

Classification of Cultural Knowledge for Community Products' Identity Construction

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ABSTRACT

This research article explores the classification of cultural knowledge in community product development to define and enhance product identity. Employing qualitative research methods, the study gathers and analyzes data from literature, case studies, and expert interviews, including community entrepreneurs and cultural specialists. The research outlines the process of identifying and integrating cultural elements into product development, aiming to strengthen both cultural identity and economic value. Findings demonstrate that cultural categorization serves as a strategic approach for economic growth, cultural preservation, and community empowerment. The study presents a structured framework of cultural knowledge, consisting of 3 main classes, 18 sub-classes, and 59 divisions. This framework provides a comprehensive understanding of cultural identity in community products and supports further applications, such as ontology development and the creation of subject headings or search terms in information systems. Overall, the research contributes to preserving cultural heritage while promoting sustainable community-based economies.

Keywords: Cultural knowledge, knowledge organization, knowledge classification, community products, product identity

INTRODUCTION

Community products, created by local villagers within their own communities, are powerful representations of cultural identity, crafted through the use of indigenous resources and traditional knowledge. These products not only reflect the heritage and values of the community but also play a vital role in improving the socio-economic conditions of the people. Their production and sale contribute to income generation, foster self-sufficiency, and enhance the overall quality of life. Supporting the creation and consumption of community products helps address economic inequalities and lays the groundwork for long-term economic resilience (Srichan and Kenaphoom, 2022). Recognizing the importance of community products in driving grassroots economic development, government agencies have prioritized strategies that promote economic growth and ensure fair income distribution, particularly in communities facing persistent poverty. Programs such as the One Tambon One Product (OTOP) initiative exemplify this effort by aiming to elevate the quality and marketability of community products through the integration of local wisdom, cultural traditions, and native materials (Soicjit *et al.*, 2022).

A nationwide survey of Thai entrepreneurs and community products revealed a vibrant landscape, with 97,761 entrepreneurs involved in producing a total of 220,788 unique products. The Northeastern region stands out as a

hub for community product development, home to 38,790 entrepreneurs and 75,792 products. Among these, Khon Kaen province leads with over 3,078 producers, comprising 1,053 individual entrepreneurs, 1,995 community groups, and 25 SMEs, collectively offering 6,269 products. These include 1,774 food items, 1,695 household and decorative items, 376 beverages, 1,826 clothing products, and 598 herbal goods (Office of the Promotion of Local Wisdom and Community Enterprises, 2023). This data underscores the economic and cultural significance of community products and highlights their potential as tools for sustainable development and cultural preservation across Thailand.

Despite various efforts to promote community products, a persistent challenge remains: the lack of clearly defined product identities, which undermines their competitiveness in the market. Research has shown that this issue often stems from the inadequate incorporation of local identity and cultural symbolism into product design (Sriwichailamphan, 2015; Kunasri *et al.*, 2017). As a result, many community products lack distinctive features that would make them stand out, reducing their appeal to consumers and limiting their visibility in competitive markets. Contributing to this problem is the insufficient support for branding and the lack of creative strategies that effectively integrate community identity into the design process (Phromthat, 2021).

Beyond economic development policies and grassroots initiatives that support the production of community goods, there are also cultural policies that aim to enhance product uniqueness through the use of cultural capital. These policies encourage producers to embed cultural narratives and traditional elements into their products, adding value and helping differentiate them in the marketplace (Mankong, 2017). Research supports this approach, showing that the added cultural value of products significantly enhances the competitiveness of community enterprises (Singmat *et al.*, 2016). Studies on product identity consistently stress the importance of drawing from local wisdom and cultural narratives—such as traditional dyeing methods or origin stories—to craft unique selling propositions. By emphasizing these cultural aspects, communities can create meaningful connections with consumers, increasing product value and marketability (Chamnian, 2021). Moreover, consumer behavior research indicates a growing preference for community products that offer originality and reflect authentic local identity, suggesting that these qualities are key drivers of demand. Nevertheless, the promotion of cultural capital and identity creation in community products remains insufficient. This gap hinders the development of product uniqueness and limits access to broader distribution channels, thereby restricting the economic potential of these enterprises (Sriwichailamphan, 2015; Pop, 2016; Suntrayuth, 2017). Addressing this issue requires a more strategic focus on integrating cultural identity into product design, along with supportive policies and tools that empower communities to turn their heritage into marketable value.

