sustainability

MDPI

Article

An Exploratory Study on Local Brand Value Development for Outlying Island Agriculture: Local Food System and Actor–Network Theory Perspectives

Jia-Wei Tang [1,*], Ming-Lun Chen [2] and Tsai-Hsin Chiu [2]

[1] Department of Marketing and Logistics Management, National Penghu University of Science and Technology, Penghu County 88046, Taiwan
[2] Department of Food Science, National Penghu University of Science and Technology, Penghu County 88046, Taiwan; vanco@gms.npu.edu.tw (M.-L.C.); thchiu@gms.npu.edu.tw (T.-H.C.)
* Correspondence: jiawei@gms.npu.edu.tw; Tel.: +886-931-937-060

Received: 8 October 2018; Accepted: 12 November 2018; Published: 14 November 2018

Abstract: Due to the sweeping influence of capitalism, most food processing is now done through standardized production workflows in order to quickly replicate and churn out a large quantity of products. This has led to an increasing number of homogenized and delocalized products flooding the market and a disconnection between consumers and local food producers. Penghu outlying island is rich in unique local agricultural products but seriously lacks brand images and channel strategies, as manifested in an unstable demand and supply, a high degree of homogeneity (in products) and the majority of farmers producing and selling their products autonomously. This study applies the local food system and actor–network theory as the basis of theoretical frameworks as well as agricultural practices in Penghu as the research object. We used field investigation, in-depth interview and the means–end chain method to examine important contextual factors' influence on the local agricultural food system, important actors and challenges and key influential factors for local brand value that affect the development of the local agricultural food system in Penghu outlying island. The actor–network perceptual map of local brand value proposed in this study can help agricultural practitioners when making decisions and can formulate strategies for their products to increase the product visibility and recognition. This perceptual map can also facilitate the expansion of the target customers and channel distributions suitable for individual agricultural products. Our study presents the following recommendations: increase the manpower of agricultural practices through the working holiday approach; local government should provide support enabling agriculture producers to gain professional knowledge in marketing; and agriculture producers should form cooperatives which focus on the unique local agricultural products that are produced and marketed locally in Penghu.

Keywords: local food system; actor–network theory; local brand value; outlying island agriculture

1. Introduction

Food is often viewed as a key element that can be used to market and promote local brand value, while gastronomy has become the most direct means to experience the authentic local culture. Hence, food no longer serves just as sustenance for consumers and, instead, plays an important role in shaping local brands. However, like the production of assembly parts, most food is now mass-produced through replication. This has led to an increasing number of homogenized and delocalized products flooding the market and a disconnection between consumers and local producers. Local food system planning is often a major priority as cities become increasingly aware of their role in mitigating climate change and become committed to sustainable development [1]. Local food systems are believed to

contribute to sustainable development by addressing ecological, sociocultural and economic issues that the dominant global agricultural food system tends to externalize [2]. The link between food and sustainability can be understood in terms of previous research agenda which explores the concept of "Integrated Rural Tourism" (IRT). IRT is not just concerned with the sustainability of the tourist industry. It is also discussing about how to create thriving rural communities and enhance the local environment, economy and culture that can be enjoyed by hosts as well as guests. Local food can play an important role in the concept of IRT because it can embrace all these concerns simultaneously [3,4].

In addition, local food systems are at risk of overlooking the local inequalities, exclusionary mechanisms and injustices without proper consideration [5]. Most consumers have already viewed local food as an indispensable part of their travel itinerary. Hence, local food has transcended its function of being mere sustenance for consumers. In the case of tourism, food also reflects the unique qualities of a society, culture and history. Local food is regarded as potentially enhancing sustainability in tourism. Previous studies have shown that food is important to sustainable tourism on two levels. Firstly, increasing tourist consumption of local foods can generate a multiplier effect that will benefit the local economy. Secondly, there is a growing recognition that destination images throughout the world and it can compete with other tourism destinations to attract more visitors [6,7]. Thus, tourist consumption of local foods creates a market opportunity that can encourage the development of sustainable agriculture and help conserve traditional farming landscapes as well as support the local economy [8]. Local food initiatives are able to achieve these benefits because they offer an enhanced visitor experience that can connect the consumer with the people and places involved in food production [7].

Because of the impact of globalization and international trade, developing industries with local aspects has become one of the critical national policies. However, food processing has become fragmented like the production of assembly parts under the influence of capitalism. Food items can be quickly mass-produced through the division of labor and replication in order to solve economic problems quickly and with a large quantity. In turn, more and more "homogenized" and hybrid-sourced food products involving several countries are flooding the market. Such "delocalized" food products also destroy the sense of connection between local producers and consumers. Consequently, how to counter homogenized food products has motivated local producers of food ingredients and food manufacturers to reflect on the true meaning of local food [9]. Driven by the industrialization of food production, the context of local food systems and processes of food production have taken up the operating features of the mainstream routinized food system (nonlocal food system) and it has become difficult to distinguish between these two types of food system in terms of their respective contexts and essential qualities. According to previous studies, scholars pointed out that local food system is often regarded as more sustainable alternative to globalized food systems [10,11]. Roy et al. [12] also argued that local food systems is regarded as a sustainable approach to reengage people with where their food comes from while simultaneously reducing the distance of transportation and enhancing contributions to local economies.

Therefore, this study utilized the local food system to explore important problems encountered in the establishment of local agriculture food systems and discovered the factors affecting the development of local food systems in Penghu outlying island. This study also examined the current state of agriculture in Penghu outlying island to facilitate the investigation and analysis of local food system. Because the northeast monsoon season stretches over a long period each year, the Penghu outlying island is difficult for humus to accumulate on the ground surface. The topsoil layer is usually shallow and poor and thus unsuitable for crops in Penghu outlying island. Locally planted vegetables include varieties of leafy vegetables, pumpkin, dishcloth gourd and cabbage. The unique soil and weather conditions have rendered Penghu an ideal location for growing cacti. Colonies of cacti can be seen throughout Penghu and new food items made of cacti, such as cactus ice, cakes and drinks, have also been developed. However, the specialty agricultural products also face numerous challenges, including (1) stagnation in sales due to unstable supply and demand; (2) low profitability as resulted

from a high degree of homogeneity; (3) lack of brand image and creative marketing strategies; and (4) significant room for improvement in terms of channel distribution, because most farmers still produce and sell their products by themselves.

With actor–network theory, the imposition of knowledge into a local context is perceived rather as the imposition of knowledge from one set of networked arrangements into those of another [13]. Those networked arrangements constantly come into contact with alternative networks, such as small-scale agricultural networks and networks of knowledge largely disconnected from technological influence which challenge their established mode of ordering that allows a particular network to remain stable over time [14]. Actor–network theory provides a methodology to analyze the relationships and interactions between involved stakeholders and it has been effectively used to examine the socio-technical nature of service networks [15]. Therefore, Velly and Dufeu [16] applied actor–network theory to reestablish the actor–network relationships in the local food system by linking food with key elements such as local agricultural and fishing industries, natural scenery, landscape and resources. This study applied actor–network theory to the analysis of agricultural food systems with a focus on the establishment of market networks, including topics such as agricultural production, consumption activities, as well as the inter-link between society, economy, ecological sustainability and the agricultural food system.

In order to develop and implement more sustainable, strategic and systematic marketing approaches for any destination, it is important to investigate its brand association, brand equity and brand value for a destination [17]. "Destination Branding" is one of the principal topics in tourism marketing strategies in terms of enhancing differentiation and competitiveness [18]. It has increasingly been of significant concern for establishing a strong brand because of fierce competition between places for visitor expenditures [19]. Previous studies have focused on branding a tourist destination and have been at the level of a particular city. In the context of environmental stress, city sustainability became another major concern because of the improved quality of life in natural areas [20,21]. Due to the strong level of competition on the international tourism markets, city branding strategies have played an important role in establishing strong brand identities for cities and effective promotional campaigns. The marketing strategies and environmental issues of cities both have to be considered in development branding strategies for cities. Therefore, future development of cities should consider both city brand features and dimensions, associated with cities' specificities and traditions, as well as city sustainability issues [22].

Means–end chain analysis uses one-on-one in-depth interviews to understand how interviewees translate product attributes into associations that are meaningful to them. During the interview, researchers guide interviewees (consumers) through the process to examine what they view as meaningful and what they value. Researchers link these feelings and the value pursued by consumers to effectively demonstrate consumers' real experiential value. The results of previous studies have shown an excellent effect on the performance of system analysis, for example, Chen and Lin [23] suggested that further studies could demonstrate the system formation and actors' interaction in a structural way. Although Penghu, located on an outlying island of Taiwan, is rich in marine and aquatic products as well as unique local agricultural products, the unstable demand and supply have often led to stagnation in sales. The high degree of homogeneity in products also testifies to the lack of brand image and creative marketing strategies. Additionally, most farmers still produce and sell their products autonomously, resulting in limited production and distribution channels.

