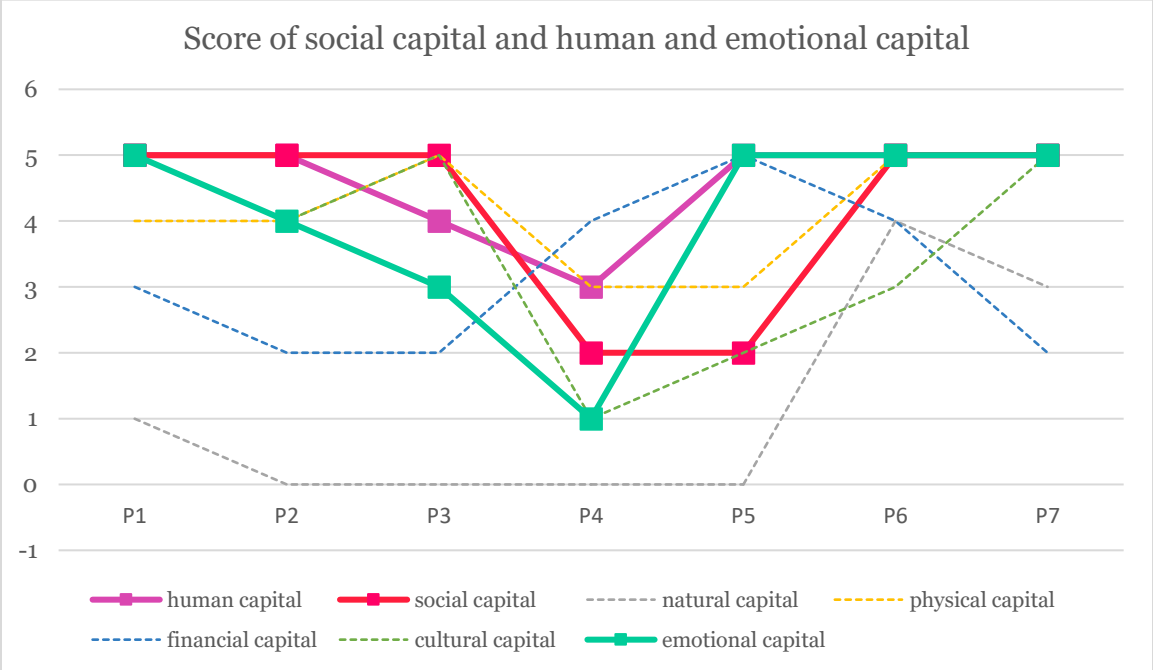

Figure 43 Score of social capital and human and emotional capital

Dale and Onyx (2005) have reported that social capital is closely related to human capital and emotional capital. Simply put, social capital is membership in a group and it facilitates the sharing of knowledge and skills, thereby enhancing human capital.

Figure 43 highlights the prominent fluctuations in the graph of social, human, and emotional capital. When social capital is high, the same is true of human and emotional capital. The data for participants 1, 6, and 7 clearly supported this first conclusion, and the data for participants 2, 3, and 4 provided partial support.

The hill tribe craftspeople worked together, which permitted them to adjust their workloads, to share knowledge with each other, to enjoy themselves during work, and to develop empathy for friends and family in the same profession and sharing the same culture and difficulties.

Only participant 5 exhibited high human and emotional capital despite having low social capital. Although her daughter and son could assist her when she was busy, she preferred to work alone. She enjoyed her work and took pride in dealing with traditional craft items. Her tendency was to be more independent than interdependent, an arrangement more often found in mass-production systems.

Therefore, this paper indicates that social capital is closely related to human and emotional capital. When craftspeople have high levels of social capital, they likewise have significant human and emotional capital. When craftspeople have less social capital, their human and emotional capital also appear to be low.

Finding 2. Financial capital and emotional capital

	Group 1			Group 2		Group 3	
	P1	P2	P3	P4	P5	P6	P7
Human capital	5	5	4	3	5	5	5
Social capital	5	5	5	2	2	5	5
Natural capital	1	0	0	0	0	4	3
Physical capital	4	4	5	3	3	5	5
Financial capital	3	2	2	4	5	4	2
Cultural capital	5	4	5	1	2	3	5
Emotional capital	5	4	3	1	5	5	5
Total score	27	24	24	14	21	31	30