The COVID-19 pandemic has had a far-reaching impact across all sectors of society, significantly disrupting national economies, household incomes, and business operations (Yadav *et al.*, 2022; Abdullah Kamar and Ali, 2023). Among the most affected have been producer groups and community-based entrepreneurs, particularly those involved in the One Tambon One Product (OTOP) initiative. These groups experienced severe difficulties in maintaining product sales, leading to a marked decline—or complete loss—of income compared to pre-pandemic levels (Tadeo and Muralla, 2022). Traditionally, community entrepreneurs have depended heavily on trade exhibitions and tourism-related activities to market and sell their products. However, with tourism halted and public gatherings restricted during the pandemic, these vital sales channels were abruptly cut off. As a result, many small businesses, especially in Khon Kaen Province and other parts of the country, were forced to shut down. Data from the Office of the Promotion of Local Wisdom and Community Enterprises (2023) reveal that over 39 businesses closed in Khon Kaen Province alone, with more than 3,988 closures reported nationwide. Additionally, more than 144 products in Khon Kaen and over 7,724 products nationwide were discontinued due to the economic fallout from the pandemic. These figures highlight the profound financial strain experienced by community-level entrepreneurs and underscore the urgent need for targeted interventions. The inability to access markets and the collapse of tourism not only disrupted income streams but also jeopardized the sustainability of local enterprises. Moving forward, the development and implementation of effective recovery strategies and support mechanisms are essential. These should aim to strengthen the resilience of community-based businesses, diversify market access—particularly through digital platforms—and help ensure long-term economic recovery and sustainability in the post-pandemic landscape.

The challenges brought about by the COVID-19 pandemic have highlighted the critical need for entrepreneurs to acquire 21st-century skills, especially digital literacy, and the ability to effectively use online platforms. In response, various policies and initiatives have been introduced to enhance entrepreneurial competencies, with a particular focus on digital skill development. These include training programs designed to equip entrepreneurs with knowledge of digital tools, online marketing techniques, and strategies for establishing e-commerce channels. The goal is to broaden income opportunities by enabling entrepreneurs to access wider markets, thereby reducing dependency on traditional tourism-driven sales. Although digital resources such as the Bureau for the Promotion of Local Wisdom and Community Enterprises and regional websites for OTOP and community products are available, their utility remains limited. These platforms primarily serve as information repositories, offering details

about products, community activities, FDA registrations, and performance metrics. However, they often lack e-commerce capabilities, such as integrated sales functions or tools to connect with distributors. Additionally, they fall short in providing curated cultural knowledge that supports product development based on local wisdom and cultural capital—key elements for crafting distinctive product identities (Fund for Educational Equality, 2021). This disconnect between existing digital platforms and the real needs of community entrepreneurs' points to a significant gap. To bridge it, future digital platforms must evolve beyond being static sources of information. They should incorporate e-commerce functionalities and provide comprehensive resources for cultural knowledge that inspire product innovation and differentiation. By doing so, these platforms can become powerful tools for empowering entrepreneurs, enabling them to develop culturally rich, market-ready products that stand out in the digital economy.

Aligned with this vision, the present research focuses on analyzing and classifying cultural knowledge to support the construction of community product identities. It presents a robust knowledge structure grounded in established organizational principles, capturing a wide spectrum of cultural attributes. This structured knowledge serves as a strategic asset for entrepreneurs, helping them integrate cultural insights into product development to create unique and competitive offerings. The study also involves the creation of a database infrastructure to effectively store and disseminate this cultural knowledge, ensuring it is accessible and actionable for entrepreneurs engaged in community product development.

LITERATURE REVIEW

Community Products

Community products, also known as local or traditional products, play a vital role in preserving cultural heritage, promoting local economies, and fostering community identity. The concept of community products encompasses a wide range of goods and services that are deeply rooted in the traditions, skills, and natural resources of a specific community. This literature review explores the various dimensions of community products, including their significance, challenges, and the role of cultural capital in their development and marketing.

Significance of community products

Community products are significant for several reasons. Firstly, they preserve and promote cultural heritage. According to Zhang and Wen (2020), integrating local cultural elements into product design enhances their uniqueness and marketability. This process not only helps in preserving traditional crafts and practices but also instills a sense of pride among community members. Secondly, community products contribute to local economic development. As highlighted by Phukamchanoad (2022), the success of community tourism products, such as fresh coconut water ice cream at Khlong Lat Mayom Floating Market, demonstrates how cultural identity can be leveraged for economic gain. The products often attract tourists, creating a sustainable income source for local artisans and entrepreneurs.

Despite their potential, community products face several challenges. One of the primary issues is the lack of knowledge and awareness about the importance of product identity. Many communities possess rich cultural resources but fail to effectively apply these in product design and development. This gap is often due to limited access to market information, design expertise, and financial resources. Another challenge is maintaining the balance between tradition and innovation. While it is essential to preserve traditional methods and designs, adapting these to meet contemporary market demands is crucial for success. The study by Tuamsuk *et al.* (2013) indicates that successful OTOP (One Tambon One Product) businesses systematically apply traditional knowledge while incorporating new insights from external organizations.

