Analysis of Entrepreneurship Education Model of Technology-Driven Agri-Food Industry Applying Line-by-line Coding Method of Grounded Theory

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Abstract

Background/Objectives: This paper investigated and analyzed the phenomena in implementing the curriculum and characteristics of an entrepreneurship education model existing technology-driven agri-food industry.

Methods/Statistical analysis: The line-by-line coding method of grounded theory approach by Strauss & Corbin was applied for this study and the collected data was analyzed with the NVIVO 12 program from QSR which is a tool for analyzing quality comparative analysis for better efficiency in open coding.

Findings: The contents and the design of education are drawn from founders who are participants of the education, education supply organizations and lecturers and traits in an education model were derived by analyzing the structural relationship between them. This study reveals that entrepreneurial education with contextual knowledge in the agri-food industry strengthens achievements in boosting up competitiveness for industry, local areas, sales and enhancing the field response-ability. Yet, unbalanced educational contents can be caused by a biased education devoted to technologies only for production and cultivation and a lack of diversity and professionalism. Phenomena in implementing curriculum and characteristics of an education model also reveal a lack of support for educational institutions and trainees and unsatisfactory of overall administration system due to an insufficient post management system. In this paper, an essential education contents needed by the agri-food sector entrepreneur are related to information competency enhancement.

Improvements/Applications: The administration of education will be efficient when it is flexible depending on educational needs. Educator must recognize market conditions and must train individuals to meet the market demands.

Keywords: Entrepreneurship, Education, Agri-food, Agri-entrepreneurs, Paradigm-model, Grounded-theory

1. Introduction

For successful commercialization in the agri-food industry, the technological capability in the production of a founder is one of the fundamental requirements. Also, entrepreneurial capabilities to generate revenue, such as customer analysis and marketing are required. However, a founder’s competency is insufficient to meet all those requirements in reality. Nascent and preliminary entrepreneurs in the agri-food industry should cope with those challenges which they get to face in establishing and managing stage by fostering their capability. They need to have an objective-oriented motivation for increasing income, learning-oriented motivation for acquiring skills and knowledge and a proactive attitude to build social relations and a network when they get educated to acquire related information and knowledge from entrepreneurship education. In addition to these environmental factors and motivation to participate in education, effort for acquiring information of education customers and for continuing educational information can provide a wide range of educational opportunities for a founder and allow a founder have entrepreneurship and academic motivation for mind, competency, business plan, customer perspective education and institutional and financial education in a stage of designing educational programs and implementing. Demands for enhancing communication competence and strengthening cooperation in farming and establishing entrepreneurship have a significant role in educational contents for entrepreneurship and their efficient educational administration. High-quality educational achievements and an efficient administration would be available when the
expertise of trainers and instructors, education method, the direction of education, curriculum design, the establishment of the educational system and post-management for trainees get secured. To cope with differences in perception of education contents between providers and educators, it is necessary to grasp their specific needs and requirements precisely and reflect them in education contents when providers design educational contents. Some agri-food entrepreneurs exploit opportunities and pursue to fit into the framework of entrepreneurship. The relevant questions arising therefore are: Can agricultural entrepreneurship education enhance their competency making profit? Can entrepreneurial skills in agri-food industry be learnt by current education framework? This paper was therefore planned to provide answers to these questions[1].