This study used the means–end chain analysis method to conduct in-depth interviews to understand the production processes and channel distribution of agricultural products by agriculture producers in Penghu. The analytical results of means–end chain analysis would also be used to examine the important attributes and factors of a local brand of agricultural products and then the present research created an actor–network perceptual map of local brand value by studying the agriculture producers. Accordingly, this study would involve observation and documentation of the production processes of local agricultural products in Penghu to (1) delineate the essential qualities and historical

development of the local food system; (2) examine important contextual elements of the local food system as well as the important actors and bottlenecks in the local food system and (3) identify key influential factors for local brand value in Penghu.

2. Literature Review

By reviewing studies regarding the local food system, we explored the relevant application fields of the local agriculture food system and important problems encountered in establishment in Penghu outlying island. We also discovered the factors affecting the development of the local food system by studying the research results. Actor–network theory has been effectively applied to describe the interaction within a network and demonstrate the outcomes of network analysis and marketing research. We need to comprehend the applications of the analysis process for actor–network theory in order to compose in-depth interview questions by reviewing the literature on actor–network theory. This study explored the essential meaning and important elements that influence the context of local agriculture food system in Penghu outlying island by utilizing the "translation process" of actor–network theory. In addition, we also discovered key interconnections between important elements to develop local brand value with Penghu outlying island agriculture.

2.1. Local Food System

The features of local food systems include an emphasis on quality, small-scale production, production information transparency, close geographic proximity between the food production and consumers and trust in the behaviors of local or regional producers and distributors [24]. Local food systems are playing an increasingly valuable role in such topics as food safety, social and economic justice and environmental sustainability because the local food system can provide environmental, economic and social benefits [9]. Scholars have introduced the concept of "sustainable culinary systems" to explain the environmental, economic and social relations that develop in hospitality value chains and pointed out local food can generate a multiplier effect that will contribute the local economy to more sustainable regions by using this concept [11,12]. Furthermore, when the food system is examined solely from the perspectives of globalization and production efficiency, there is a tendency to focus only on the bright spots of industrialized food production. The research on the link between the food system and the local culture can facilitate the creation of a local food system map and thus areas that are not yet subjugated by the industrialized production model and have preserved conditions conducive to quality production can be identified [25]. With a trend that pays more attention to the local food system and emphasizes business practices that are compatible with environmental sustainability, scholars believe that there is a need for more research examining cases at the micro level and the employment of holistic, network-based and multidimensional analytical frameworks, so as to restore the true local food system [26]. Further, Brinkley [27] used graph theory mathematics in social network analysis to explore the relationships built through an alternative food network and the local food system is visualized by using geo-social data. This robust network design helps to explain the long-term survival of local food systems despite the meteoric rise of global industrial food supply chains.

Research conducted by both domestic and overseas scholars has yielded results addressing multiple aspects of the local food system, including allowing consumers to draw connections between the food they consume and where such food originates, by using geographic labeling such as "label of origin" [28]; examining the association between the formation of local markets and social value by studying farmers markets [29]; and investigating the current state of community-based agriculture in Taiwan and the challenges it faces [30]. However, as topics related to the local food system become increasingly valued by scholars, research conducted both domestically and overseas tends to focus more on the social benefits and economic value created by local food systems than on why consumers opt for local food products as well as the influential factors for the formation of local food systems. According to previous investigations, major elements of local food system include shorter distances between producers and consumers; relatively small farm size and organic and low

external input production methods; and a commitment to sustainable production, distribution and consumption [31,32]. Local food has played an important role for tourism and hospitality providers as well as potentially maximizing positive economic relationships within communities. The use of local food systems by hospitality and tourism operations can reinforce the value of destination brand assisting in agricultural diversification and innovation via the development of long-term relations with customers [12]. Hankinson [33] pointed out that it is more difficult to brand local specialty products than mass-produced commercial products considering the fundamental differences between the two. On the other hand, some scholars believe that unlike mass-produced commercial products, local specialty food products as souvenirs represent the local food system and feature local ingredients, as exemplified in the type of food, attributes of local ingredients, special taste, embodiment of local crafts and so forth. These iconic food products become the spokespersons of the local environment (both natural and manmade) only after inheriting the local tradition and a long history of development [34]. Furthermore, the design and marketing strategies for the local food products as souvenirs need to be incorporated into product development and channel distribution of the imagery associated with the local landscape (both natural and manmade) or cultural heritage. Through this, the characteristics of local culture and storylines can be infused into these products and they can be differentiated from nonlocal commercial products.

2.2. Actor–Network Theory

In the past, social scientists mostly centered their research around "humans" by adopting such dichotomous discourses as "nature vs. society" and "human vs. nonhuman". However, the real world in which we live comprises a multitude of elements (both human and nonhuman). Hence, these rigid binary modes are really not suitable for an in-depth analysis of natural and social phenomena. As a result, actor–network theory emerged in the field of social sciences [35]. Actor–network theory views "natural elements", "social elements", "human elements" and "nonhuman elements" as individual "actors" connected and shaped through a process of knowledge translation and ultimately forming a heterogeneous network system via stepwise interactions. In this system, all relevant elements (actors) can be included in the analysis, deduction and discussion to ultimately formulate an actor script model that is dynamic, orderly and stable. This model can be used to examine the development, essential qualities, relationship and association and important interconnected elements related to the research subjects [36–38]. According to the previous literature [39], actor–network theory has been effectively applied to describe the interaction within a network and demonstrate the outcomes of network analysis.

Walsham [35] went on to identify the following symbols and concepts frequently used in actor–network theory: actor, actor–network, enrollment, translation and obligatory passage point. These symbols and concepts are used as analytical tools to systematically interpret and analyze components in the actor–network. In recent years, actor–network theory has been widely applied by domestic scholars to the field of local research. For example, Hung and Tsai [40] used actor–network theory to reexamine the creative process of developing cultural and creative merchandise so entrepreneurs can utilize the translation and interactions in the actor–network to strike a better balance by including humans as well as the traditional culture and treat them equally. Before the introduction of actor–network theory, the development process of cultural and creative merchandise was erratic. Later, however, an orderly sequence based on the actor script emerged, which later gave rise to diversified cultural products and activities. The entrepreneurs also gained a deeper understanding of the essence of entrepreneurship as well as the interconnection between cultural and creative merchandise and the local community. Additionally, overseas scholars have applied actor–network theory to the field of marketing research. For example, Shoaib and Keivani [41] employed the local branding strategy and actor–network theory to explore how to incorporate local branding strategies into the development of new communities so once completed, the new community will also have established its own local brand. Velly and Dufeu [16] applied actor–network theory to analyze the "alternative local food

network" as well as the multiple interconnections between local market devices and market mediation in order to establish a regular alternative local food network system. Chen and Lin [23] applied actor–network theory to study the development of new city service systems through interventions and the method of system analysis based on actor–network theory will be applied to describe the long-term system development rather than cross-sectional snapshots.

2.3. Local Brand Value

Salient local features are like brands that can not only serve as a differentiator from other tourism destinations but also increase travelers' preferences and the likelihood for them to choose particular destinations. Additionally, such local features can help establish a distinct emotional tie between travelers and particular tourism destinations [42]. In the process of choosing a unique local brand, the brand can become a form of self-expression by the traveler [43]. A place image is the core of a local brand. A place image appealing to the market can not only elevate the name recognition of the local community but also extend the brand and ensure the brand equity of local specialty products [44]. The results of empirical research on a variety of product categories have also revealed the importance of local images in building brand equity. Zeugner-Roth, Diamantopoulos and Montesinos [45] applied the concept of brand equity to brand management at the country level and examined how the country name might impact the value added of products or brands associated with that country. They found that consumers would associate products or brands with the image of the country of origin and determine their preference accordingly. Kim and Lee [46] examined the relationships between influencing factors, destination brand equity and its elements, as well as brand loyalty. They also found that brand awareness and perceived quality have impacts on brand image and brand image is related to brand loyalty for tourist destinations. There have already been scholars who put forth research proposals related to local branding. For example, Shoaib and Keivani [41] employed the local branding strategy and actor–network theory to explore how to incorporate local branding strategies into the development of new communities. As a result, once completed, the new community would have also established its own local brand. They also believe that one of the goals of local branding is to create local symbols or marks, a holistic local image and unique local features and talents. Boo, Busser and Baloglu [47] pointed out that brand value is also a predictor of brand loyalty in tourism destinations and in addition, Ooi [48] believed that the choice of tourism destination is determined by the brand value of each potential tourism destination. Ekinci and Hosany [20] identified three main dimensions of destination brand personality including sincerity (the destination is trustworthy and dependable), excitement (the destination is exciting and original) and conviviality (the destination is friendly and charming). Their study also showed that the dimensions of destination image construct and destination personality construct are useful to estimate tourists' intensions to recommend the destination to other people. Zhang and Zhao [49] found that city branding identity differentiates a given city from other cities by combining its spatial configuration and cultural values in a complex way. On the other hand, Lu, de Jong and Chen [50] focused on desired economic city branding and stressed a number of elements including features and beneficial attributes and as the core element of a brand, identity reflects how producers want city branding to be perceived by the outside world.