Role of Cultural Capital in Community Product Development

Cultural capital plays a crucial role in the development and enhancement of community products. Defined by sociologist Pierre Bourdieu, it includes non-economic resources such as education, skills, cultural knowledge, and social assets that promote social mobility and economic benefits. In community product development, cultural capital can be leveraged to create unique, marketable products that reflect and preserve local traditions and heritage.

The framework of cultural capital is pivotal in community product development. The Department of Industrial Promotion (2016), under the Ministry of Industry, has encouraged community entrepreneurs to use local traditional wisdom to create added value since 2016. This initiative categorizes cultural ways into eight areas: food, dress, housing, traditions, language, occupations, beliefs, and local arts.

Cultural capital encompasses traditional knowledge and skills passed down through generations, including artisanal crafts, culinary practices, agricultural techniques, folklore, and rituals. Preserving this knowledge is vital for maintaining cultural identity and heritage. Community products often incorporate these traditional practices to create items that are both functional and culturally significant. For example, traditional weaving techniques preserved by local artisans can produce unique textiles that tell the community's story, highlighting its history, beliefs, and values. Incorporating traditional wisdom into product development adds significant value and appeal.

Integrating cultural elements into products enhances their uniqueness and marketability. Consumers increasingly seek authentic and culturally rich products that connect them to different traditions and histories. By leveraging cultural capital, community entrepreneurs can differentiate their products in the marketplace. For instance, using local ingredients and traditional recipes in food products can attract consumers looking for authentic culinary experiences. Similarly, incorporating cultural symbols and motifs into product designs can create a strong brand identity that resonates locally and globally.

In summary, leveraging cultural capital enables communities to develop distinctive products that resonate with both local and global consumers, promoting economic development and cultural preservation.

Community Product Identity

Identity refers to the characteristics, beliefs, qualities, and expressions that define and distinguish an individual or group. It encompasses how people see themselves and how they are perceived by others, including aspects such as personal traits, social roles, cultural affiliations, and group memberships. Identity is both self-constructed and shaped by external influences such as Personal Identity, Social Identity, and Cultural Identity. Identity is a complex and multifaceted concept that plays a central role in shaping human behavior, social interactions, and cultural practices (Fuengfusakul, 2003).

Community Product Identity refers to the unique characteristics and cultural significance that distinguish products created within a community. This identity is shaped by the integration of local cultural knowledge, traditions, and practices into the design, production, and presentation of the product. A review of related literature found that Community Product Identity encompasses several key aspects:

1) Cultural Significance: Cultural significance refers to the aesthetic, historical, scientific, social, or spiritual value that a place holds for current and future generations. This significance is reflected in the place's physical attributes, historical context, purpose, associated stories, symbolic meanings, documentation, connections to other locations, and related artifacts. The importance of a place can vary among different individuals or communities (Amoruso, 2015; Anton, 2018). The product reflects the cultural heritage and values of the community, incorporating symbols, materials, and techniques that are meaningful to the local people. The cultural significance of a product within a community stems from various elements, including traditional crafts like weaving, pottery, or metalwork, which have been passed down through generations. These crafts carry the legacy and expertise of the community, making the products not just functional items but symbols of cultural heritage. The use of indigenous materials, such as locally sourced wood, clay, or fibers, adds further cultural depth, as these materials are often connected to the community's natural environment and historical practices. Additionally, products featuring traditional symbols, patterns, or motifs unique to the community reflect their beliefs, values, and stories, such as religious symbols or nature-inspired designs. The methods of production and the original purposes of these products often have historical roots, particularly in traditional food or medicinal remedies. Products linked to specific festivals, religious ceremonies, or cultural rituals hold special significance, embodying the cultural meanings of these events. Incorporating elements of local folklore, myths, or oral traditions further enriches the product, transforming it into a piece of the community's narrative. Finally, the collective identity of the community, including shared experiences and collective memory, is often mirrored in these products, giving them a deeper connection to the people and places they originate from.

2) Authenticity: The product is perceived as genuine and true to the community's traditions, often highlighting the craftsmanship and cultural practices passed down through generations. The authenticity of a product comes from several key sources within the community, including the use of traditional craftsmanship and techniques that have been meticulously preserved and handed down through generations (Roostika, 2020). When a product is made using these age-old methods, it reflects the true essence of the community's cultural practices. The use of locally sourced materials, which have been traditionally utilized in the community, also contributes to the authenticity, ensuring that the product remains rooted in the local environment and culture. Additionally, the involvement of community members who have deep knowledge and expertise in these crafts further enhances the product's authenticity, as it is directly tied to the people who have lived and breathed these traditions for years. The stories, rituals, and cultural significance associated with the product's creation process also play a crucial role in its authenticity, making it not just a product, but a genuine representation of the community's heritage. In addition, Roostika's (2019) study found that authentic products positively influence consumer behavior. This suggests that tourism and marketing managers, as well as government agencies, should prioritize exploring authenticity to differentiate products and develop effective marketing strategies.

