Developing an Online Learning Community Model Using Design Thinking to Create Innovation Among Community Enterprise Entrepreneurs: In-Depth Data Analysis

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Abstract
This research article aims to study opinions and conduct an in-depth analysis of community enterprise entrepreneurs and experts regarding developing an online learning community model using design thinking for innovation creation. Data were collected through in-depth interviews using semi-structured interview guides, divided into two sets as follows: 1) Interviews with key informants, totaling 10 individuals, who are community enterprise entrepreneurs in Nonthaburi Province, selected using purposive sampling; and 2) Interviews with 5 experts in various fields, including learning management, educational technology, design thinking, and innovation. The collected data were then analyzed using content analysis, categorized, and presented descriptively. The research findings indicate that an online learning community using design thinking should serve as a space that inspires the creation or innovation of new ideas, facilitated by gathering individuals with shared interests or goals. A critical element is the connection of networks with experts or specialists who can provide advice and share experiences with entrepreneurs, enabling them to develop products that meet customer or market needs. Additionally, creating an online learning community should involve the provision of accessible spaces, employing technologies that entrepreneurs are familiar with or regularly use, to facilitate easy access to information, foster engagement, and provide mutual support within the online community. The components of an online learning community using design thinking for innovation creation for community enterprise entrepreneurs should include individuals, knowledge, technology and communication tools, and activities or assignments to develop innovative outputs.

Keywords: Online Learning Community, Design Thinking, Local Enterprise

Introduction

According to 2021 statistics on community enterprise registrations in Thailand, a total of 137,764 community enterprises were registered, categorized into two main groups: 121,760 product-manufacturing enterprises and 16,004 service-oriented enterprises (Department of Agricultural Extension, 2021). Among the product-manufacturing enterprises, the three most common types are crop production, livestock production, and food processing and product manufacturing. For the service-oriented enterprises, the three leading types are other services, community savings, and community retail stores, respectively. When compared to the 2020 figures, community enterprises increased by 44,703. This data indicates a continuous growth trend in community enterprises. However, research and literature review reveal that many community enterprise groups face challenges. These challenges often stem from the high degree of similarity among enterprises, leading to intense internal competition and a lack of clear development direction. Moreover, there is an absence of sustained and genuine collaboration and integration among enterprises. The primary issue faced by community enterprises lies in marketing; entrepreneurs tend to adopt a production-led approach rather than a market-led one, often neglecting to study the real market demand—who the consumers are, what type of products they prefer, and where to sell them, among other factors. Additionally, several other critical issues need to be addressed, including accounting and financial systems, product design, production processes, foreign language skills, production costs, and the application of information technology.

Thus, driving innovation within community enterprises necessitates a learning process rooted in "community-based learning management," a vital tool that strengthens community group cohesion through shared learning, experience exchange, and skill and knowledge transfer. Especially in this era of rapid information technology advancement, online learning effectively bridges gaps in location, distance, and time, allowing learners to access knowledge resources anytime, anywhere. This broadens the learning scope beyond traditional classroom settings or face-to-face meetings. Managing learning for communities thus leverages the advantages of online learning, combining them into a process that develops individuals while simultaneously advancing community enterprise operations. This dual approach prepares enterprises to compete domestically and internationally, aligning with the structural shift towards an innovation-driven, value-based economy in line with Thailand's 4.0 model.

Literature Review

An online learning community refers to activities designed to create or simulate a community environment in an online format, fostering communication and knowledge exchange among individuals with shared interests or goals. It emphasizes creating a virtual space where community members can engage in discussions, conversations, and debates on topics of interest, allowing them to analyze and synthesize knowledge derived from research and shared experiences into new insights that align with community needs. This collaborative learning model is built on shared knowledge creation. The components of an online learning community include: 1) the structure of the online learning community, 2) interaction, 3) knowledge exchange, 4) individuals such as facilitators, community members, and experts, 5) technology as the foundation for learning, and 6) a learning management system that organizes the activity framework, learning activities, and assessment of learning outcomes.

Design Thinking is a problem-solving approach aimed at addressing issues or developing new concepts by identifying the most effective and suitable solutions. This process focuses on understanding and empathizing with the target group to create prototypes, test, and refine ideas, ultimately leading to solutions or innovations that meet the defined goals. Design Thinking promotes fresh perspectives on problem-solving and fosters innovation tailored to target groups, encouraging a diversified approach to addressing challenges and tasks. The Design Thinking process comprises five steps: 1) understanding the problem, 2) clearly defining the problem, 3) ideating, 4) prototyping, and 5) testing.

A local enterprise, or community enterprise, is a business formed by a group of community members with shared values, close ties, and a common lifestyle. It aims to produce goods, provide services, or engage in other activities using local materials, resources, and knowledge to generate income for families and the broader community. Local enterprises prioritize self-reliance, aligning with the principles of a sufficiency economy. They can be classified in two ways: by the type of activity, either goods production or services, and by operational or developmental characteristics. Based on operation, local enterprises can be divided into basic community enterprises and advanced community enterprises. By developmental stage, they can be categorized as family-level enterprises or community and network-level enterprises.