Currently, communities in various parts of Taiwan are eager to establish their salient features and develop local specialty products in order to attract waves of domestic tourists. Hence, local cultures are rediscovered or reconstructed and place images are infused with new symbols and packages to achieve the goal of local branding. In particular, local specialty agricultural products or cuisines are considered important entry points for shaping the place image. Our study deduces the following two important common features in these efforts:

1. Due to the sweeping impact of global industrialization, reshaping the place image will require industry transformation. Feedback from local residents and institutions will help create new space for the reshaping and new social culture.

2. Reshaping the place image will be affected by actors including locals or nonlocals. Hence, there needs to be a common goal in a network for shaping the place image and the goal needs to be examined by the actors for its brand equity, brand image, or brand identification.

3. Research Methodology

3.1. Actor–Network Diagram

According to actor–network theory, all the participating elements (actors) in the actor–network need to go through "translation" in order for the role, function and interest of each element (actor) to be redefined, arranged and allocated to different script positions through this translation activity. During the translation, each actor needs to continuously translate other actors' issues and interests into each actor's own language so each one can negotiate and form a consensus with other actors. Thus, the attributes and position associated with each actor are merely temporary and will change as the relationships between actors change (dynamic translation). This process will continue until negotiations are completed and a consensual and stable actor–network model is established. The concept of "translation" hinges on the common goal and interest shared by actors who translate other actors' issues and functions into their own language. In other words, "translation" defines actors' roles. Only through the process of translation can actors be grouped to form a stable network of relationships [51]. The "natural element", "social element", "human element" and "nonhuman element" are viewed as individual "actors" and are interconnected and shaped through translation, which then, through a stepwise process, give rise to a network system. In this network system, all relevant elements (actors) can be included in analysis, deduction and discussion. The point where actors' interests converge is the key to the success of translations in the network. This point of converged interest is the "obligatory passage point" (OPP), quite similar to the pivot in a negotiation through which a consensus is reached. The OPP is important because it underscores the formation of an actor–network as an interconnected whole. Figure 1 demonstrates the makeup of an actor–network. Let us assume that this network has five actors—A, B, C, D and E—and that actors have their respective goals as well as obstacles. If they cannot overcome these obstacles by themselves, they will have no choice but to go through the OPP (point A in Figure 1), which is essentially the goal of the main actor A and also the common goal shared by all other actors, in order to form an actor–network.

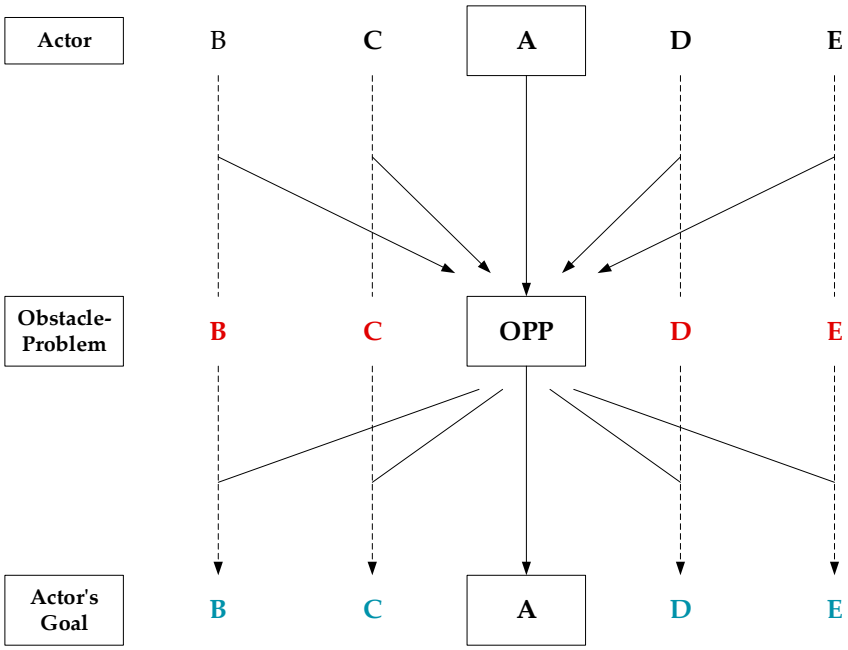

Figure 1. An actor–network diagram.

As actors would like to reach their respective goals through actions, they need to collate obstacles/problems faced by all actors in order to induce interest to pursue the goal. When actors could not resolve obstacles/problems by themselves, they tried to attract attention from other actors and form interconnections with one another, which in turn define their respective roles and interests relative to other actors. These interconnections later morph into an actor–network to resolve the obstacles/problems. Therefore, "translation" comprises four steps to emphasize an actor's shifting relationships and roles (as resulted from their actions) during different phases: problematization, interessement, enrollment and mobilization.

1. Problematization: It is defined as determining the obstacles/problems and goals of the main actor as well as other related actors. During this phase, it is critical to identify three key elements: focal actor, content of the obstacle/problem and other related actors. The common issue agreed upon by actors in the network that can resolve their respective obstacles/problems then becomes the OPP. Controlling and monitoring this OPP can bring all the actors together, which in turn can serve as the mechanism to manage actors' entry into and exit out of the network.
2. Interessement: All actors have their respective goals and interests to pursue. The OPP facilitates negotiations among actors so optimal and mutually beneficial positions (in the actor–network) can be found for all actors. In the meantime, as the particular positions of network members in the network gradually become ascertained, the interconnections and sense of belonging among members also become solidified, which further motivates members to form alliances to collectively attain their respective goals.
3. Enrollment: To reinforce and maintain collaborations, actors ascertain the roles or positions assigned to them in the network through continuous negotiations. Partnerships and alliances also form during this phase.
4. Mobilization: It is defined as actions taken by enrolled actors to fulfill the tasks with which they are entrusted. Mobilization is also an evolutionary process facilitated by negotiations. This pivotal phase also determines whether the network succeeds in mobilizing its members. In addition, the focal actor in the network will be identified, who will become the representative of the entire act and will announce to the outside world the creation of this act.

3.2. Means–End Chain

Means–end chain (MEC) analysis uses one-on-one in-depth interviews to understand how interviewees translate product attributes into associations that are meaningful to them. During the interview, researchers guide interviewees (consumers) through the process to examine what they view as meaningful and what they value. On the basis of the interviews, researchers then determine the scope of associations between "attribute", "outcome", and "value" and connect interview content with all three tiers to outline consumers' internal perceptual structure or their experience and feelings after using particular products or participating in particular activities. Researchers link these feelings and the value pursued by consumers to effectively demonstrate consumers' real experiential value. The soft laddering technique used during in-depth interviews provides more freedom for researchers in guiding interviewees to answer questions as well as in approaching them with follow-up questions. A larger and more complete dataset can thus be obtained, which will also facilitate the construction of meaningful data coding during content analysis [52]. Hence, the current study would use MECs and a soft laddering method to conduct in-depth interviews for understanding the production processes and channel distribution of agricultural products by agriculture producers in Penghu. The analytical results of MECs would also be used to examine the important attributes of the local brand of agricultural products in Penghu as well as the influential factors that may impact the brand.

First, content analysis was carried out to examine the interview transcripts, distill keywords, conduct post-coding and calculate the frequency of the mention of coded keywords. To verify the consistency among coders in associating data with the appropriate tier of attributes, inter-judge

reliability between coders was tested in this study, on the basis of which the overall reliability would be derived. Generally, a reliability coefficient higher than 0.85 during content analysis is considered acceptable. The formula to calculate the mutual agreement between coders and the overall reliability are as follows:

$$\text{Mutual Agreement} = \frac{2 \times Y}{n_1 + n_2} \quad (1)$$

$$\text{Average Mutual Agreement} = \frac{\left[\frac{2\times Y}{n_1+n_2} + \frac{2\times Y}{n_2+n_3} + \frac{2\times Y}{n_3+n_1}\right]}{3} \quad (2)$$

Reliability = ($N \times$ Average Mutual Agreement)/[1 + ($N - 1$) $\times$ Average Mutual Agreement].

Y = Number of Total Agreement; N = Total Number of Coders; n_1 = Number of Agreement for the 1st Coder.