Table 9 Analysis on table, financial capital and emotional capital

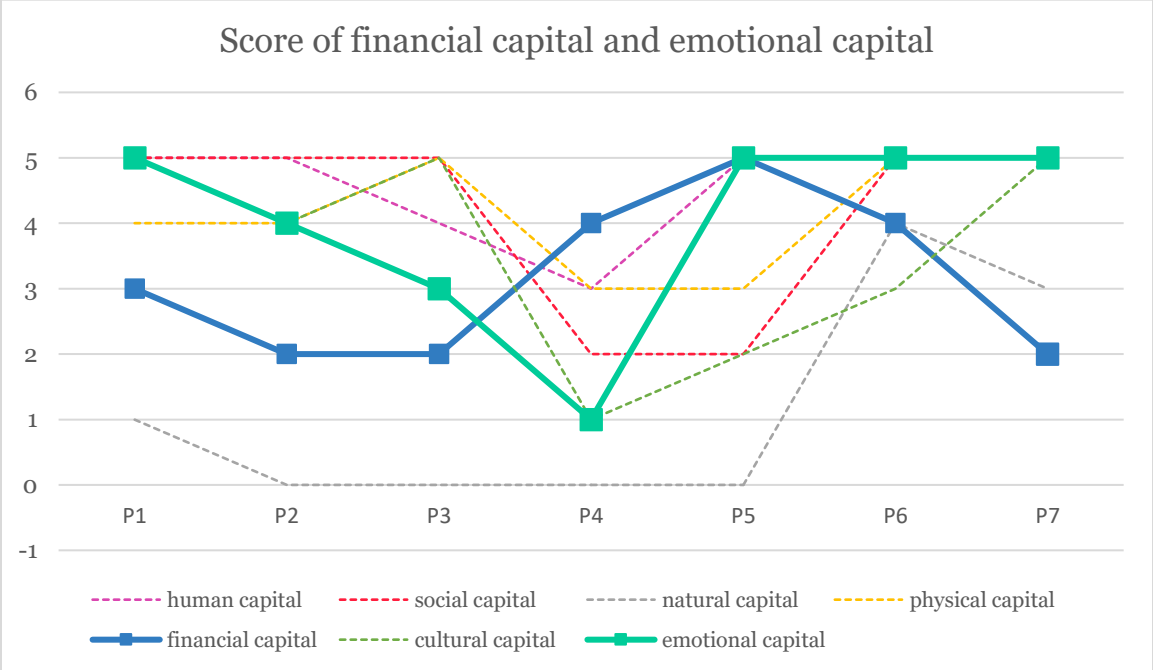

Figure 44 Score of financial capital and emotional capital

According to Table 9, emotional capital is affected by financial capital. Numerous interview participants mentioned that the higher the demand for their products, the happier they were. The participants were satisfied with being able to earn money by working at home during their free time, even as they maintained their traditions.

Table 5 underscores that their profession as craftspeople affects high level of emotional capital needs to satisfy craftspeople. As discussed above, the satisfaction is not solely determined by the financial reward but is combined with identity and satisfaction as craftspeople (cultural capital).

Fair financial reward (financial capital) + cultural identity (cultural capital)
emotional capital

Table 10 Financial, cultural, and emotional capital

In this analysis, emotional capital was equal to or higher than financial capital and cultural capital.

Figure 44 implies that emotional capital was always equal to or greater than financial capital, except for participant 4. Therefore, this paper suggests that emotional capital is affected by financial capital as well as by cultural capital.

Finding 3. Financial, social, and cultural capital

	Group 1			Group 2		Group 3	
	P1	P2	P3	P4	P5	P6	P7
Human capital	5	5	4	3	5	5	5
Social capital	5	5	5	2	2	5	5
Natural capital	1	0	0	0	0	4	3
Physical capital	4	4	5	3	3	5	5
Financial capital	3	2	2	4	5	4	2
Cultural capital	5	4	5	1	2	3	5
Emotional capital	5	4	3	1	5	5	5
Total score	27	24	24	14	21	31	30

