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

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Objectives: For the knowledge-based economy, new community food enterprises should acquire valuable knowledge for survival and successful business. 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 for exploring their past knowledge acquisition strategies. Additionally, two groups of successful communities were also investigated for the knowledge acquiring techniques. Data were collected using the in-depth interview, observation and informal focus-group discussion. All qualitative data were transcribed and analyzed using a thematic analysis.
Results: The findings indicated that each community that starts with a basic production technology and imitative products could identify the required knowledge related to food safety compliance and food formulation, and made assumptions about possible solutions before accessing the knowledge sources. The key techniques of tacit knowledge acquisition comprised purposeful observation, active dialogue and discussion, and interpretation of lessons learned. These approaches were highly recommended for survival of new business start-ups and helped build up many nationwide young producers through public sectors. In addition, the interpretation of lessons learned should be promoted to increase awareness and comprehensive foundation of hygienic and qualified production.
Conclusion: Some key techniques are used for the knowledge acquisition and should be advanced for further knowledge-based community food enterprises.

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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 R&D 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 by using advanced technologies and innovative knowledge [5]. Due to these common features, food enterprises show higher failure rates of more than 90 percent of new products launched in the markets than any other manufacturing firm [5]. These failures could be because of unsuccessful product imitation and the tediousness of knock-off products to the market.

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]. Product innovation knowledge is mostly demanded by food firms to improve functional and sensory features and also enhance safety and quality of products, while process innovation results in increased efficiency and productivity of the production [13]. The new start-up food firms mostly rely upon product innovation knowledge at the beginning stage to provide new products and suitable processes for good products, and later require more process innovation in the maturity stage [6]. For example, in product innovation, new ready to eat and longer shelf life are needed for post-harvesting agricultural products development [13]. Also, in process innovation, new packaging line extension knowledge is required to reduce cost of production [12]. 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 lack of

awareness in dealing with food safety, and 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 petrochemical company and information technology organizations. Observation, commentary, teach back, and twenty questions are mostly used, while 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 paper 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 in five successful community food producers who were chosen because of their current best practice in food production and continued well-known good quality products to explore their past knowledge acquisition strategies at the beginning of being new community enterprises. We also investigated the knowledge acquiring techniques from two groups of successful communities. These were two learning centers of food production (L1, L2) and the rest of the producers were three common skilful communities (C1, C2, and C3). Purposive sampling was used in selection of key informants who were a leader, a head of production and working members who fully participated in every day food production. We gained 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 before we started collecting data. Data collection took place by in-depth interview, observation and informal focus group discussion. The individual in-depth interview approach was held one hour with each community member (total 12 members from five communities). Similarly, observation and focus group discussion was one hour conducted with a small group of each community (total 26 members from 5 communities) while they were working in food production. Collecting techniques were done by informal manner and repeatedly conducted two times per community.

The collecting methods were focused on what were the strategic approaches to acquire external tacit knowledge in community food production. Then, the information was recorded and transcribed literally. Later, thematic analysis was used to explore what 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.

Results

This finding revealed that to achieve successful community food enterprise from new start-up business, all five skillful communities both learning centers and common communities had been unfamiliar with adopting food regulation and entrepreneurial production when they began their new food enterprises. Then, they acquired the critical knowledge from other external experts and there were the strategic approaches in acquiring such knowledge as follows.

1. Readiness preparation

1.1 Identifying required knowledge: each community had defined their critical problems found in first entry to community business. The major problems were related to food safety techniques in GMP compliance and food formulation. For example, to assure the quality of production system, they required a correct design for GMP plant, how to prevent 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 sheet (L1), rice cracker (L2,C3), chili paste (C1), and fried potato chip (C2), and the explanation about why to develop better products.

1.2 Making assumption of possible solution: all communities picked up the production problems to guess the root-causes and propose the possible solutions from their past experiences such as using baking soda to improve non-crispy fried products.

1.3 Seeking for the source of knowledge: all communities had identified suitable sources of 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, the important sources of knowledge were learning centers which were established by the government sectors. In principle, these learning centers prefer to share their knowledge to other communities. This was in contrast to the former study that community knowledge was possessed as a secret to protect from imitating and competition by other communities [21]. Practically, there were not prior studies supported that these learning centers had willing to disclose all valuable knowledge, especially to tacit knowledge related to the secret recipes. Hence, these new producers had to prepare self-awareness and readiness for problem solving in food production before gaining knowledge from the external expert communities.

2. 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 needed knowledge (Table 1).

2.1 Purposeful observation: all communities applied this technique by paying close attention and carefully observation to the specific needed knowledge and using 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,

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

"We saw from that community. The rest room could not be situated next to the production area." (C3)

2.2 Active dialogue and discussion: Each community applied a process of asking closed questions focused on needed knowledge with interactive discussion and reflection of their understanding with the experts. The series of questions according to the assumption were put to investigate in detail special production techniques and secret recipes. This technique was useful for enquiring how-to-do knowledge which could not be gained by 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 order of mixing, methods in drying and frying uncooked crackers, frying periods, and temperature adjustment of frying oil." (L2)

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

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 good products • Good appearance of food product
Active dialogue and discussion (how-to-do)	• Processing control techniques • Personal hygiene techniques	• Techniques for improvement of product properties
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 better packaging

Lesson learned interpretation: in access to deeper understanding, some common communities used a lesson learned capture technique which was interpretive learning from the past mistake experiences of other skilful communities and pointing out the bad consequences of ignorance of good practices as a tool to get insight to the reasons why to produce carefully with unprecedented practices. For example, some communities (C2, C3) captured a lesson learned from experts' storytelling about the loss from rejection of purchasing because of finding some contaminant in one package of export products. Then, they got an insightful reason to keep 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] and also to promote sustainable practice in GMP compliance and good 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 are 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, and commentaries, as well as 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 purposeful observation, active dialogue and discussion, and lessons learned interpretation. These were useful for gaining personal knowledge which is 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 have 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 they access to the sources. In addition, the interpretation of lessons learned should be expressly promoted to new entry food producers to enhance the food safety compliance and 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 producers for accessing to external knowledge, as well as a handbook for acquiring knowledge from study trips. These approaches should be proposed for further knowledge-based community enterprises.

Conclusion

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

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