Based on the keyword coding during content analysis, the frequency of linked elements in various tiers—attribute to outcome, outcome to value and attribute to value—as mentioned by the interviewee during interviews was calculated to show the strengths of association among the three tiers (attribute [A], outcome [C], value [V]). This hierarchical perceptual map is well structured, which more concretely presents the interrelationships between abstract tiers. A map of between-coder agreement also enhances the readability of the hierarchical map and makes it easier to understand.

3.3. Research Procedures

This study modeled according to the research procedures proposed by [21] and [30] and selected agriculture producers in Penghu outlying islands as the study subjects by utilizing the local food system and actor–network theory as the conceptual frameworks. The study mapped out the network of social relationships among actors in the local agricultural food system and used this network map to identify key factors that would impact the local brand value in Penghu. Here are the procedures followed during the study:

1. A literature review was conducted to examine the important features of the local food system. Secondary information on the following was then obtained to serve as the research background: types, quantity and quality of local agricultural products, natural resources, sociocultural environment, manmade constructions and so forth. The study also investigated whether agricultural food systems existed in Penghu as well as there were any related key issues.
2. On the basis of "actor–network theory", an outline was prepared for conducting in-depth interviews. Field visits were paid to observe and document the production processes and distribution channels of local agricultural food products in Penghu. Open-ended, in-depth interviews were then conducted with producers of quality local agricultural products in Penghu outlying islands.
3. Cross-comparison and coding analysis were carried out with the secondary data, field observations and in-depth interviews. The four translation steps outlined in "actor–network theory"—problematization, interessement, enrollment and mobilization—were then applied to delineate the production processes and frameworks of local agricultural products in Penghu. Through four translation steps, a preliminary network of the social relationships among actors in the local agricultural food system in Penghu could be mapped. The triangulation was conducted to corroborate between the narratives provided by interviewees and the secondary data in order to increase the reliability of the analytical results.
4. The aforementioned network of social relationships among actors was used to identify the essential qualities, important contextual elements (actors) of the agricultural food system and important actors and obstacles that would impact the development of local agricultural food systems in Penghu. Finally, we can also identify key influential factors for the local brand value by this social relationship network.

4. Results

4.1. Study Subject and Field Investigation

This research targeted the local food system on the outlying islands, among which the agriculture in Penghu outlying island was the most robust and diverse. We examined the current state of the agriculture in Penghu to facilitate the investigation and analysis of the local food system. The topsoil layer is usually shallow and poor and thus unsuitable for crops. Hence, the feature crops are predominantly the drought-tolerant sorts, such as corn, yam and peanut. Melons and fruits that are also planted here include cantaloupe, honeydew melon, chiapao melon and hongling melon. The most profitable crop is cantaloupe which is mostly consumed locally in Penghu outlying island and some also sold to the main island of Taiwan. Locally planted vegetables include varieties of leafy vegetables, pumpkin, dishcloth gourd and cabbage. In recent years, thanks to the promotional efforts by the county government, township offices and food processing industry, economic crops such as aloe and Glossogyne tenuifolia can also be seen now. Additionally, the unique soil and weather conditions have rendered Penghu an ideal location for growing cacti. Colonies of cactus can be seen throughout Penghu and new food items made of cacti, such as cactus ice, cakes and drinks, have also been developed. However, these specialty agricultural products also face numerous challenges, including (1) stagnation in sales due to unstable supply and demand; (2) low profitability as resulted from a high degree of homogeneity; (3) lack of brand image and creative marketing strategies; and (4) significant room for improvement in terms of channel distribution, because most farmers still produce and sell their products by themselves.

This study focused on Huxi Township in Penghu County and selected local agriculture producers in Huxi Township because the study subjects who conducted field investigations considered the agriculture industry there to be the most robust and advanced. As shown by the literature reviewed, Huxi Township is relatively flat, without barriers to withstand the strong northeast monsoon in winter. Not only is it difficult for tall trees to survive but also small soil particles in the topsoil layer are easily swept away. This renders the soil impoverished and makes it seemingly impossible for plants to grow properly. Most of Huxi Township sits on basic basalt and sandy basalt. Hence, the soil is rich in minerals with a more stable and productive texture. These positive features are, however, offset by the high content of saline and the effect of northeast monsoon, which weakens the overall natural condition in Huxi Township for agricultural development. The relatively flat terrain in Huxi Township also exposes it to the impact of northeast monsoon and southwest monsoon, leading to an uneven supply of rain throughout the year and a large amount of water vaporized. These are climate patterns unique to Huxi Township. The total cultivated area in Huxi Township is 1809 hectares. With a lower altitude, thicker alluvium and irrigation powered by the rain supply from Gongbei Mountain and Taiwu Mountain, conditions in Huxi Township that are favorable to agricultural development—geological environment or water sources for agricultural use—are superior to those in other towns in Penghu County. Despite plains and hills that cover large swaths of Huxi Township as well as the agricultural technologies introduced during the Japanese occupation, the local agriculture has not developed by leaps and bounds. Limited by the type of soil and the effect of monsoon, the dominant crops are the drought-tolerant sorts like sweet potato and peanut. Therefore, the challenges and problems faced by Huxi Township include the following: (1) much of the land designated for agricultural development is not cultivated and agricultural resources fail to be effectively utilized; according to the survey report on crops, a total of 5681 hectares in Penghu County is designated as agricultural land. Yet, as many as 4297 hectares are not cultivated, equivalent to 76% of the total. This problem has become more and more serious over the years. In terms of the contributors to this problem, the unique natural environment in Penghu limits what can be planted. This negatively impacts the income of farmers who, in turn, lack the motivation to cultivate the land. (2) The invasion of Leucaena to lands designated for agricultural use makes it difficult to resume cultivation; Leucaena originates from Latin America and was transplanted to Penghu during the Japanese occupation. Initially, it served as a windbreak

and raw material for pulp. In earlier days, when the economy was less developed, Leucaena also served as firewood to local residents. As the society evolved, Leucaena was no longer used as firewood. However, it can quickly multiply—one Leucaena plant can produce approximately 10,000–20,000 seeds and can take over uncultivated agricultural lands. This, in turn, negatively impacts the land use. (3) An aging population further reduces the labor productivity; the low birth rate in recent years has led to an aging population, a phenomenon particularly pronounced in Penghu. The large outflow of youth populations has exacerbated the population aging and lowered the labor productivity year by year.

Through field investigations and in-depth interviews, the current study gathered the following information from typical agriculture producers in Huxi Township of Penghu County: the types of agricultural products, natural environment where crops grow, production processes and marketing and sales channels. Table 1 lists data related to the study subjects:

Table 1. Results of in-depth field investigations of agricultural products in Huxi Township of Penghu County.

Name of the Farms	Current State of the Farms
Guoye Farm	1. The farm features natural farming, windbreaks made of coral stones and irrigation using the well water. It grows specialty crops unique to Penghu and alternates them by season. Once harvested, agricultural products are sold through itinerant stalls. 2. The farm is divided into three areas, growing cacti in one and vegetables/fruits in another while opening the third area to visitors to experience firsthand fetching well water in an old-fashioned manner. Suitable agricultural crops are also grown in these areas. The "cactus area" is converted from uncultivated agricultural land and the cacti in this area are growing well. The "vegetable/fruit/melon area" is cultivated using natural farming and homemade organic fertilizers. The "well water DIY area" provides the opportunity for visitors to experience firsthand the efforts required to fetch well water using an age-old well and homemade tools. 3. The main crops grown in the farm include cabbage, cactus, purple corn, yam, ice plant, peanut, garland chrysanthemum, kohlrabi and pumpkin. The crops are mainly sold through an itinerant stall pushed by hand. Although crops are sold at a fixed spot, the quantities are not predictable and thus the optimal time to harvest is often missed.
Nanliao Windmill Organic Farm	1. The farm dedicates a room lined with mesh nets to grow mushrooms—the first in Penghu—including black wood ear mushroom, coral mushroom and Pleurotus ostreatus. These mushrooms are quite popular among Penghu residents. 2. The crops grown at the farm include tomato, carrot, pumpkin, fennel and corn. Particularly, the plum tomatoes grown in the greenhouse have been certified as organic crops and are also a specialty agricultural product popular among local residents in Penghu. 3. Dishes made using local ingredients in Penghu and the agricultural crops grown at the farm have attracted many tourists who visited the farm after they heard about these tasty dishes.
Star Moon Bay Restaurant and Farm	1. Varieties of vegetable and fruit can be found in the garden, such as bok-choy, cabbage, dishcloth gourd, pumpkin and dragon fruit. Native chickens whose waste is used as fertilizers are also bred at the farm, which is a clear example of the natural farming practiced at the farm. 2. Almost all the ingredients used at the restaurant come from the garden. The vegetable and fruit farm in the back is also open to visitors.
Melons and Fruits Farm	1. The crops grown at the farm are predominantly melons and fruits, such as chiapao melon, dishcloth gourd, pumpkin, cantaloupe and ginseng fruit. They are mainly grown in the greenhouse (vertical growing). Fertilizers and pesticides are used as well. 2. The crops are mainly sold through the Internet (Facebook fan page, for crops with a higher unit price like cantaloupe and chiapao melon) as well as traditional markets. As confirmed through the data collected and field visits paid during this study, the quality of agricultural products has been consistent.
Happy Farm	1. The farm grows predominantly seasonal crops. For example, in summer, melons and fruits such as pumpkin, yam, potato, dishcloth gourd and luffa can be found; in winter, leafy vegetables such as kale, spoon cabbage, corn and romaine lettuce are grown. The main channels of distribution are the Internet, fairs and traditional markets and cooperatives (Nanliao Cooperative, Penghu Farmers' Association). 2. Currently, the farm is actively tapping into the resources and culture of the Xiwei community and launching experiential marketing activities such as inviting local residents to "adopt" the farm and grow vegetables there by themselves. The goal is to further diversify the development of the farm.