Table 11 Analysis on table, financial capital and social and cultural capital

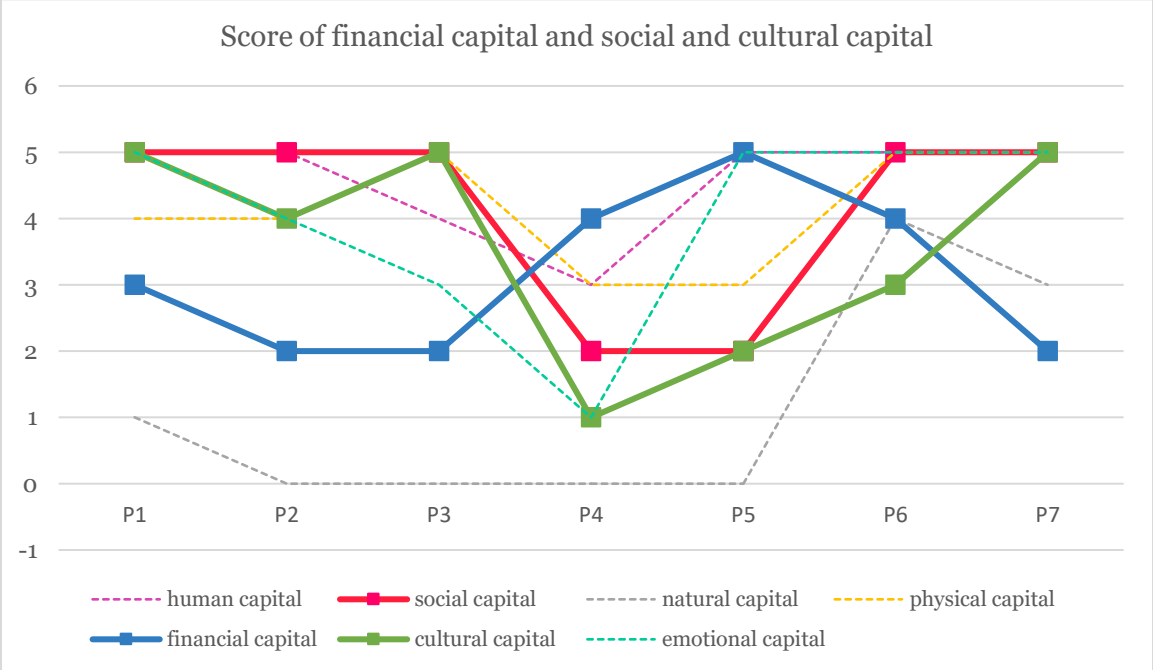

Figure 45 Score of financial capital and social and cultural capital

Financial capital is inversely related to social and cultural capital, as demonstrated in Figure 45. Many studies have discussed the relationship between social capital and cultural capital. Bourdieu (1986) asserted that social capital may be socially instituted and guaranteed under a common name. Names can refer to numerous attributes, but a tribal name unites craftspeople and the tribal unit under a shared culture.

Participants 1, 2 ,3, and 7 had low levels of financial capital but more social and cultural capital; they were proud of their lives as craftspeople regardless of the financial reward. Participants 4 and 5 faced the opposite situation: high financial capital and low social and cultural capital. They did not need more orders from the agency and felt that the financial reward for their efforts was sufficiently fair. In contrast, they noted a lack of social capital, mentioning that they typically worked alone, and a lack of cultural capital, stressing that they did not directly produce the craft items of their tribes. However, Participant 7 had a high level of social capital despite preferring to work alone.

This paper suggests that financial, social, and cultural capital do not have a distinctive causal relationship. Even the graphs in Figure 45 imply certain relationships among them, but the reasons vary depending on each craftsperson's environment. A high level of social and cultural capital does not affect low financial capital. On the other hand, a high level of financial capital does not lower social and cultural capital.

Finding 4. Cultural and emotional capital

	Group 1			Group 2		Group 3	
	P1	P2	P3	P4	P5	P6	P7
Human capital	5	5	4	3	5	5	5
Social capital	5	5	5	2	2	5	5
Natural capital	1	0	0	0	0	4	3
Physical capital	4	4	5	3	3	5	5
Financial capital	3	2	2	4	5	4	2
Cultural capital	5	4	5	1	2	3	5
Emotional capital	5	4	3	1	5	5	5
Total score	27	24	24	14	21	31	30