3) Distinctive Design: The look of the product—including its packaging, branding, and overall style—is closely connected to the community's identity (Fuengarom, 2007). The study by Wuestefeld *et al.* (2012) highlights the growing interest in brands that incorporate their heritage as a key part of their corporate identity. This design often features traditional patterns, colors, and materials unique to the area. For example, the product might include symbols or motifs with historical or cultural importance, reflecting local art, folklore, or religious beliefs. Using

local materials, like textiles, woods, or dyes from the region, helps tie the product's design to the community, making it a true reflection of its identity. The design may also be inspired by the natural surroundings, architecture, or everyday life of the people, making it a visual representation of their way of life. Additionally, the community's values and collective memory can influence the design, resulting in a product that not only looks unique but also carries deep cultural meaning.

4) Storytelling: A product often includes a story that links it to the community's history, beliefs, or traditions, making it more appealing by helping people understand its background and importance. However, more than 40 percent of community products still struggle to meet international standards or compete globally. This issue largely arises from the inability to effectively tell stories that highlight the product's value. Effective storytelling, which connects the brand and consumers through products or services, is key (Kongarchapatara, 2019).

The story behind a product can come from various sources, such as the community's oral traditions, myths, or folklore that have been passed down through generations. It might also be rooted in significant historical events or local legends familiar to the community. Additionally, the story can be tied to the community's everyday life, rituals, or seasonal activities, giving the product more context and meaning. The process of creating the product, including the craftsmanship and materials used, can also be part of the story, emphasizing its connection to the community's cultural practices. Personal stories or experiences shared by community members can further enrich the narrative, turning the product into more than just a commercial item, but a means of preserving and sharing the community's identity and heritage. The study aligns with Putwatthana and Rukumnuaykit's (2021), suggesting that storytelling should be integrated into branding and packaging strategies to add value to local products.

For example, a handcrafted basket from a rural village, woven using traditional techniques and materials, not only serves a functional purpose but also embodies the cultural identity of the community. The basket might be adorned with patterns that have specific meanings within the local culture, and its story of creation might be tied to the community's history and way of life. This unique combination of cultural and practical elements forms the Community Product Identity, making the basket more than just an object—it becomes a symbol of the community's heritage and values.

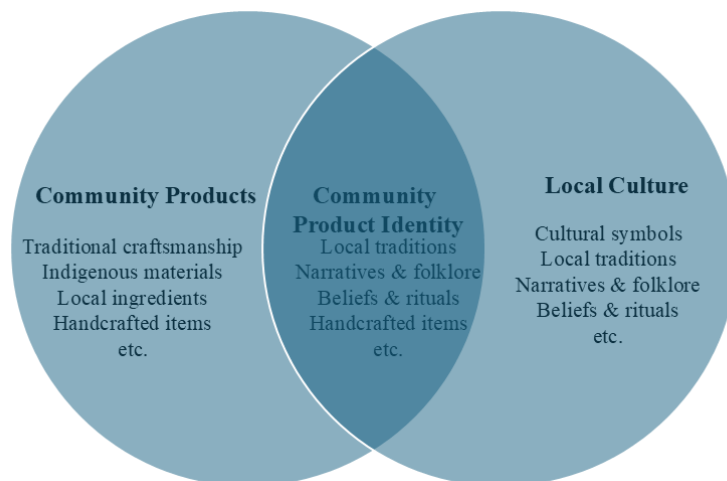


Figure 1: Formation of community product's identity

Knowledge Organization

Knowledge organization refers to the systematic structuring and arrangement of information, data, or knowledge in a manner that facilitates efficient retrieval, access, and utilization. It involves categorizing, classifying, and organizing information according to predefined principles or frameworks, which may include hierarchical structures, taxonomies, ontologies, or controlled vocabularies. The goal of knowledge organization is to create logical and meaningful relationships between different pieces of information, allowing users to navigate and locate relevant content effectively. This process often involves standardizing terminology, defining relationships between concepts, and establishing rules for organizing and indexing information. Knowledge organization is essential for various domains, including libraries, archives, information retrieval systems, databases, and digital platforms, enabling users to access and leverage information resources efficiently for research, decision-making, and problem-solving purposes.

Organizing knowledge involves defining concepts, establishing meaning relationships within a particular subject matter, and elucidating its connections with other related concepts. This structured organization serves as the

foundation for the development of knowledge structures, which facilitate the search for and access to knowledge for effective utilization (Hjørland, 2008). Despite the United Nations Educational, Scientific and Cultural Organization (UNESCO) defining culture across seven fields—language, performing arts, traditional craftsmanship, folk literature, Thai wisdom sports, social practices (rituals and festivals), and knowledge and practices about nature and the universe—the classification primarily represents a broad grouping of knowledge content, often unable to address cultural knowledge at a granular sub-level (Iamkhajornchai, 2013).