4.2. Results of In-depth Interview and Content Analysis with Agriculture Producers

The interview contents were organized into transcripts for analysis. Keywords were identified and coded according to the following three tiers: "actor", "obstacle-problem" and "goal". The frequency of each coded keyword mentioned by interviewees was then counted. In total, there were six actors, 10 obstacle-problems and 12 goals. To ensure the reliability of the analytical results, inter-judge reliability was tested among the three researchers to verify the reliability of the data. Tables 2–4 tabulate the code assigned to elements in each tier, the name of elements, both the count and percentage of the frequency (of the total) in which agriculture producers mentioned a particular element and descriptors used to characterize the elements. The coefficients of inter-judge reliability among researchers are summarized in Table 5. The average inter-judge reliability coefficient is 0.92 and the overall reliability coefficient is 0.97. Both meet the standard of acceptable reliability (greater than 0.7 and less than 1). Findings for each of the three tiers (actor, obstacle-problem and goal) are detailed below.

1. Actor: The content analysis of interview transcripts reveals six actors, including (agriculture) producer, government agency, consumer, farmers' association, school and travel agent. The actor of "producer" is mentioned the most often, accounting for 33.8% of the total number of mentions, equivalent to an average frequency of 3–5 times by each interviewee.
2. Obstacle-Problem: The content analysis of interview transcripts reveals 10 obstacle-problems, including population outflow, government policy, type of crop, high degree of homogeneity of agricultural products, manmade constructions, lack of marketing and promotion, natural environment, close-mindedness, absence of channel strategies and social culture. The elements mentioned the most often are "type of crop" and "high degree of homogeneity of agricultural products", both accounting for 24.3% of the total number of mentions, equivalent to an average frequency of 7–10 times by each interviewee.
3. Goal: The content analysis of interview transcripts reveals 12 goals, including food and agriculture education, environmental education, experiential marketing, community development, branding, agriculture transformation, cultural industry, solo producer and solo marketer, agricultural technology, climate issue, water quality issue and production and marketing collaboration. The element of "agricultural technology" is mentioned the most often, accounting for 26.8% of the total number of mentions, equivalent to an average frequency of 5–8 times by each interviewee.

Table 2. Summary of the content analysis of interviews with agriculture producers: Actor element (A).

Code	Actor Element	Frequency of Mention	Percentage	Key Description
A1	Producer	63	33.8%	Agricultural practitioner, agriculture, farmer, farmer in Nanliao, community transformation, beekeeper, old farmer, field cultivator, mushroom grower and vegetable grower
A2	Government Agency	37	19.8%	Vegetable Growers Association, Penghu County Agritourism Farmers' Association, Farmers' Association-sponsored vegetable class and agricultural affairs class, Agriculture and Fishing Bureau, Water Conservation Bureau, Environmental Protection Bureau, National Scenic Administration in Penghu, Penghu County Government, township office, Cultural Bureau and Bureau of Cultural Heritage
A3	Consumer	49	26.3%	Local resident, travel agent, tourist, visitor, repeat customer, partnering business, agency and organization, school, elementary school, middle school, high school, college/university, cooperatives, farmers' association, web-based platform, social networking site, Facebook, fan page and group purchase

Table 2. *Cont.*

Code	Actor Element	Frequency of Mention	Percentage	Key Description
A4	Farmers' Association	15	8.1%	Cooperative farmers' association
A5	School	11	5.9%	Elementary school, middle school, high school, college/university, social club, school
A6	Travel Agent	6	3.2%	Travel agent, tourist, visitor, tourism season

Table 3. Summary of the content analysis of interviews with agriculture producers: Obstacle-Problem element (O).

Code	Obstacle-Problem Element	Frequency of Appearance	Percentage	Key Description
O1	Population Outflow	85	8.7%	Being understaffed, labor shortage, serious population outflow, disappearance of the youth population
O2	Government Policy	111	11.4%	Funding, subsidy, community development, certificate of ownership, subsidy for restoring uncultivated land, subsidy for supplies, resuming cultivation of the land designated for agricultural use, agricultural supplies, application fees, control and monitoring, community promotion, community planning, community planner, modification of the community landscape, citizen agricultural garden, development of community space, holistic community development, promotion, highlight, community-based industry, low-carbon community
O3	Product Produced	236	24.3%	Dishcloth gourd, luffa, pumpkin, grape, corn, yam, daikon, carrot, string bean, leaf of yam, kale, taro, vermicelli, ice plant soap, ice plant bun, wine (grape), vermicelli, chiapao melon, cantaloupe, tomato, dragon fruit, cabbage, ice plant, honey, juice, kidney bean, turnip, cactus, garland chrysanthemum, hibiscus, mushroom, bdens pilosa radiata
O4	High Degree of Homogeneity	236	24.3%	Farms mostly grow economic crops such as dishcloth gourd, luffa, pumpkin rice, yam, daikon, carrot, string bean, leaf of yam, chiapao melon and cantaloupe; many people grow the same crops; there are too many common crops
O5	Manmade Construction	28	2.9%	Drainage, (food) processing factory, greenhouse, bed and breakfast, restaurant, the third fishing port, community development, government, vertical growth in the greenhouse, mesh growth
O6	Lack of Marketing and Promotion	50	5.1%	Failing to preserve traditions, solo producer and solo marketer, local residents, residents in town, traditional market, vendor stall, government-sponsored channel
O7	Natural Environment	105	10.8%	Climate, soil, typhoon, winter, spring, underground water, northeast monsoon, strong wind, water quality, summer
O8	Closed-Mindedness	30	3.1%	Elders' reluctance to change their views, close-mindedness, being content with the status quo, unwillingness to change the industry
O9	Lack of Channel Distribution Strategies	47	4.8%	Entrusting farmers' associations with the sale of products, local residents in Penghu as the target market, solo producer and solo marketer, selling products at markets in Magong (the county seat)
O10	Social Culture	42	4.3%	Magong Market, Beichen Market, traditional community, vermicelli museum, culture of the vermicelli industry, local flavor, historical dwelling, cabbage curing

Table 4. Summary of the content analysis of interviews with agriculture producers: Goal element (G).

Code	Goal Element	Frequency of Appearance	Percentage	Key Description
G1	Food and Agriculture Education	22	8.2%	Food and agriculture education, food safety issue, healthy food for the producer, safe food for producers customers, self-sustaining, safe food ingredients
G2	Environmental Education	9	3.3%	Environmental education, environmental pollution, water and soil conservation, water pollution, pesticide residue, concept of environmental protection
G3	Experiential Marketing	13	4.8%	handmade vermicelli, agritourism farm, ice plant soap DIY, ice plant bun DIY, winemaking (grape), ice plant cake DIY, ice plant cracker DIY, demo class
G4	Community Development	15	5.6%	Community promotion, community planning, community planner, modification of the community landscape, citizen agricultural garden, development of community space, holistic community development, promotion, bright spot, community-based industry, community development, low-carbon community
G5	Branding	30	11.2%	Lack of branding, Nanliao leisure farm, Xiwei vermicelli, Star Moon Bay Restaurant, lack of branding guidance
G6	Industry Transformation	10	3.7%	Business transformation, facing transformation, combination, transformation
G7	Cultural Industry	12	4.4%	Xiwei vermicelli, vermicelli museum, culture of the vermicelli industry, antique equipment used for vermicelli production, visiting historical dwellings in the south, wading through ocean waves in the north, cabbage curing
G8	Solo Producer and Solo Marketer	14	5.2%	Self-sustaining, crops consumed only in one's own restaurant, giving any surplus to neighbors as the only exception, mostly solo producer and solo marketer, producing and selling products to Magong by the producer him-/herself
G9	Agricultural Technology	72	26.8%	Growing crops, windbreak, adding sand, technology, cultivation, fallowing, vertical growing, irrigation, innovation, compost, science, plowing, processing, organic fertilizer, chemical fertilizer, variety
G10	Climate Issue	36	13.4%	Too much sunlight, northeast monsoon too strong, wind, low temperature, strong and very salty wind, limited precipitation in Penghu, being affected by the strong wind, salty wind, extremely high temperature in summer
G11	Water Quality Issue	27	10.0%	Lack of water suitable for irrigation, saltiness of underground water, alkaline water in Penghu, limited precipitation in Penghu, water pump failing to raise water beyond a certain depth, tourists experiencing fetching well water in an old-fashioned manner
G12	Production and Marketing Collaboration	8	3.0%	Establishing vegetable processing factories to produce cured cabbage, transformation of the Xiwei vermicelli industry, inviting experts to provide production guidance, creating products by incorporating local food ingredients in Penghu

Table 5. Analytical results of inter-judge reliability among coding staff.

