Original Article

Exploring knowledge acquisition technique for new start-up community food enterprises

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ABSTRACT

Objective: This qualitative study is conducted to explore the knowledge acquisition techniques from five successful food enterprises at the new entry of community business. **Methods:** Five successful community food producers were purposively selected under specified criteria to explore their past knowledge acquisition strategies. In addition, two groups of these communities, learning center of food production and common skillful community, were also investigated. Data were collected using the in-depth interview, observation, and informal focus-group discussion. All qualitative data were transcribed and analyzed using thematic analysis. **Results:** The findings indicated that each community that starts his business with a basic production technology and imitative products could identify the required knowledge related to food safety compliance and food formulation and make assumptions about possible solutions before accessing the other knowledge sources. Their key techniques of tacit knowledge acquisition comprised the purposeful observation, active dialogue and discussion, and interpretation of their lessons learned. These approaches were highly recommended for the survival of their new business start-ups and the nationwide facilitation by the public sectors was needed to build up the young producers. In addition, the interpretation of lessons learned from food manufacturing should be emphasized to increase awareness and comprehensive understanding of hygienic and qualified production. **Conclusion:** Some key techniques are needed for knowledge acquisition and enhancing the development of further knowledge-based community food enterprises.

INTRODUCTION

Knowledge has been recognized as a strategic resource for achieving favorable production outcomes [1,2]. Many literatures have indicated that accumulating, managing, and utilizing knowledge are vital to build firms' capabilities in obtaining competitive advantage and value creation [3-5]. For new start-up manufacturing industries, knowledge is positively related to firms' survival and growth [6]. The most failure rate of the entrepreneurial beginners with new technology base resulted from resource constraints and poor abilities of acquiring and generating knowledge inside the firms [7,8], especially to small firms which lacked entrepreneurial and managerial capability in business management and innovative creation for new product development [9]. Within the food sector, most products are traditional, based on agricultural resources and basic-skilled labor, low technology, and limited in research and development activities [10]. Small food producers tend to extend the production line and me-too products by enquiring external tacit knowledge from other food enterprises rather than creating new products using advanced technologies and innovative knowledge [5].

To enhance survival rate of new food firms and increase market competitiveness, many studies have revealed that most required entrepreneurial knowledge is mainly related to product and process innovation [11-13]. In addition, the new food enterprises have also been continuously forced to improve safety and quality of food product according to the regulations and standards. Prior studies indicated that there are some barriers affecting food safety compliance which stemmed from a lack of awareness in dealing with food safety, poor knowledge, and understanding of food safety principles [14,15].

The aforementioned reviews express the knowledge requirement from experts for new business survival. To acquire such knowledge, it can be obtained with multi-techniques related to which type of knowledge is needed and utilized [16,17]. Previous literatures were mostly studied in intra-organization knowledge acquisition, for instance, to gain internal expert's tacit knowledge in the petrochemical company and information technology organizations. Observation, commentary, teach back, and 20 questions are mostly used, whereas interviews, laddering, and process mapping are more suitable for explicit knowledge acquisition [16,18,19]. However, knowledge is context-sensitive and requires specific ways for acquisition [20], within the low technology and me-too community food production. Most required knowledge is embedded in other food firms' practices as tacit and not-at-hand knowledge. This needs the strategic approaches or techniques to capture the critical knowledge. It is interesting what approaches are used by small producers in acquiring external tacit knowledge.

This study aimed to provide new insights on community food enterprises' tacit knowledge acquisition techniques in gaining required knowledge from external sources at the start-up of business. This finding can be applied to advanced community educational instruments and also to enhance developing knowledge-based community food enterprises.

METHODS

This study was conducted by investigating five successful community food producers with best practice in food production and ability to maintain well-known good quality products as well as their businesses. To select the community with best practice, the criteria were:

1. The food businesses should have at least 5-year experience in production practice and have a number of well-known products.
2. The production plants must obtain the good manufacturing practice (GMP) standard.
3. The food products must be registered and approved by Food and Drug Administration or the provincial health office.

These qualifications indicated the experience of community producers to overcome the problems in food production and reflected their success in operating and sustaining in their businesses in a long-term.