NESFI (New England Small Farm Institute), with the help of researchers from the Ohio State University in the United States, has developed a plan with 12 criteria for farmers to develop their agricultural planning, business infrastructure, business management, education and learning, improving family and community relations, manpower management, agricultural machinery maintenance, production management, crop cultivation, business review and planning, and marketing[2]. The RTC (Rural Training Council) from New South Wales in Australia classifies educational contents into criteria like marketing, business management, management risk analysis, land history management, informatization and management, and financial management related to specific local products. A project which surveyed for Australian farmers’ motivation revealed that they participated in educational programs with motivation for improving business efficiency, meeting legal requirements, strengthening business self-sufficiency, acquiring new information, knowledge, skills, personal development and social networking[3]. There is a slight difference between the contents of agriculture education led by education and training institutions and the contents of education that trainees demand. At present, agricultural education contents have the highest proportion of production related technologies such as crop cultivation, livestock breeding, machinery and facilities management, distribution and marketing, information acquisition, soil management, pest management, disaster management, and rural development followed next. Agricultural education, which is relatively required by farmers but low in importance, included farming worker management, information acquisition, business infrastructure development, humanities education, business and accounting management, and crisis management education. As a result, the agricultural education for the agriculture entrepreneur is still being carried out in the agricultural education centered on cultivation and production technology. Agricultural entrepreneurship in addition to profit making prepares to fit into the framework of entrepreneurship. The administration of education will be efficient when it is elastic and flexible rather than rigid and standardized. Education must recognize conditions as they are and must train individuals to meet the demands of the market[4].

In this study, we collected data of the phenomenon of entrepreneurship education that they perceive through interviews with educators and lecturers who are engaged in agriculture and entrepreneurship education and the participant in education. The phenomenon of entrepreneurship education includes contents and methods of entrepreneurship education, provision and acquisition of educational information, education methods, and post-management. We wish to establish the new theory about the phenomenon of entrepreneurship education through the investigation deeply of the phenomenon like as what are the participation motivations and goals of education participants, what are the difficulties in the field, what education is needed and so on. We wish that the result of this study suggests direction of education contents and education method of entrepreneurship education which has not been dealt with so far and has not had much academic interest. Grounded theory may increase our understanding of agricultural entrepreneurs and educators to plan and improve the educations. Agricultural educators need grounded theory to explore the educational consequences of learning[5].

2. Materials and Methods
2.1 Research model design
Prospective founders and founders in the agri-food industry face a number of difficulties when they start their business, and they have a need for information and education. It also depends on what stage the founder is in and what business plan they have. These motivators also determine whether or not to participate in education, depending on how and how much information is acquired about the education. The content of entrepreneurship education depends on the subject of education, and it affects the quality of education depending on the expertise of the instructor and the person in charge of education. The content of education reflected in reality, the method of instructor with responsible and competent influence on the educational attitude and education effect of the participants. Follow-up management issues can determine the final assessment of education. However, there are two perspectives to view these entrepreneurship education providers and a participant in education. The difference between the two perspectives can exist in the existing agriculture education and in the newly established entrepreneurship education. The purpose of this study is to explore the phenomenon of entrepreneurship education that is grasped and understood from two perspectives of entrepreneurship stakeholders.

The purpose of this study is to understand entrepreneurship education from two perspectives of suppliers and participants in education, and to explore the phenomenon of entrepreneurship education in the field of agri-food products, in which there is no systematic theory yet and little precedent research. The purpose of this study is to investigate, compare and analyze the phenomena such as educational motive, education contents, education...
instructor, education method, and follow-up management in entrepreneurship education through previous studies and theoretical exploration of existing agriculture education and to search for the origin. As a research method, we use the grounded theory approach of Strauss & Corbin, which suggests a methodology for structuring the relationship between categories[6]. Grounded theory offers a systematic method to understand the contextual reality of social behavior[7,8]. We also used the NVIVO 12 program from QSR, a quality data analysis tool, for the efficiency of open coding. The research proceeds in figure 1.

Figure 1. Model diagram of research procedure

In the interview phase which is the first stage of the research, we analyzed the phenomenon of the agricultural education and the entrepreneurship education conducted in some agriculture education through the pre-survey of the prior research on the status quo of existing agricultural education. The semi-structured questionnaire was designed so that participants could express their feelings and opinions freely through an analysis of previous research. We interviewed and recorded educational providers who designed and conducted agriculture education and entrepreneurship education lectures directly and the participants who participate in education they designed. The recorded interviews were transcribed and collected in text form.