Coding Staff	A	B	C	
A		0.91	0.98	Average inter-judge agreement = 0.92
B	0.91		0.88	Overall reliability = 0.97
C	0.98	0.88		

4.3. Actor–Network Perceptual Map of Local Brand Value in Penghu Outlying Island

Once inter-judge agreement and reliability were established among researchers, a summary matrix was created on the basis of the links among the actors, obstacle-problem and goal elements as well as how frequently these links appeared (Tables 6 and 7). The number in the matrix represents the frequency at which a particular link was mentioned. The higher the number, the more frequently a particular link was mentioned by the interviewee, indicating a connection valued more by the interviewee.

Table 6. Matrix of links and their frequencies of appearance between actor elements (A) and Obstacle-Problem elements (O) during Interviews with agriculture producers.

Code	A1	A2	A3	A4	A5	A6	A7
O1	1					6	
O2							
O3		15					
O4							
O5	27			4			
O6							
O7	1			9			
O8							
O9	2	4					
O10							

Table 7. Matrix of links and their frequencies of appearance between Obstacle-Problem elements (O) and goal elements (G) during Interviews with agriculture producers.

Code	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10
G1	5						2			
G2	2						2			
G3			2			7				
G4		7			1	2				
G5			6			1			2	
G6	3	1		6						
G7		2			2		1	1		2
G8	1			2		2	2	1	3	
G9	1	5	3							
G10			2							
G11			3							
G12		2								

A hierarchical perceptual map of the local agricultural food system for local agriculture producers (Figure 2) that linked the three element tiers—"Actor (A)-Obstacle-Problem (O)-Goal (G)"—was then created according to the links and frequencies described in the matrix. In total, 28 value ladders were created, indicating an average of 5.6 ladders per interviewee. When creating the perceptual hierarchical map, links mentioned more than three times (the threshold standard) were included and red lines represented links mentioned more than five times. Among the links drawn between the tiers of the actor and obstacle-problem, during the interview with agriculture producers, the highest frequency (27) was recorded between the element of "producer" within "actor" and "product produced" within "obstacle-problem". This indicates that agriculture producers in Penghu believe that an actor–network of the local agricultural food system needs to reflect the following important feature: Penghu is closely impacted by its natural environment. Thus, any decision regarding which crops should be grown needs to be based on a deep understanding of the characteristics of the crop and the natural environment needs to be taken into consideration as well. As for the links between the obstacle-problem tier and the goal tier mentioned by the agriculture producers interviewed, each of the following two links

scored a frequency of seven: (1) the link between the element of "government agency" within the obstacle-problem tier and the element of "community development" within the goal tier and (2) the link between the element of "lack of marketing and promotion" within the obstacle-problem tier and the element of "experiential marketing" within the goal tier. This indicates that as per agriculture producers in Penghu, an actor–network of the local agricultural food system needs to reflect the following important feature: the infrastructure built by the government directly impacts community development. Therefore, the link between the government agency and community development is strong for agriculture producers. Because the majority of agriculture producers grow and sell their own crops, stagnation in sales occurs frequently. Changing channel distributions or business models should reverse such stagnation for agriculture producers in Penghu.

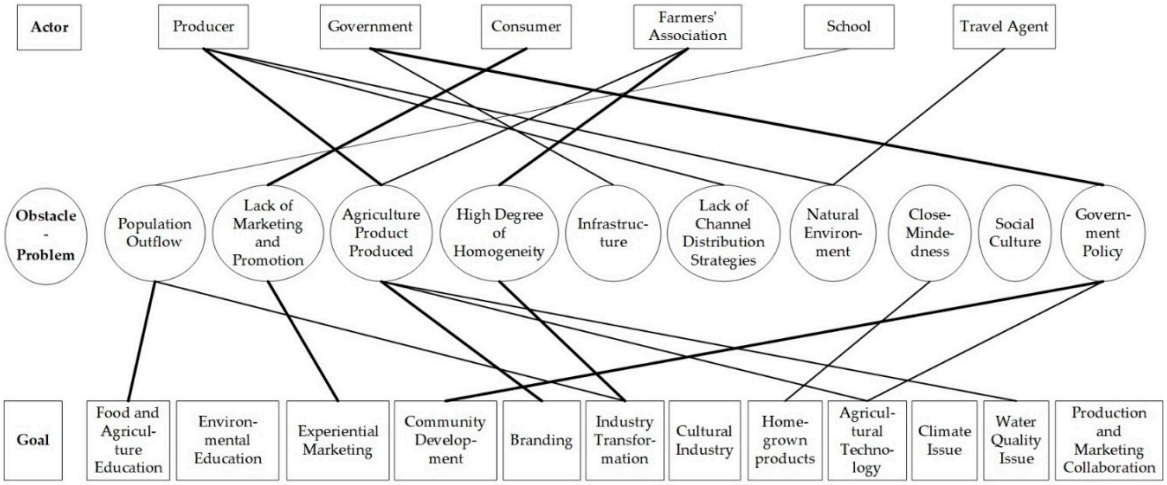

Figure 2. Hierarchical perceptual map of the local agricultural food system in Penghu outlying island.

The hierarchical perceptual map of the local agricultural food system created on the basis of the study analysis presents a clear view of the relationships between actors, obstacle-problems and goals. Using the threshold standard of five appearances, the following findings can be distilled: the five main actors are government agency, farmers' association, producer, school and consumer; the five main obstacle-problems are government policy, high degree of homogeneity, product produced, population outflow, lack of marketing and promotion; and the five main goals are community development, industry transformation, branding, food and agriculture education, experiential marketing. An actor–network perceptual map of local brand value in Penghu was created accordingly (Figure 3). As shown in Figure 3, the "producer" is the main actor in the local food system in Penghu. An OPP emerges according to the need of this main actor: creating the "local brand" for the agriculture in Penghu outlying island. As expounded by actor–network theory, creating the local brand value for the agriculture involves five main actors (government agency, farmers' association, producer, school and consumer) with their respective individual goals (community development, industry transformation, branding, food and agriculture education and experiential marketing). However, before reaching their goals, these actors need to complete certain tasks and overcome obstacles (government policy, high degree of homogeneity of agricultural products, product produced, population outflow and a lack of marketing and promotion).

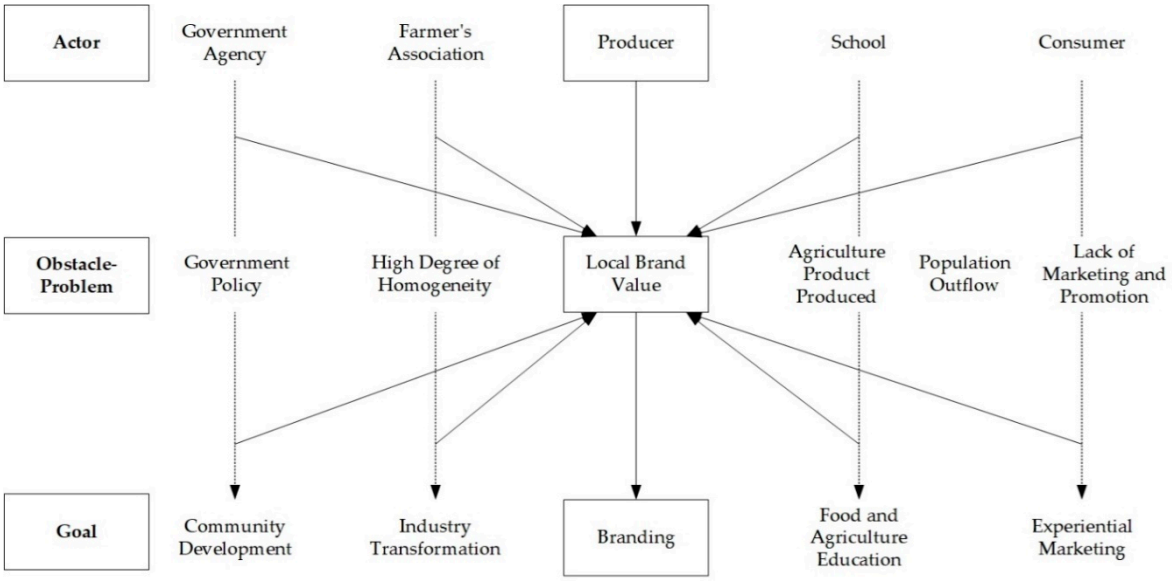

Figure 3. Actor–network perceptual map of local brand value in Penghu outlying island.