The selected communities were two learning centers of food production (L1 and L2) and three common skillful communities (C1, C2, and C3). Purposive sampling was used in the selection of key informants who were the community leaders, the heads of production, and the members with fully participation in their food production. We gained a rapport with the communities by introducing our researchers, objectives, and processes of study to let them become familiar with us and feel free to give information voluntarily before starting collecting data. Data collection was performed by the in-depth interview, observation, and informal focus group discussion. The in-depth interview approach was held 1 h with each community member (total 12 members from 5 communities). The observation and focus group discussion took 1 h with each community (total 26 members from 5 communities). These collecting techniques were done twice per community by informal manner. We always used local language to interview them with open-ended questions. On some occasions, we also participated in daily food production with community members. During the interview process, we observed and discussed with them on current production practices. Sometimes, to collect additional data, we also joined them during lunchtime or leisure time.

The data collecting methods were focused on the strategic approaches to acquire external tacit knowledge in community food production. The information was recorded and transcribed literally, and the thematic analysis was used to explore the key findings emerged regarding the community knowledge acquisition. This study was approved by the Faculty of Pharmaceutical Sciences, Chulalongkorn University Institutional Review Board; and all participants were provided the details of research processes clearly before participating instead of filling the consent form.

RESULTS

This finding revealed that before achieving successful community food enterprise, all five successful communities were found to be unfamiliar with adopting food regulation and entrepreneurial production since starting up their business. It was also found that they acquired the critical knowledge from the other external experts by the following strategic approaches.

Readiness Preparation

Identifying required knowledge

Each community defined the critical problems found in her first entry to community business. The major problems were related to the food safety techniques in GMP compliance and food formulation. For example, to assure the quality of production system, they required the correct design for GMP plant, the prevention of food contamination in all steps of production, and the underlying reasons to keep personal hygiene in food production (wearing mask, glove, and hair net). They also needed the recipes for new product development from their agricultural plants and crops, and the formulation techniques to improve quality of their products including dried banana (L1), rice cracker (L2, C3), chilli paste (C1), and fried potato chip (C2), and the reasons to develop better products.

Making assumption of possible solution

All communities picked up the production problems to identify the root-causes and propose the possible solutions from their past experiences such as using baking soda to improve non-crispy fried products, etc.

Seeking for the source of knowledge

All communities identified the suitable sources of the practical production knowledge including public support, in-class training, or study visit to other successful communities. Most sources of required knowledge frequently accessed by these communities were the accomplished local food enterprises.

In Thai community context, it was found that the important sources of knowledge were the learning centers

which were established by the government sectors. In principle, these learning centers should share their knowledge with the other communities. This finding was in contrast to the former study that community knowledge was possessed as a secret to protect from the imitation and competition by other communities [21]. Practically, there were no prior studies supporting the willingness of these learning centers to disclose all valuable knowledge, especially tacit knowledge related to the secret recipes. Hence, these new producers had to prepare self-awareness and readiness for their problem solving in food production before gaining knowledge from the external expert communities.

Knowledge Acquisition

The key techniques in acquiring knowledge of these communities were purposeful observation, active dialogue and discussion, and lessons learned interpretation. Each technique had a specific usefulness for acquiring different types and levels of necessary knowledge (Table 1).

Purposeful observation

All communities applied this technique by close attention and carefully observation to the specific necessary knowledge with their senses such as watching, hearing, and touching to collect related information. This technique was used for gaining what-to-do knowledge which was easily observed and noticed. For example, two communities responded as:

"We observed about the GMP compliance in other plants and found that the production room must be separated from the residence (L1)."

"We noticed from that community that the rest room could not be located next to the production area (C3)."

Active dialogue and discussion

Each community applied a process of asking closed questions focusing on necessary knowledge with interactive discussion and consideration of their understanding with the experts. The series of questions consistent with the assumption were put to investigate in detail by special production techniques and secret recipes. These techniques were useful for enquiring how-to-do knowledge which could not be gained by the observation. For instance, "I asked many questions to and discussed with her (the expert) about how to improve crispiness of rice crackers. Then, I got the techniques. Those were the order of mixing, methods in drying and frying uncooked crackers, frying periods, and temperature adjustment of frying oil (L2)."