Data and Methodology

In-depth interviews were conducted using pre-determined questions to obtain primary data, ensuring accuracy and allowing both interviewer and interviewee to engage in detailed, focused discussions on specific topics. This approach facilitated a controlled setting and mutual understanding, enabling the collection of authentic data to guide the design and development of an online learning community model that applies Design Thinking for innovation among community enterprise entrepreneurs. The methodology is detailed as follows:

> *The research population* includes community enterprise entrepreneurs in a district of Nonthaburi Province, covering six areas: Mueang Nonthaburi, Bang Kruai, Bang Yai, Bang Bua Thong, Sai Noi, and Pak Kret districts. These districts encompass 307 community enterprises with a membership of over 2,149 individuals, including group leaders, vice leaders, committee members, and general members of the community enterprises. (Department of Agricultural Extension, as of May 25, 2021)

Research Sample

1) Key Informants: A total of 10 individuals, comprising group leaders, vice leaders, committee members, and general members of community enterprises, were selected as key informants. These informants were purposively sampled from Nonthaburi-based community enterprises with continuous product or service operations for at least five years. Information on community enterprises was retrieved from the Community Enterprise Information System of the Department of Agricultural Extension (https://smce.doae.go.th/), which provided access to the names, registration codes, addresses, phone numbers, and entrepreneurs' names.
2) Experts: Five experts were purposively selected, including one expert in community-based learning management, two experts in educational technology and communication, one expert in Design Thinking, and one expert in innovation. Each

expert was required to have at least three years of teaching experience and/or experience in publishing books, textbooks, or research relevant to their expertise.

Research Instruments

1) Semi-Structured Interview for Community Enterprise Entrepreneurs: This interview guide, with pre-determined questions, was developed for group leaders, vice leaders, committee members, and general members of community enterprises. The interviews aimed to gather information on: (1) general data and challenges related to innovation creation in community enterprises, (2) learning processes and knowledge-sharing methods, (3) foundational information technology skills, (4) product/service development processes, (5) techniques for differentiating and enhancing products/services, (6) opinions on the online learning community model, and (7) additional comments or suggestions. Interviews were conducted via telephone, with consent obtained to record audio for data analysis and synthesis, which supported the design and development of an online learning community model applying Design Thinking for innovation among community enterprise entrepreneurs.
2) Semi-Structured Interview for Experts: This interview guide included pre-determined questions for gathering information from experts on: (1) general information about the experts, (2) characteristics of an online learning community using Design Thinking, (3) learning techniques and processes to promote innovation creation among community enterprise entrepreneurs, (4) digital technology and tools, (5) components of the online learning community model utilizing Design Thinking for innovation, (6) steps for developing an online learning community model using Design Thinking for innovation among community enterprise entrepreneurs, (7) strategies for the sustainable development of an online learning community applying Design Thinking for innovation, and additional comments or suggestions.

Data Collection and Analysis

Data were collected by accessing the Community Enterprise Information System of the Department of Agricultural Extension (https://smce.doae.go.th/), which provided information on community enterprises' names, registration codes, addresses, phone numbers, and entrepreneurs' names. Telephone calls were then made to arrange interviews with community enterprise entrepreneurs and selected experts. Interview data were subsequently analyzed through content analysis, categorized for relational themes, and presented descriptively.

Results and Conclusion

From the interviews with 10 community enterprise entrepreneurs and five experts, the following conclusions were drawn:

1) Results from Community Enterprise Entrepreneurs: The majority of the interviewed entrepreneurs operate businesses centered on crop production, food processing, and herbal products. Challenges related to innovation include a lack of knowledge about the concepts and processes for creating innovation, as well as insufficient understanding of how to access information sources that could promote new product development. Consequently, the knowledge they seek pertains to agricultural product development, such as shelf-life extension, product processing, and innovative product creation. They expressed a need for learning approaches that involve small-group knowledge-sharing, focusing on discussions of common interests, with expert support

or collaboration from relevant organizations to help develop innovative, value-added products that meet recognized standards. Entrepreneurs prefer using LINE as a communication tool, suggesting that digital technology for building an online learning community should be simple, accessible, and efficient. In terms of product and service development, entrepreneurs need applicable knowledge that allows them to address customer and market demands. They also highlighted the importance of differentiation in product or service design through emphasizing natural ingredients, quality, and safety. The desired model for an online learning community should include groups of community enterprises, experts, technology, knowledge, and support networks. Particularly, they need a platform where they can exchange experiences, share knowledge, and learn from experienced individuals.

2) Results from Experts: Experts indicated that an online learning community using Design Thinking should serve as a space that inspires creativity and innovation for community enterprise entrepreneurs, enabling each individual to play the role of both leader and follower, fostering mutual acceptance of ideas. The community should connect networks of experts and specialists who can advise and share experiences with entrepreneurs. The platform should be accessible and built on familiar systems, allowing seamless engagement. The learning techniques should follow a structured process that is easy to understand and apply, promoting experience-based learning that leads to innovation aligned with customer needs. Digital technology and tools applied within the online community should be user-friendly, easily self-taught, and compatible with both iOS and Android smartphones, potentially using apps, digital platforms, or LINE Official Accounts that support both synchronous and asynchronous communication. The core components of an online learning community model using Design Thinking for innovation include (1) individuals, (2) knowledge, (3) technology and communication tools, and (4) activities. The model's developmental steps consist of six stages: (1) setting shared goals and defining member roles, (2) conducting a SWOT analysis to identify basic community resources, (3) gathering information and brainstorming, (4) studying Design Thinking concepts, (5) creating innovations or prototypes under expert guidance, and (6) testing, presenting, and evaluating results. To ensure sustainability, a support system is essential, allowing members to continually use the developed model. This involves establishing a core group skilled in using technology as an innovation tool or collaborating with local agencies to provide resources and publicize the model for use by other entrepreneurs. For the online learning community model using Design Thinking to effectively benefit entrepreneurs, it is critical to identify the specific challenges of each group, tailor the learning model to match users' needs, and offer periodic support to ensure that the online community meets their requirements optimally.

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