5. Conclusions and Discussion

5.1. Conclusions

This study examines the building of local brand value on the basis of the frameworks of local agricultural food systems and actor–network theory. We deduce important development trends of and bottlenecks in the local agricultural food system in Penghu outlying island by employing the local food system and actor–network theory as the theoretical basis. This research selects local agriculture producers as study subjects and documents the processes of local food production through field observations, so as to delineate the essential properties and historical development of the local agricultural food system in Penghu. An actor–network of the agricultural food system on the outlying island is created to verify what the real local products are and examine important factors that impact the local agricultural food system in Penghu. On the basis of multiple in-depth interviews with agriculture producers, six actor elements, 10 obstacle-problem elements and 12 goal elements are identified. Within the element tier of actor, the element of "producer" is mentioned the most often. As the interviewees are all agriculture producers, the data collated also show that the element of producer is mentioned the most often, while "product produced" and "high degree of homogeneity" are the elements within the obstacle-problem tier that are mentioned most frequently. Additionally, in-depth field interviews reveal that for agriculture producers, the obstacle that they face is the high homogeneity of the agricultural products produced. Given the unfavorable (natural) environment in Penghu for growing crops, how to choose suitable crops will require extra rigor. "Agricultural technology" is the element mentioned the most within the goal tier. For agriculture producers, improvement and progress in agricultural technology are key to overcoming the challenging growing condition. Hence, agricultural technology scores the highest number of appearances within the goal tier. On the basis of the calculation of the frequencies of associative connection in the data analyzed, a hierarchical perceptual map of the local agricultural food system is drawn. Furthermore, according to actor–network theory, an actor–network perceptual map of local brand value is established and the following is also distilled: the five main actors are government agency, farmer's association, producer, school and consumer; the five main obstacle-problems are government policy, high degree of homogeneity of agricultural products, product produced, population outflow, a lack of marketing and promotion; and the five main goals are community development, industry transformation, branding, food and agriculture education and experiential marketing.

5.2. Discussion

Destination branding is one of the principal topics in tourism marketing strategies in terms of enhancing differentiation and competitiveness. It is important to investigate the brand value for a destination to develop and implement more sustainable, strategic and systematic marketing approaches. The actor–network perceptual map of local brand value proposed by this study can help identify important factors affecting the development of local agricultural food systems and local brand value in Penghu outlying island. The map can also help agriculture producers when making decisions and can formulate strategies suitable for their products, being responsive to customers in the market and highly feasible, so as to increase the product visibility and name recognition. Due to the strong level of competition on the international tourism markets, city branding strategies have played an important role in establishing strong brand identities for cities and effective promotional campaigns. When creating local brand value in Penghu outlying island, the actor–network perceptual map allows local agriculture producers to clearly understand the actors, obstacle-problems and goals that may impact the building of local brand value. Through this, the key influential factors can be identified and the target customer and channel distribution for their respective agricultural products can be expanded.

Moreover, the in-depth field interviews conducted during the study reveal that many crops are particularly suitable for the environment in Penghu and their qualities are also superior to those of the vegetables and fruits grown on the main island of Taiwan. However, when it comes to agricultural technology, Penghu outlying island has received less support than the main island. Hence, if the central government can provide more resource support and agricultural technology guidance, local agriculture producers' knowledge about agriculture and their success rate in growing crops can be effectively enhanced and the agricultural development in Penghu accelerated. As a result, new agricultural economic models can also be introduced so that Penghu no longer relies solely on tourism and the fishing industry and residents' income during winter can be improved. Furthermore, according to the in-depth interviews conducted, local agriculture producers in Penghu have numerous creative ideas regarding business models, for example, creating experiential activities in agricultural gardens or selling cultural and creative merchandise during the tourism season in Penghu. However, due to insufficient human resources and lack of professional knowledge in marketing and channel distribution, creative ideas often fail to materialize. The marketing strategies and environmental issues of cities both have to be considered in development branding strategies for cities, therefore, future development of cities should consider both city brand features and dimensions, associated with cities' specificities and traditions, as well as city sustainability issues.

Various communities in Taiwan are eager to establish their salient features and develop local specialty products in order to attract waves of domestic tourists. Local cultures are rediscovered or reconstructed and place images are infused with new symbols and packages to achieve the goal of local branding. In particular, local specialty agricultural foods or products are considered important entry points for shaping the local brand image and creating value. According to the research results of Bryła [53], the important factors to judge the authenticity of products' origin include the following: natural taste, product quality, sale in the region of origin and labelling. Moreover, the most important determinants in selecting the origin of food are traditional recipe, taste and product uniqueness. Local origin food is often produced in a traditional manner, in a specific place, at a higher price and quality and available in fewer distribution channels. Therefore, the geographical indications and quality signs are crucial in the marketing of local origin food. Bryła [53] also pointed out that origin products are defined by the shopkeepers as having a link with the area of origin (territoriality) and being rooted in the history of the area of origin and local diet (traditionality). Distributors put more emphasis on the dimension of territoriality and less on traditionality in defining local origin food products. In our opinion, based on the study results, the local government of Penghu should create an image sign or quality sign for agricultural food products which refers to the area of Penghu origin and ensures high-quality through certifications based on local government inspections. The image sign or quality

sign should use place-based names that convey the geographical origin, cultural and historical identity of agricultural products.

This study argues that local food system can improve the economic and environmental sustainability of both tourism and rural host community through encouraging sustainable agricultural practices, supporting local businesses and building a brand value. The local food system can benefit the region by attracting more visitors and investments. Hence, we present the following five recommendations as a reference: (1) increase manpower by introducing the "working holiday" approach (it is a travel permit that allows travelers to be employed in any visa-issuing country to fund their travels through a "Working Holiday Visa"); (2) the government should provide support enabling agriculture producers to gain professional knowledge in marketing so that producers can sell their merchandise and reduce the risk of stagnation in sales; (3) encourage the youth to return to Penghu, through subsidies provided by both the public and private sectors; (4) create an image sign or a quality sign for agricultural food products which refers to the area of Penghu origin and ensures high-quality; (5) agriculture producers should form cooperatives and focus on selling the agricultural products in Penghu outlying island.

Author Contributions: J.-W.T. decided the main topic of research, designed the original research idea and methodology, collected and analyzed the literature review, as well as edited the whole manuscript; M.-L.C. planned and conducted the fieldwork survey activities in Huxi Township of Penghu and also coded the collected questionnaires; T.-H.C. collected and analyzed field investigation data and completed the conclusions.

Acknowledgments: This research received administrative and funding support from a project of Ministry of Education, R.O.C., Taiwan.

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

References

1. Bulkeley, H.; Castán Broto, V. Government by experiment? Global cities and the governing of climate change. *Trans. Inst. Br. Geogr.* **2013**, *38*, 361–375. [CrossRef]
2. Seyfang, G.; Smith, A. Grassroots innovations for sustainable development: Towards a new research and policy agenda. *Environ. Politics* **2007**, *16*, 584–603. [CrossRef]
3. Clark, G.; Chabrel, M. Measuring integrated rural tourism. *Tour. Geogr.* **2007**, *9*, 371–386. [CrossRef]
4. Ilbery, B.; Saxena, G.; Kneafsey, M. Exploring tourists and gatekeepers' attitudes towards integrated rural tourism in the England-Wales border region. *Tour. Geogr.* **2007**, *9*, 441–468. [CrossRef]
5. Crivits, M.; Prové, C.; Block, T.; Dessein, J. Four perspectives of sustainability applied to the local food strategy of ghent (Belgium): Need for a cycle of democratic participation? *Sustainability* **2016**, *8*, 55. [CrossRef]
6. Torres, R. Towards a better understanding of tourism and agriculture linkages in the Yucatan: Tourist food consumption and preferences. *Tour. Geogr.* **2002**, *4*, 282–307. [CrossRef]
7. Sims, R. Food, place and authenticity: Local food and the sustainable tourism experience. *J. Sustain. Tour.* **2009**, *17*, 321–336. [CrossRef]
8. Buller, H.; Morris, C. Growing goods: The market, state and sustainable food production. *Environ. Plan. A* **2004**, *36*, 1065–1084. [CrossRef]
9. Albrecht, C.; Johnson, R.; Hamann, S.; Sneyd, L.; Ohberg, L.; CoDye, M. Toward alternative food systems development: Exploring limitations and research opportunities. *J. Agric. Food Syst. Community Dev.* **2013**, *3*, 151–159. [CrossRef]
10. Ilbery, B.; Maye, D. Alternative (shorter) food supply chains and specialist livestock products in the Scottish–English borders. *Environ. Plan. A* **2005**, *37*, 823–844. [CrossRef]
11. Gössling, S.; Hall, C.M. Sustainable culinary systems: An introduction. In *Sustainable Culinary Systems: Local Foods, Innovation, and Tourism & Hospitality*; Hall, C.M., Gössling, S., Eds.; Routledge: Abingdon, UK, 2013; pp. 3–44.
12. Roy, H.; Hall, M.; Ballantine, P.W. Trust in local food networks: The role of trust among tourism stakeholders and their impacts in purchasing decisions. *J. Destin. Mark. Manag.* **2017**, *6*, 309–317. [CrossRef]
13. Gareau, B.J. Worlds Apart: A social theoretical exploration of local networks, natural actors, and practitioners of rural development in southern Honduras. *Sustainability* **2012**, *4*, 1596–1618. [CrossRef]