In addition, we collected the data necessary for the theory creating through the analysis of the previous research and theory. In the second stage, we performed a research method to generate a new analysis by repeatedly and cyclically performing data collection, sampling, and data analysis processes based on the theoretical sampling method of Glaser & Strauss[9]. At this stage, based on the data gathered in the previous studies and theories, after the first interview the interviews were reviewed and analyzed, and the second interview was conducted by adding the necessary and additional information. The third interview was conducted through the same process. It was proceeded until the theoretical saturation which is not found additional information. Third, in the open coding stage, it was conceptualized the similar meaning among the words and sentences of the data collected from previous studies and theories and the interview data. We found a category by systematically classifying and integrating found concepts. We classified and compared attributes and dimensions in relation to categories, classify each category into upper and lower categories, and compared and analyzed them continuously. This continues in the axis coding and selective coding stages. Fourth, in the axis coding stage, the paradigm of grounding theory that theoretical connects the categories which is designed by Strauss and Corbin was constructed and analyzed by comparing and analyzing. The paradigm of grounding theory is composed of central phenomenon, condition (causal, contextual, mediated condition), action/interaction strategy, results. Fifth, in the selective coding stage, we integrate the categories presented in the axis coding stage and present the phenomenon summary in the form of a core category and a story outline[10,11].

2.2 Interview

The time and place of the interview were agreed with the researchers and conducted at the founders' workshops, professors' and lecturers' labs, and recording was conducted using smart phones. Interview time was 40 to 50 minutes for each participant, and the interview was carried out directly by the researcher. The interviewees were instructors and educators who were involved in entrepreneurship education within one year, preliminary founders and founders, and selected interviewees three times through the process of theoretical sampling. Before recording the interview, I informed the participant that I would record the interview, and after getting signature of the participant on the 'Personal Information Consent Form', I recorded it.

After the middle and the end of the interview, we got re-confirm the contents of the interview from the participants of the interview, and also confirmed through the transcript of the interview. Transcription is first transcribed by the undergraduate research student and the researcher summarized the content of the transcribed text file irrelevant to the present study. And we compared and modified the contents listening to the recorded contents again. We tried to keep track of the current status of education on entrepreneurship education of existing agricultural education, and the phenomenon of entrepreneurship education in agri-food industry sector of the education contents, teaching methods, follow-up management, problems and so on.

In addition, we grasped insight into the difficulties of the start-up scene and the motivational factors, satisfaction level, and requirements of the subjects of the education through interviews with the participant in education. We interviewed total of 10 people, including managers of entrepreneurship education institutes, professional lecturers and farmers who are main participants in the interview. We took place Interviews from December 05, 2017 to October 31, 2018, for about 11 months. And we repeated the interview until it does not find additional information.
3. Results

3.1 Open coding

In this study, we collected data through previous researches and interviewed with participants, and classified the information based on the collected data. After that, we discovered and conceptualized the phenomenon. Similar concepts were combined and categorized through a higher level of abstraction. We developed the dimension by finding the attributes and subcategories within the categories found. Through this open coding process, a total of 242 concepts and 69 subcategories came out and 23 categories were derived through the final abstraction process.

In order to clarify the relationship between the categories found through open coding, we use paradigm models to structure categories and subcategories as central phenomena, causal conditions, contextual conditions, interventional conditions, action / interaction strategies.

3.2 Axial coding

3.2.1 Causal conditions

As a result of analyzing the basis data of this study, the causal conditions of the entrepreneurial education of the agri-food sector appeared as the causal conditions of "agri-food industry environment" and "agri-food sector establishment". In this study, explaining the reason why central phenomenon appears, and "lack of entrepreneurial capacity" and "motivation for participation in education" are acting as contextual conditions that affect the action / interaction strategy. These categories have subcategories such as entrepreneurial spirit of entrepreneurs in the field of agri-food, weakness in entrepreneurial skills, and social relations.

3.2.2 Contextual conditions

Contextual conditions explain why the central phenomenon appears and affect the action / interaction strategy. In contextual conditions, there are motives for participation in education and insufficient entrepreneurial skills. The former involves building social relationships and increasing income, while the latter is a weak entrepreneurship.