To gain practical knowledge in community food production which was what-to-do and how-to-do knowledge, the producers applied purposeful observation and active dialogue with discussion as the effective techniques in acquiring knowledge. These approaches were more insightful and limited time spent in capturing knowledge than the common observation and questioning [16]. The pre-defined specific aims and assumptions were helpful for straightforward and accessible target knowledge.

Lesson learned interpretation

In access to deeper understanding, some common communities used a lesson learned capture technique. It was interpretive learning from the past mistake experiences of other skillful communities and pointing out the bad consequences of ignorance of good practices as a tool to get insight to the reasons to produce carefully with unprecedented practices. For example, some communities (C2 and C3) captured a lesson learned from experts' storytelling about the loss from the rejection of purchasing because of finding some contaminant in one package of export products. Then, they got an insightful reason to keep the strict hygienic practice in food production.

"A large batch of export products from that community had been rejected since the customer found a piece of hair in rice cracker, so we have to wear a hair net strictly. We feared a falling hair (C3)."

This technique was useful to capture the why-to-do knowledge which represented an understanding of the underlying context [22,23] or causality [24]. It was also to promote sustainable practice in GMP compliance and proper formulation by raising both awareness and willingness of community members to comply with unfamiliar manners. Our study has highlighted the elicitation of experts' knowledge in problem solving of community food production as a vital part of knowledge management. The approaches of self-readiness preparation and strategic acquisition techniques in our study were defined as a partial process of knowledge engineering [19]. In knowledge engineering, it focuses on the process of acquiring expertise by multi-methods such as interviewing, observation, process tracking, case analysis, discussions, brainstorming, commentaries, and interpretation of the knowledge into a comprehensive form to be stored later into a knowledge base [19], especially to an artificial intelligence base [25,26].

In our community context, expert knowledge was acquired by informal and target specified techniques including

Table 1: Content of knowledge defined by acquisition technique

Acquisition technique (knowledge type)	Content of knowledge	
	Food safety	**Food formulation**
Purposeful observation (what-to-do)	Model of practical GMP compliance	Ingredient list/recipes of proper products
		Good appearance of food product
Active dialogue and discussion (how-to-do)	Processing control techniques	Techniques for improvement of product properties
	Personal hygiene techniques	
Lesson learned interpretation (why-to-do)	Reasons to strictly control food processing and to keep personal hygiene	Reasons to frequently change frying oil
		Reasons to use a proper packaging

GMP: Good Manufacturing Practice

purposeful observation, active dialogue and discussion, and lessons learned interpretation. These were useful for gaining personal knowledge, which was difficult to formalize and hard to communicate with others. Their knowledge was verified by comparing with their past experiences through dialogue and discussion with experts and transformed into individual comprehension for solving existing problems rather than to be stored in the intelligence-based system [26]. Literature has indicated that most community knowledge is non-codified and retained as a community secret to protect from competition and copying by other competitors [21]. However, Thai community food enterprises have still achieved in accessing and acquiring local food production knowledge from other communities. Our study affirms that these strategic approaches in gaining external expert knowledge are valuable to new start-up community businesses and also beneficial for enhancing survival and growth of community food enterprises.

These findings suggested that the public sectors should promote these aforesaid techniques to new start-up food enterprises in national level for effective acquiring knowledge from external sources, especially from the successful or best practice communities. The novice producers should prepare their readiness and awareness in acquiring critical knowledge for problem solving in their food production before accessing to the sources. In addition, the interpretation of lessons learned should be expressly promoted to the new entry food producers to enhance the food safety compliance and to obtain better products due to its effectiveness to increase awareness and comprehensive foundation of hygienic and qualified production. Moreover, to enhance acquiring capability of new community enterprises, food regulatory agencies, and academia should design tools for strategic knowledge acquisition. These should include a training program to prepare all new start-up food producers for accessing to external knowledge, as well as a handbook for acquiring knowledge from study trips.

This study was conducted from the knowledge acquirers' viewpoint and the knowledge transfer from community food experts to the recipients. There should have further investigation and more understanding about the strategic approaches for knowledge transferring from the experts or knowledge providers' viewpoint. The appropriate learning channels for local community producers should be provided in future researches.

CONCLUSION

The key techniques of tacit knowledge acquisition comprised purposeful observation, active dialogue and discussion, and interpretation of lessons learned. These approaches should be proposed for further knowledge-based community enterprises.

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