14. Castells, M. *The Rise of the Network Society*; Blackwell Publishers: Malden, MA, USA, 1996; Volume I.
15. Carroll, N.; Richardson, I.; Whelan, E. Service science: An actor-network theory approach. *Int. J. Innov. Manag.* **2012**, *4*, 51–69. [CrossRef]
16. Velly, R.L.; Dufeu, I. Alternative food networks as "market agencements": Exploring their multiple hybridities. *J. Rural Stud.* **2016**, *43*, 173–182. [CrossRef]
17. Pike, S.; Ryan, C. Destination positioning analysis through a comparison of cognitive, affective, and conative perceptions. *J. Travel Res.* **2004**, *42*, 333–342. [CrossRef]
18. Huang, C.; Oh, K.; Zhang, Q.; Choi, Y.J. Understanding the city brand in the regional tourism market among college students. *J. Travel Tour. Mark.* **2013**, *30*, 662–671. [CrossRef]
19. Kim, S.S.; Moon, J.; Choe, J. Comparison of destination brand equity models of competitive convention cities in East Asia. *J. Conv. Event Tour.* **2016**, *17*, 318–342. [CrossRef]
20. Ekinci, Y.; Hosany, S. Destination personality: An application of brand personality to tourism destinations. *J. Travel Res.* **2006**, *45*, 127–139. [CrossRef]
21. Borrego, C.; Martins, H.; Tchepel, O.; Salmim, L.; Monteiro, A.; Miranda, A.I. How urban structure can affect city sustainability from an air quality perspective. *Environ. Model. Softw.* **2006**, *21*, 461–467. [CrossRef]
22. Ţugulea, O. City brand personality—Relations with dimensions and dimensions inter-relations. *Sustainability* **2017**, *9*, 2243. [CrossRef]
23. Chen, H.W.; Lin, F.R. Evolving obligatory passage points to sustain service systems: The case of traditional market revitalization in Hsinchu City, Taiwan. *Sustainability* **2018**, *10*, 2540. [CrossRef]
24. Peters, C.J.; Bills, N.L.; Wilkins, J.L.; Fick, G.W. Foodshed analysis and its relevance to sustainability. *Renew. Agric. Food Syst.* **2009**, *24*, 1–7. [CrossRef]
25. Murdoch, J. Networks—A new paradigm of rural development? *J. Rural Stud.* **2000**, *16*, 407–409. [CrossRef]
26. Sonnino, R.; Marsden, T. Beyond the divide: Rethinking relationships between alternative and conventional food networks in Europe. *J. Econ. Geogr.* **2006**, *6*, 181–199. [CrossRef]
27. Brinkley, C. The small world of the alternative food network. *Sustainability* **2018**, *10*, 2921. [CrossRef]
28. Feagan, R. The place of food: Mapping out the 'local' in local food system. *Prog. Hum. Geogr.* **2007**, *31*, 23–42. [CrossRef]
29. Lai, F.Y.; Tan, H.J. The forming of hope farmers' market in Taichung: A viewpoint of the actor-network theory. *J. Geogr. Res.* **2011**, *54*, 19–42.
30. Schnell, S.M. Food with a farmer's face: Community-supported agriculture in The United States. *Geogr. Rev.* **2007**, *97*, 550–564. [CrossRef]
31. Connell, D.J.; Smithers, J.; Joseph, A. Farmers' markets and the good food value chain: A preliminary study. *Local Environ.* **2008**, *13*, 169–185. [CrossRef]
32. Jarosz, L. The city in the country: Growing alternative food networks in metropolitan areas. *J. Rural Stud.* **2008**, *24*, 231–244. [CrossRef]
33. Hankinson, G. The brand images of tourism destinations: A study of the saliency of organic images. *J. Prod. Brand Manag.* **2004**, *13*, 6–14. [CrossRef]
34. Chen, M.K.; Cheng, T.H.; Liu, C.W. A Study on Souvenir Purchase Behavior. *J. Sport Recreat. Manag.* **2013**, *10*, 64–77.
35. Walsham, G. Actor-Network theory and IS research: Current status and future prospects. In *Information Systems and Qualitative Research*; Chapman and Hall: London, UK, 1997; pp. 466–480.
36. Lin, W.Y. On the ontology of actor-network theory. *Taiwan. J. Stud. Sci. Technol. Med.* **1997**, *4*, 65–108.
37. Latour, B. *Reassembling the Social: An Introduction to Actor-Network-Theory*; Oxford University Press: Oxford, UK, 2005.
38. Tan, H.J. Relational spaces and rural development: A case study of Formosa Oolong at Longtan. *J. Geogr. Sci.* **2007**, *50*, 47–72.
39. Scott, M.; Harvey, N. Translating science into coastal development decisions: The articulations science and planning in South Australia. *J. Environ. Policy Plan.* **2016**, *18*, 85–101. [CrossRef]
40. Hung, J.C.; Tsai, C.H. The performance of cultural and creative goods in translation of actor-network theory: A case of sword-bitten lion in Anping. *J. Entrep. Res.* **2011**, *6*, 105–122.
41. Shoaib, T.; Keivani, R. Branding the new city: Exploring place branding in Saudi Arabia. *J. Place Manag. Dev.* **2015**, *8*, 254–265. [CrossRef]

42. Park, C.W.; MacInnis, D.J.; Priester, J.; Eisingerich, A.B.; Iacobucci, D. Brand attachment and brand attitude strength: Conceptual and empirical differentiation of two critical brand equity drivers. *J. Mark.* **2010**, *74*, 1–17. [CrossRef]
43. Aaker, J.L. Dimensions of brand personality. *J. Mark. Res.* **1997**, *34*, 347–356. [CrossRef]
44. Kim, H.; Richardson, S.L. Motion picture impacts on destination image. *Ann. Tour. Res.* **2003**, *30*, 216–237. [CrossRef]
45. Zeugner-Roth, K.P.; Diamantopoulos, A.; Montesinos, M.A. Home country image, country brand equity and consumers' product preferences: An empirical study. *Manag. Int. Rev.* **2008**, *48*, 577–602. [CrossRef]
46. Kim, H.K.; Lee, T.J. Brand equity of a tourist destination. *Sustainability* **2018**, *10*, 431. [CrossRef]
47. Boo, S.; Busser, J.; Baloglu, S. A model of customer-based brand equity and its application to multiple destinations. *Tour. Manag.* **2009**, *30*, 219–231. [CrossRef]
48. Ooi, C.S. The poetics and politics of destination branding: Denmark. *Scand. J. Hosp. Tour.* **2004**, *3*, 107–128. [CrossRef]
49. Zhang, L.; Zhao, S.X. City branding and the Olympic effect: A case study of Beijing. *Cities* **2009**, *26*, 245–254. [CrossRef]
50. Lu, H.; de Jong, M.; Chen, Y. Economic city branding in China: The multi-level governance of municipal self-promotion in the greater pearl river delta. *Sustainability* **2017**, *9*, 496. [CrossRef]
51. Ai, S.W.; Miao, C.H. Space of places, space of flows and space of actor-networks from the perspective of ANT. *Hum. Geogr.* **2010**, *25*, 43–49.
52. Botschen, G.; Hemetsberger, A. Diagnosing means-end structures to determine the degree of potential marketing program standardization. *J. Bus. Res.* **1998**, *42*, 151–159. [CrossRef]
53. Bryła, P. The role of appeals to tradition in origin food marketing. A survey among Polish consumers. *Appetite* **2015**, *91*, 302–310. [CrossRef] [PubMed]