3.2.3 Phenomenon

The main phenomenon that shows what is going on in the field of this study is the enhancement of the informatization capacity such as management of the customer perspective and marketing, and the increase of the educational opportunity that supports this. "Informatization competency" such as SNS competency, smart working, and information acquisition related to information technology, which is still lacking in the field of agri-food, is emerging as a central phenomenon in entrepreneurial education. It shows that education demand is a key factor connecting production and sales of agri-food sector as a main factor of strengthening competitiveness as a result of entrepreneurship education.

3.2.4 Intervening conditions

In this study, the interventional conditions, which are the conditions for changing the influence on the action / interaction strategy, were analyzed as the communication capacity to create the education environment and the need to strengthen the cooperation capacity. These intervention conditions are the competence factors to be strengthened to improve the performance of the entrepreneurs in the agri-food sector.

3.2.5 Action / interaction

In this study, action / interaction shows the necessity of establishing education expertise and education system in the curriculum, and after-school management. In order to enhance the effectiveness of education, it is necessary to apply the contents of education, provide continuous information, monitor and track the management, and provide on-site consulting and mentoring. Education institutions need to be accountable and contextualized to prepare for the curriculum. In order to achieve effective education performance, it is necessary to monitor the curriculum and conduct the education administration strategically. In terms of the interaction between the provider and the trainee, these categories have meaning as action / interaction strategies.

3.2.6 Consequences

In this study, the results of action / interaction strategy were analyzed as 'education effect'. It can be seen that the entrepreneurial education in the agri-food sector not only enhances the industrial competitiveness but also enhances the regional competitiveness and strengthens the company's sales capability and field response capability. However, there are factors that need to be complemented by the education imbalance and lack of education administrative system. It is lacking in diversity and expertise along with mixed up technology education and entrepreneurial education. It also has an unsatisfactory overall educational administration system due to lack of support for educational institutes and trainees and post-management in a phenomenon of entrepreneurship education in agriculture.

The paradigm model of the phenomenon of entrepreneurship education in the field of agri-food sector' presented in the result of the process is shown in figure 2.
3.3 Selective coding

In terms of fostering competent manpower and professional entrepreneurial competence, contextual and systematic education would lead to educational achievements such as strengthening industrial competitiveness, regional competitiveness, sales capacity, and on-site response capability. Based on the foregoing, it is therefore concluded that agri-food industry in Korea still offers biased contents of existing production and cultivation oriented educations. Yet, unbalanced educational contents can be caused by a biased education devoted to technologies only for production and cultivation and a lack of diversity and professionalism. Phenomena in implementing curriculum and characteristics of an education model also reveal a lack of support for educational institutions and trainees and unsatisfactory of overall administration system due to an insufficient post management system. A comprehensive summary of results from this study is shown in figure 3 explaining the phenomenon of entrepreneurship education in the agri-food industry.
Figure 3. Phenomenon of entrepreneurship education in the agri-food industry

4. Conclusion
The purpose of this study is to suggest a direction of educational methods and contents for entrepreneurship education in the technology-driven agri-food industry. It is suggested the importance of technology development, risk management, organizational management, and distribution management as success factors of venture farming. Agricultural entrepreneurship in addition to profit making prepares to fit into the framework of entrepreneurship. The administration of education will be efficient when it is user oriented. Education must recognize conditions as they are and must train individuals to meet the demands of the market. The administration of entrepreneurship education will be efficient in proportion as it is elastic and flexible according to education needs. It must recognize conditions as they are and must train agri-entrepreneurs to meet the demands of the market. Entrepreneurial education with contextual knowledge in the agri-food industry strengthens achievements in boosting up competitiveness for industry, local areas, sales and enhancing the field response-ability. In this paper, an essential education content needed by the agri-food sector entrepreneur is related to information competency enhancement. This study would contribute to a follow-up study on entrepreneurship education for fostering competitive entrepreneurs in the agri-food industry.

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6. References