Table 12 Analysis on table, cultural capital and emotional capital

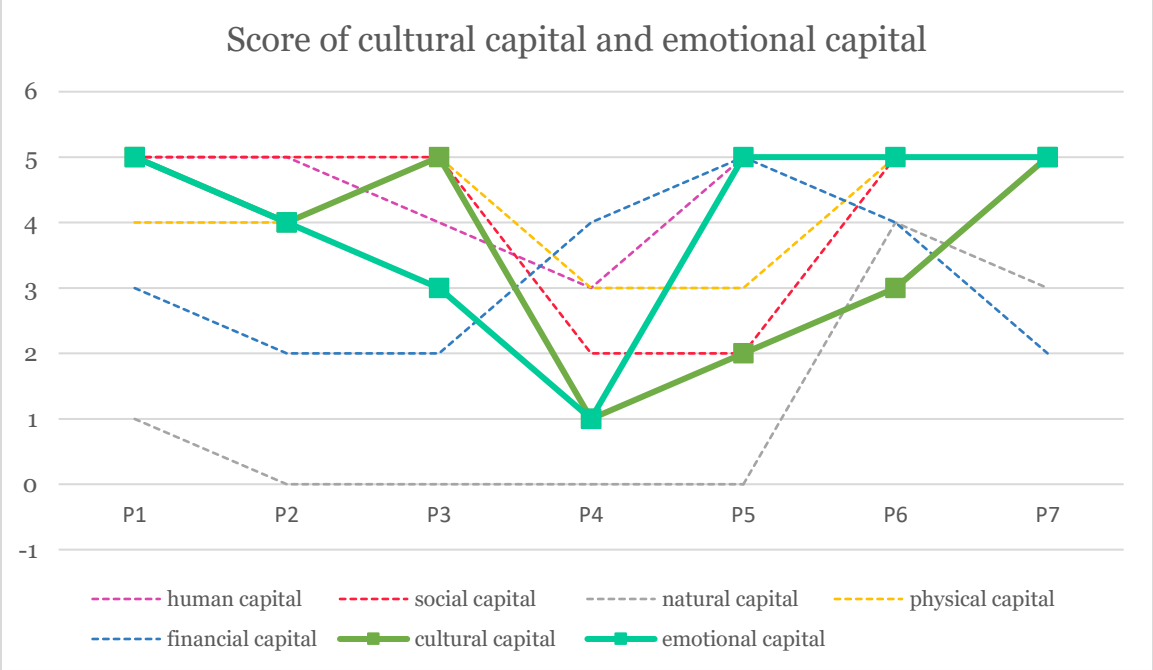

Figure 46 Score of cultural capital and emotional capital

As suggested in Finding 2, financial capital and cultural capital combine to create emotional capital.

Sufficiently fair financial reward (financial capital)	+	cultural identity (cultural capital)
emotional capital		

Table 13 Financial, cultural, and emotional capital

In the graph in Figure 46, the cultural capital and emotional capital scores clearly fluctuate. The two mostly moved together, except for participants 3, 5, and 6. Participant 3 had a high level of cultural capital but only moderate emotional capital.

Participant 3 strongly hopes for more volume of orders for more financial capital.

> "If I didn't have this work, I wouldn't have enough money for my family, so this is very helpful. I'm happy to have more work orders from Thai Tribal Crafts Fair Trade and to continue to work. Still, I don't care to work all day without break time."

She strongly desired more orders from the agency, which would enable her to earn more money. She said working more would make her happier. Participant 5 worried about the disappearance of tradition. She had a high level of emotional capital but a low level of cultural capital because new generations were no longer interested in traditional crafts. Participant 6 had a high level of emotional capital, even though her cultural capital was only moderate. It is indicated that the fact that she had less cultural capital than social capital stemmed from her concern about the disappearance of tradition.

Some crafts people's cultural capital scores were similar to their social capital scores, but this was not the case for the other interviewees. This paper infers that cultural capital has an effect on emotional capital because the happiness of hill tribe craftspeople is related to their identity and dignity as such.

4.4 Summary

This paper suggests that social capital plays an important role in communities of craftspeople. It is indicative of opportunities to continue traditions, share knowledge and work, enjoy free time, and form emotional attachments. It is the foundation of capital in the society of hill tribe craftspeople.

The craftspeople mentioned being content with living in their rural villages and with working and caring for their families at the same time. The preference for living in rural areas, working on various tasks at the same time, and holding jobs providing only supplementary income can represent a vulnerability for designers, particularly with reference to a mass-production system. However, this environment is not weakness of this task, but rather a strength of local craftspeople.

Unlike those who intentionally create a design identity in a mass-production system, the craftspeople's design identity, particularly their cultural capital, has been built over a long period of time and has been shared with many people. Such richness cannot be compared with a mass-production system.

In addition, natural capital connotes two meanings n ethnic crafts. Firstly, a high level of natural capital suggests that craftspeople have abundant material from nature to use for their work, and low natural capital means that they rarely use material from nature. Secondly, high natural capital implies that nature is highly protected, which may result in natural materials going unused to ensure their conservation. Low natural capital means the limited protection of nature; in such cases, craftspeople frequently use natural materials.

When natural resources are getting used regularly, this can cause depletion of natural resources without appropriate management, which affects tribes' main livelihood of farming. The impact can be significant and can ultimately affect their very subsistence.

Therefore, finding a balance regarding the use of natural resources to make craft items is important. Trade-offs between the protection of nature and the ability to use natural resources must be carefully identified.