Consequently, efforts have been made to systematize cultural knowledge across various countries, with ongoing research focusing on knowledge systematization. Examples include the Chinese Cultural Values Knowledge Classification, which examines Chinese culture within the scope of Hong Kong and Taiwan (Fan, 2000). Additionally, specialized categorization efforts have targeted specific areas such as traditional Thai medicine (Nuntapichai *et al.*, 2014), analysis of knowledge classification systems within palm leaf documents (Phattarakiatcharoen *et al.*, 2014), and categorization of Thai massage knowledge appearing in various medical textbooks (Chantraket *et al.*, 2020). These endeavors contribute to the comprehensive organization and understanding of cultural knowledge across diverse domains and contexts.

RESEARCH METHODOLOGY

This qualitative research employs content analysis and in-depth interviews to explore cultural knowledge related to community product identity. Using classification theory, the study distinguishes differences and similarities in the data, structuring the findings into classes, subclasses, and divisions to build a comprehensive knowledge framework for identity construction in community products.

Analysis of Information Resources

The analysis involves a thorough review of diverse materials related to community product culture, including books, academic articles, research papers, theses, and multimedia from reputable institutions. The focus is on extracting content relevant to cultural practices and product development. Keywords are drawn from titles and tables of contents to enable systematic categorization. The process follows these steps:

- Identification of information resources: Locate relevant materials from academic journals, books, cultural institutions, government reports, and online databases.
- Content analysis: Examine sources to extract key themes such as traditions, storytelling, local materials, craftsmanship, and cultural significance.
- Categorization and classification: Organize data into thematic categories—e.g., traditional knowledge, folklore, or heritage—to identify patterns and build a structured knowledge base.

In-depth Interviews

In-depth interviews were conducted with 30 participants, comprising 15 local entrepreneurs and 15 cultural experts from five targeted areas. These interviews offered rich insights into cultural contexts, traditional practices, and the community's role in product development. A structured interview guide was used to explore participants' perspectives, lived experiences, and cultural knowledge in detail.

The data collected through these interviews reinforced and expanded upon the findings from the content analysis of information resources. By capturing firsthand experiences and localized knowledge, the interviews provided a deeper understanding of the cultural elements shaping community product identity. This integrated approach ensures the development of accurate and comprehensive knowledge categories, offering valuable insights into how cultural factors influence and drive the development of community products.

Data Analysis

The data were analyzed using qualitative methods and descriptive analysis, with findings summarized and grouped based on specific research questions. ATLAS.ti software was utilized to support the analysis process due to its efficiency in organizing data, searching keywords within documents, and identifying relationships among data (Smit and Scherman, 2021). The analysis followed these key steps:

- *Organizing information*: Data from ATLAS.ti, including meaningful words and phrases, were recorded and categorized using a structured content recording form.
- *Grouping similar information*: The researcher analyzed the cultural knowledge system, reclassifying and grouping related content according to knowledge management principles to highlight insights that contribute to unique community products.
- *Creating subcategories*: Content was organized into logical subcategories under main categories. Similar topics were grouped, and subclasses were created based on detail levels and thematic relevance.
- *Reducing redundancy*: Duplicate or overlapping information was identified and removed to ensure clarity and accuracy.

The outcome was a structured set of knowledge categories, defining words, meanings, and attributes relevant to community product development. This framework can support the creation of ontology, serving as a knowledge base for digital libraries and enhancing the retrieval of cultural knowledge to aid in building strong product identities.

RESULTS AND DISCUSSIONS

Scope of knowledge

The cultural knowledge for community products' identity construction is classified into the following three classes shown in Table 1.

Table 1 The classification on cultural knowledge for community products' identity construction

Class	Scope
Community product identity	Encompasses the unique characteristics and branding elements that distinguish a community's products in the market.
Community products	Encompasses finished goods and artifacts created using traditional methods, highlighting the cultural identity and craftsmanship of a community. These products often include textiles, pottery, crafts, and other handmade items that reflect local traditions and skills.
Local culture	Includes the customs, traditions, and social practices that define the lifestyle of a community, such as food recipes, dress textiles, housing architecture, and traditional rituals and festivals.

Community product identity represents the unique characteristics that distinguish a community's products, shaped by the interplay between the products themselves and the local culture. Community products are specific goods or services created by local people, often reflecting traditional skills, local resources, and craftsmanship. Local culture, encompassing the community's values, beliefs, practices, and traditions, forms the foundation that influences and defines these products. Together, they create a distinctive identity that reflects both tangible and intangible cultural elements.