Moreover, the hill tribe craftspeople living in the city did not lose their cultural traditions or sense of belonging to their hill tribe. Large part of educated members of new generation are moving to cities to find abundant resources and infrastructure. It implies that working with traditional craft items while living in a city as participant 4 and 5 represents a compromise between staying in rural area for maintaining the tribe's culture and getting a new job in a city.

This study's findings on capital levels are preliminary due to the limited number of respondents and only apply to craftspeople, and the findings are not compatible with criteria for measuring capital in mass-production systems.

CHAPTER 5

CONCLUSION

5.1 Status Quo

Craftspeople's Capital

Returning to the topic of capital, almost all of the capital lines in the graph in Figure 47 move in tandem.

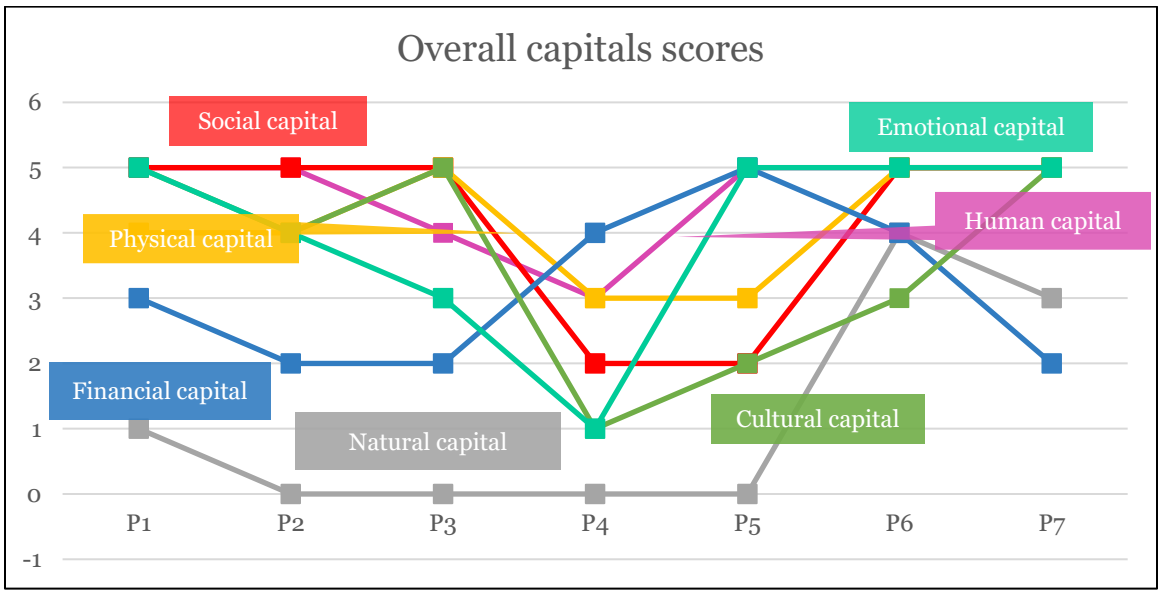

Figure 47 Overall capital scores

However, the fluctuations in financial capital and natural capital differed from other types of capital. In particular, financial capital had an inverse relationship with the other forms of capital. Moreover, figure 47 and finding 2 discussed in Chapter 4.3 indicate that the participants had generally lower financial capital scores than emotional capital scores (Figure 44). This finding implies that the financial reward obtained from craft activities is not enough to ensure that craftspeople feel fulfilled.

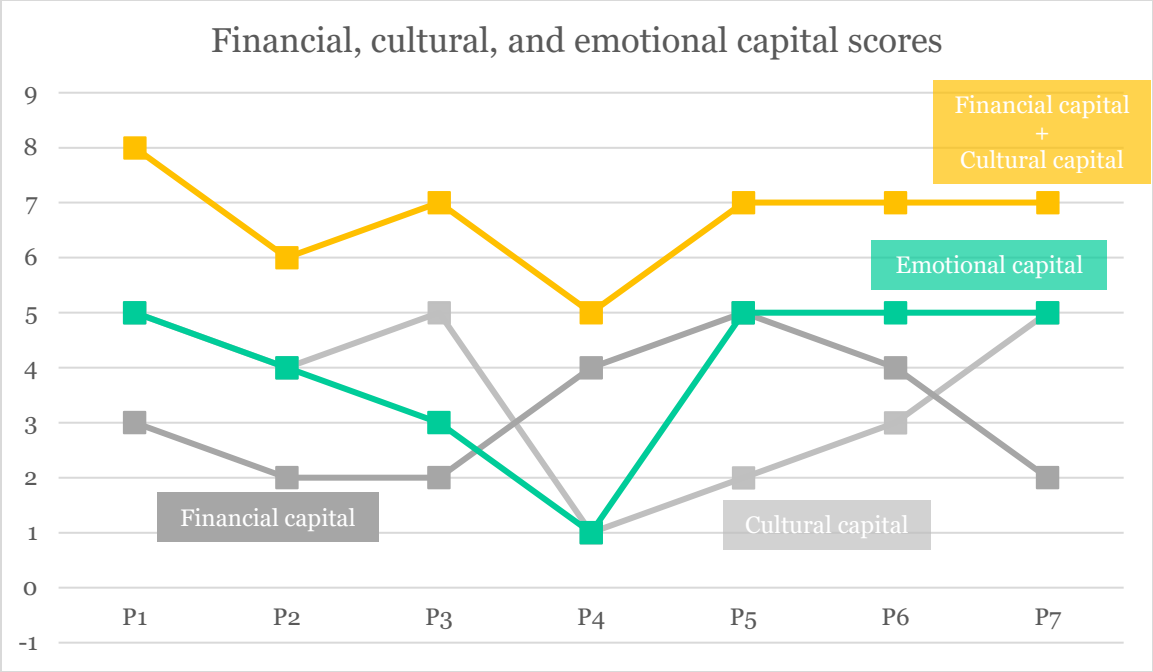

Figure 48 Financial, cultural, and emotional capital scores

Combining cultural capital (light gray line) and financial capital (dark gray line) results in a line with a shape similar to that for emotional capital (green line; Figure 48). When emotional capital is high, combined financial and cultural capital is also high, while when emotional capital decreases, combined financial and cultural capital do the same.

These findings suggest that craftspeople tend to be more content when their craft activities both involve their cultural traditions and result in an adequate financial reward.

Cultural capital appears to vary depending on factors related to the production system. When cultural capital is maintaining tradition and sharing culture, design identity plays the same role as cultural capital in a mass-production system. Design identity distinguishes “us” from “competitors” and is shared value in members in a company.

5.2 Implications to Design

Sustainability and Design Thinking

The first phase of sustainability in design focused on products themselves. Designers created biodegradable and less energy-intensive products, and customers purchased these items to support the protection of ecological resources.

The second phase of sustainability in design has placed more emphasis on economic and social aspects. Economic and social aspects of sustainability can be achieved by sustaining capital of a certain population and equitable sharing of the capital. The capital of a certain population connotes their experience that how the population has lived and how products made by the population have processed. The second phase of sustainability in design entails sustaining the experience. Designers need to design stories in the context of the population and the products. Designers tell a story, and customers buy the product or service portrayed by the story.

For hill tribe craftspeople, their capital can consist of the subject or elements of these stories. The distinctive appearance of ethnic craft items already distinguishes them from other products in the mass-product system. Furthermore, telling stories about a design's origin and inspiration and about the sources of raw materials convinces customers to purchase ethnic craft items and to bond with them.

Design thinking is exactly what the ethnic craft industry is pursuing. Design thinking is a discipline that uses designers' sensibilities to meet customers' needs (Brown, 2008). Hill tribe craftspeople need to both produce crafts items and consider what stories they should tell customers.

As Chapter 1 noted, this paper examines the process of moving toward sustainability through hill tribe craftspeople's capital. For hill tribe craftspeople, design innovation

sustains their experience, or ensures cultural continuity in that it entails making traditional crafts items that contain their story.

Adaptive Cycle

Designing product or service is not a regular or a linear process, but a system of spaces. Design projects pass through three spaces that inspiration, ideation, and implementation, designers loop back through these spaces. Repeat of different sorts of activities are being together for achieving valuable results (Brown, 2008). This is a design thinking process (Figure 50).

Adaptive cycle which is an adapted concept from ecological process actually plays a role of design thinking in economic and society. Adaptive cycle passes through four spaces that growth, conservation, release, and creative destruction (Holling & Gunderson, 2002; Transformative Inquiry, n.d.).

The status of hill tribe craftspeople is aligned with the adaptive cycle and hill tribe craftspeople in a design thinking process. Hill tribe craftspeople are in a slow phase between growth and conservation in adaptive cycle indicating that they loop back their crafts ideas from cultural tradition for better status of the crafts items. Cultural capital encompasses age-old traditions and vitally important subject matters related to the stories of hill tribe craftspeople. Hill tribe craftspeople are seen as remaining at the same level without rapid development by the researcher in the planning phase. However, they are still attempting to accumulate their capital, the richest asset related to their story.