In terms of ontology design, the concept can be categorized into three top-level classes:

Community Product Identity: Emphasizes the distinctive features of community products, including cultural, material, and symbolic dimensions.

Community Products: Tangible outcomes of local creativity and resources, grounded in tradition and craftsmanship.

Local Culture: The socio-cultural environment shaping product meaning, including traditions, beliefs, and values.

For instance, cultural symbolism, traditional techniques, and storytelling contribute to the cultural branding and identity of community products.

Example of ontology use case: Ban Nong Hee Food Processing Group (Isaan Sausage)

- *Community product identity:*

Brand identity: "Ban Nong Hee Sausage" recognized for traditional flavors.

Cultural symbolism: Tied to local Isaan traditions and festivals.

- *Community products:*

Food product: Traditional Isaan sausage.

Materials: Locally sourced ingredients, using traditional preservation techniques.

- *Local Culture:*

Traditions: Sausage-making linked to community gatherings, taught through generations.

Beliefs: Reflects community values of sustainability and self-reliance.

This ontology can provide a structured framework for understanding the interdependencies within community product development, identity, and cultural significance.

Knowledge Structure

The knowledge structure designed to support the construction of community product identity consists of 3 main classes, 18 sub-classes, and 59 divisions, as outlined in Table 2. This hierarchical model organizes cultural knowledge into a structured framework that moves from broad conceptual categories to detailed elements.

Classes

A class represents a broad domain of knowledge associated with community products and their cultural identity:

Class 1: Community Product Identity - Refers to the unique features, cultural meanings, and values embedded in products made by a community. This identity emerges from the integration of local knowledge, customs, and practices into every stage of the product lifecycle—from design to presentation.

Class 2: Community Products - Includes finished goods and artifacts produced using traditional methods, often handmade. These items—such as textiles, pottery, and crafts—reflect the skills, resources, and cultural expression of the community.

Class 3: Local Culture - Encompasses the broader socio-cultural environment, including traditions, practices, values, and customs such as local cuisine, dress, architecture, rituals, and festivals.

Sub-classes

Each class is divided into sub-classes that provide more specific categorizations. These sub-classes form a parent-child relationship with their respective classes:

Sub-class 1: Cultural Significance – Explores how a product embodies the community’s values, traditions, and historical identity.

Sub-class 2: Authenticity – Focuses on preserving traditional techniques, materials, and practices that ensure cultural integrity.

Sub-class 3: Distinctive Design – Highlights visual and material traits such as patterns, colors, and craftsmanship unique to the community.

Sub-class 4: Storytelling – Refers to the narratives, myths, and histories that add meaning and are used in branding and promotion.

Sub-class 5: Traditional Craftsmanship and Techniques – Covers specialized skills like weaving, carving, and embroidery, passed down through generations.

Sub-class 6: Indigenous Materials and Resources – Involves local, naturally available materials used in production, such as clay, plant fibers, or animal products.

Sub-class 7: Cultural Symbols and Motifs – Includes symbolic elements like religious icons, textile patterns, and community emblems.

Sub-class 8: Food – Captures culinary traditions, local ingredients, and traditional recipes.

Sub-class 9: Dress – Pertains to traditional clothing styles, fabrics, and garment-making techniques.

Sub-class 10: Housing – Focuses on vernacular architecture, construction materials, and spatial design.

Sub-class 11: Traditions – Involves rituals, ceremonies, and customary practices passed down through generations.

Sub-class 12: Languages – Covers the native languages and dialects spoken within the community.

Sub-class 13: Occupations – Represents traditional and modern livelihoods and skills unique to the local context.

Sub-class 14: Beliefs – Encompasses spiritual systems, religious practices, and associated rituals.

Sub-class 15: Local Arts – Includes performing and visual arts such as music, dance, theater, and painting.

Sub-class 16: Local Traditions and Customs – Reflects the everyday practices and social behaviors that define the community's way of life.

Sub-class 17: Narratives and Oral Histories – Consists of stories, legends, and historical accounts passed down orally.

Sub-class 18: Other – A flexible category for additional cultural knowledge not classified elsewhere but still relevant to identity construction.

Divisions

Each sub-class contains multiple divisions—smaller, more specific units of knowledge. These divisions may be structured hierarchically or aligned in parallel, depending on their relationships within the sub-class. In total, 59 divisions are identified, providing a detailed and nuanced understanding of cultural knowledge.

This layered structure enables a systematic organization of cultural elements, moving from general to specific. It supports the development of ontologies, digital libraries, and classification systems that preserve cultural identity and facilitate the retrieval of cultural knowledge for community product development.

Table 2 Knowledge structure of cultural knowledge for community products’ identity construction.