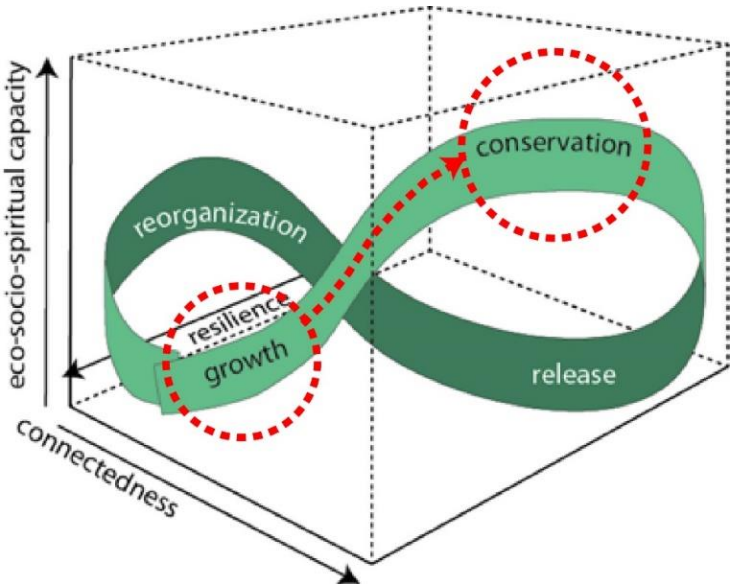

Figure 49 Adaptive cycle of the ecosystem
(adapted from Adaptive Cycle illustration [Digital image], n.d.)

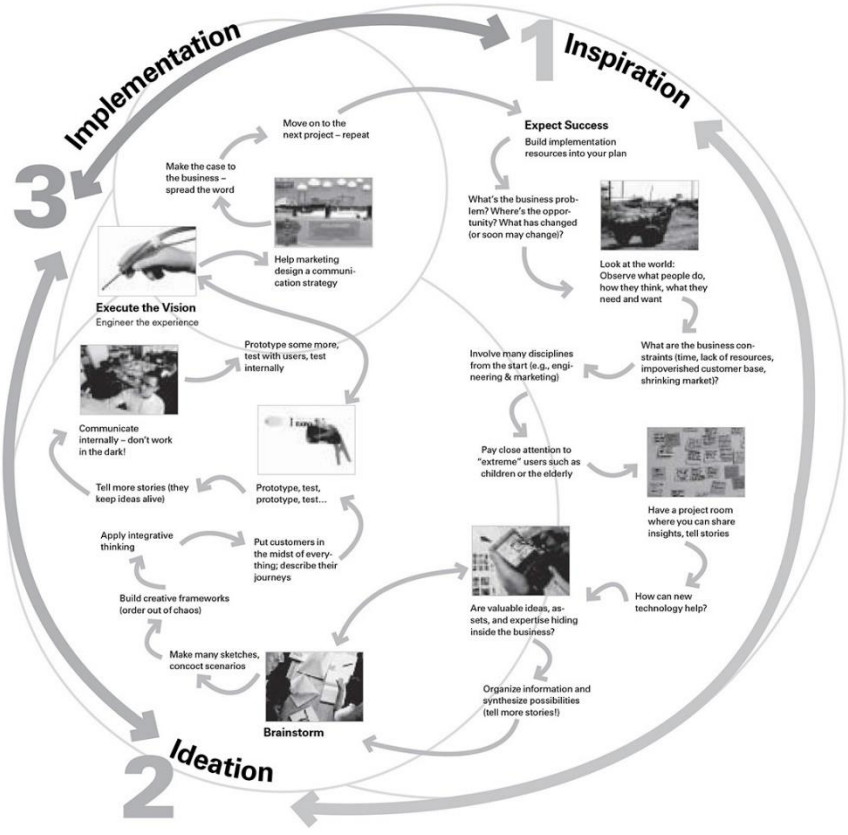

Figure 50 Design thinking process (Brown, 2008)

Institutional Craftivism

Craftivism is a way of looking at life in which voicing options through creativity and craft activities makes one's voice stronger (Greer, 2007). Institutional craftivism is persistent and connected rules that help strengthen craftspeople's voices but that do not lead to violent conflicts. As an example of institutional craftivism in northern Thailand, a government organization and fair traders manage hill tribe craftspeople to convey hill tribe craftpeople's stories to global market through craft fairs and marketing to foreign companies.

The ethnic crafts industry is empowered by institutional craftivism. Institutional craftivism allows to contain messages from hill tribe craftspeople, consumers purchase the crafts items and the messages. Institutional craftivism works at the time of the symbolic economy that consumers demand differentiated and higher quality products to get individuality and design value from the products.

5.3 Future Implications

What Should I Study More in the Future?

This study yielded one unexpected discovery. The unanticipated finding was that the hill tribe craftspeople represent a robust design group, rather than a vulnerable design group. While this study was still in the planning phase, hill tribe craftspeople were considered a vulnerable design group as discussed in Chapter 1.2 Justification and Significance. Their vulnerability was discussed in four aspects.

1. Spatial: living in remote areas far from major cities or markets for selling their goods
2. Financial: insufficient funds to advance the design process
3. Technical: lack of infrastructure and few educational opportunities
4. Social: ethnic minorities

During the empirical research process, however, hill tribe craftspeople articulated their robustness through the interviews, even if they did not speak strongly or loudly. They are no longer a vulnerable design group, but are instead a robust design group.

Hill tribe craftspeople are proud of belonging to their ethnic communities. This study suggests that they emphasize craft activities as a means of maintaining tradition rather than as a method for earning income. They enjoy working with family members and friends, sharing knowledge, and deepening their attachments to each other. With respect to their capital, hill tribe craftspeople are vulnerable from an outsider's perspective, but robust from an insider's perspective.

Positive impressions of products and services attract customers. The reasons behind the gap between the outsider's view and the insider's view requires further study, as does ways in which this design group could close that gap.

Lastly, increasing the number of respondents and careful observation would make the data more robust. As hearing more opinions from more respondents in a research, universality, generality, and reliability could be enhanced. To here are a number of method to enhance reliability of research. When research entails translating between languages, observations can help to prevent unclear findings and ambiguity. Avoiding these problems increases the researcher's empathy for the respondents.

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APPENDIX A

INTERVIEW QUESTIONS FOR CRAFTSPEOPLE

Human Capital	1-1. How do you teach your technique to young workers? 1-2. How do you control how many workers do you need during worktime? 1-3. How do you decide who work for which work? 1-4. What was changed in your community by them?
Social Capital	2-1. What do you think about networks or membership? 2-2. What kind of networks or membership do you have? 2-3. How do you use the networks or membership to your work? 2-4. How the networks and membership changed you and your community?
Natural Capital	3-1. What are you trying to avoid using up of materials from nature to make items? 3-2. How do you can get another material once current materials are over? 3-3. What was changed when you used another material to make items?
Physical Capital	4-1. What kind of tools do you have? Do you want to improve the tools? 4-2. What kind of tools do you need more? 4-3. Do you think better tools help your work and why?
Financial Capital	5-1. Do you think the money from your work is enough for your work and the output? 5-2. Do you think more money make change something in your community? 5-3. Do you agree to work more to make more money? Do you agree to work more people to make more money? And, why?
Cultural Capital	6-1. What do you think about maintaining your tradition and culture? 6-2. What do you do to maintain your tradition? 6-3. How has the tradition changed depend on taste of customers?
Emotional Capital	7-1. When you feel happy as a worker? 7-2. What do you do to feel happier as a worker? 7-3. Does happiness affect work or the output?

Table 14 Interview questions for craftspeople

APPENDIX B

INTERVIEW QUESTIONS FOR FAIR TRADERS

Human Capital	1-1. How do you encourage craftspeople to be educated? 1-2. How do you manage the number of the craftspeople in workplaces during worktime? 1-3. What result was caused by the encouragement of education and the managing manpower?
Social Capital	2-1. How do you use networks and membership between craftspeople in an ethnic group and between other ethnic communities for output? 2-2. What result was caused by the relationship?
Natural Capital	3-1. What policies do you have to avoid destruction of natural resources? 3-2. What result was caused by the policies?
Physical Capital	4-1. How do you manage facilities that the ethnic groups have? 4-2. What result was caused by the facilities?
Financial Capital	5-1. How do you share profit with craftspeople by which criteria? 5-2. How do you try to increase more profit? Do you demand something to make more profit to craftspeople? 5-3. What result was caused by the action?
Cultural Capital	6-1. What do you do to maintain the traditional culture of the ethnic communities? 6-2. What result was caused by the action?
Emotional Capital	7-1. How do you maintain balance between workers' emotional satisfaction (happiness) and more profit (productivity)? 7-2. What result was caused by the action?

Table 15 Interview questions for fair traders