Class	Sub-Class	Division	Description
Community product identity	Cultural significance	Historical significance	This refers to how the product is linked to the community's history or past events.
		Religious or spiritual significance	This describes the product's connection to religious practices, beliefs, or rituals within the community.
		Social and community practices	Refers to how the product is tied to daily life, social interactions, or communal practices.

Class	Sub-Class	Division	Description
Community products	Authenticity	Cultural symbolism	How the product symbolizes certain cultural values, beliefs, or identity markers of the community.
		Geographical importance	The cultural significance of the product due to its connection to a specific geographical location.
		Origin verification	Ensures that the product's authenticity can be traced to its place of origin or specific region such as Geographical Indicators and Local Production.
		Cultural integrity	Ensures that the product stays true to the values, traditions, and beliefs of the community it represents.
		Use of indigenous materials	Focuses on the use of locally sourced, traditional materials that are integral to the product's authenticity.
	Distinctive design	Traditional patterns	Refers to the recurring designs and motifs that are passed down within the community and represent cultural identity.
		Cultural color schemes	Focuses on the specific colors that hold cultural significance and are characteristic of the community's products.
		Unique and forms	Describes the distinct shapes or forms that are integral to the product's visual identity and are not found elsewhere.
		Material innovation	Involves the use of local materials or innovative applications of materials to create products with unique textures, durability, or aesthetic appeal.
		Craftsmanship techniques	Refers to the specific methods and skills used to create the product, which are unique to the community.
	Storytelling	Symbolic motifs	Focuses on the cultural symbols and icons that are embedded into the design of the product, representing cultural beliefs or stories.
		Cultural Myths and Legends	Stories tied to myths or folklore that are specific to the community and are symbolically linked to the product.
		Personal/Artisan Stories	The personal stories of the artisans or creators, focusing on their experiences, skills, and connection to the craft.
		Rituals and Traditions	The product's role in local rituals, festivals, or other community traditions.
		Narrative in Branding	How the product's story is integrated into its branding to emphasize its cultural identity and heritage.
Traditional Craftsmanship and Techniques	Weaving Techniques	Techniques used in creating textiles, baskets, and other woven products.	
	Pottery	Methods and styles of creating ceramics and pottery items.	
	Basket Weaving	Traditional methods of weaving baskets from local materials.	
	Woodcarving	The carving of wood to create decorative or functional objects.	
	Metalworking	The shaping, forming, and joining of metal materials.	
	Embroidery	The decorative stitching of fabric with thread or yarn to create designs.	
	Leathercraft	The working of leather to create products.	

Class	Sub-Class	Division	Description
Local Culture	Indigenous Materials and Resources	Plants and fibers	Various plant species, such as bamboo, rattan, palm leaves, reeds, grasses, and fibers like cotton, silk, and jute, which are used for weaving, basketry, thatching, and textile production.
		Timber and wood	Indigenous trees and timber species used for construction, carving, furniture-making, and woodworking crafts.
		Clay and earth	Natural clay deposits used for pottery-making, earthen construction techniques.
		Stones and minerals	Local stones, rocks, and minerals utilized for building materials, sculpture, jewelry-making, and traditional crafts.
		Animal products	Resources derived from local fauna, such as leather, fur, feathers, bones, and shells, which are used for crafting, clothing, ornamentation, and tools.
	Cultural Symbols and Motifs	Agricultural produce	Crops, fruits, vegetables, herbs, and spices grown locally and harvested for food, medicine, dyeing, and crafting purposes.
		Religious Symbols	Incorporation of religious icons and symbols into product design.
		Community Emblems	Use of local emblems or community-specific symbols.
		Textile Patterns	Traditional patterns used in local textiles.
		Decorative Art	Traditional decorative elements used in products.
	Food	Traditional Recipes	Recipes passed down through generations, used in local cuisine.
		Food Preservation Techniques	Traditional methods for preserving food.
		Traditional Textiles	Textiles that reflect local patterns and techniques.
	Dress	Clothing Designs	Traditional designs for local clothing.
		Accessories	Traditional accessories that complement local dress.
	Housing	Architectural Styles	Traditional architectural designs specific to the community.
		Construction Methods	Methods used in the building of traditional homes.
		Local Materials	Materials sourced locally for construction purposes.
	Traditions	Rituals	Local rituals that form part of the community's identity.
		Festivals	Community festivals that reflect local traditions.
Languages	Local Dialects	Specific dialects spoken within the community.	
	Proverbs	Common proverbs and sayings that convey cultural values.	
Occupations	Traditional Crafts	Crafts and skills traditionally practiced within the community.	
	Skills	Specific skills that have been passed down through generations.	
Beliefs	Religious Practices	Local religious practices that influence community life.	
	Spiritual Narratives	Stories and beliefs related to local spirituality.	

Class	Sub-Class	Division	Description
	Local Arts	Music	Traditional music forms and instruments.
		Dance	Traditional dance forms and practices.
		Visual Arts	Local forms of visual artistic expression.
		Festivals	Traditional festivals that influence product themes and designs.
	Local Traditions and Customs	Rituals	Local rituals that provide inspiration for product creation.
		Folktales	Traditional stories and myths that influence product identity.
	Narratives and Oral Histories	Historical Events	Important historical events that shape the community's cultural identity.
		Other	Any other cultural aspects

The classification structure organizes essential cultural knowledge for community product development and identity construction, serving as a foundational framework for ontology creation. Within the "Community Products" category, traditional craftsmanship techniques—such as weaving, pottery, woodcarving, metalworking, embroidery, and leathercraft—are systematically categorized. These techniques help define entities and relationships in the ontology, illustrating how traditional skills shape community identity. The "Indigenous Materials and Resources" category includes natural materials like plants, fibers, timber, clay, stones, minerals, and animal products. This section emphasizes the connection between local resources and their traditional uses, reinforcing the cultural and ecological relevance of material sourcing. "Cultural Symbols and Motifs" comprises religious symbols, textile patterns, decorative art, and emblems, which are represented in the ontology as key cultural attributes. Similarly, "Local Culture" spans food, dress, housing, festivals, rituals, languages, beliefs, occupations, and oral traditions—each offering insight into the community's lifestyle and identity. The concept of Community Product Identity is further detailed through four key dimensions: Cultural Significance, covers historical, religious, social, and geographical associations; Authenticity, focuses on origin validation, traditional methods, and use of indigenous materials; Distinctive design, highlights traditional patterns, cultural color schemes, unique forms, and craftsmanship; and Storytelling, encompasses myths, legends, artisan narratives, rituals, and branding stories. These components can be effectively mapped within an ontology to reflect the intricate relationships between cultural heritage and product characteristics. This structured approach strengthens the cultural identity embedded in products, enhances their market appeal, and supports future research and knowledge sharing.

The data structuring process identified eight key categories aligned with the framework of the Department of Industrial Promotion (2016): Local Culture, Food, Dress, Residences, Traditions, Languages, Occupations, Beliefs, and Local Arts. Additionally, six new categories emerged from the content analysis, expanding the scope of cultural knowledge. This structured framework can be further developed into a comprehensive ontology, enabling systematic classification, reuse, and interoperability of cultural knowledge across platforms. The proposed structure aligns closely with existing cultural ontologies, such as the Cultural Knowledge Ontology by Phefo *et al.* (2015), which includes classes like language, lifestyle, religion, food, social habits, music, and art. It also connects with domain-specific ontologies such as the Ontology for Knowledge of Traditions and Common Culture in the Greater Mekong Subregion (Hoaihongthong and Kwiecien, 2022), particularly in areas such as beliefs and rituals. Additionally, the Ontology for Preserving the Knowledge Base of Traditional Dances (OTD) by Kalita and Deka (2020) can be mapped to the Local Arts category. The Narratives and Oral Histories class, which includes a subclass for Folktales, links to the Ontology of Folktales in the Greater Mekong Subregion (Tuamsuk *et al.*, 2018). This cross-referencing supports the development of a unified cultural knowledge framework, promoting deeper integration, better information retrieval, and enriched understanding of regional identities.

The classes identified in this knowledge structure can be effectively linked to existing ontology frameworks. This supports Gabella's (2019) assertion that "knowledge is useless if it is not structured," a principle that holds particular significance in the field of artificial intelligence. This study highlights the foundational role of knowledge classification and demonstrates how ontologies serve as powerful tools for structuring and integrating information in digital environments. By providing a coherent framework, ontologies enhance the functionality, searchability, and interoperability of online platforms, especially those designed to support community product development.

Although this research focused on five areas in the Northeast region, the analysis incorporated a wide range of documents and examples of cultural products. As a result, the knowledge structure derived from this study can be expanded into a comprehensive ontology that represents community products across all regions of the country.

The next phase involves defining properties for each class to capture their distinct characteristics. For instance: Community Product Identity: name, description, unique features, branding elements; Community Product: type, production method, distribution channel; and Local Culture: language, religion, traditions, art forms, handicrafts. By creating instances for each class, specific community products and their cultural attributes can be represented. This enables inference of new information—such as identifying strong cultural ties when a product is crafted using traditional methods unique to a specific community. Ultimately, this structured approach facilitates the development of intelligent platforms that promote cultural preservation, economic empowerment, and informed decision-making.

CONCLUSION AND RECOMMENDATIONS

This study explored the significant role of cultural knowledge in shaping community product development. Through qualitative research methods, including the analysis of literature, case studies, and in-depth interviews with experts—the research developed a detailed framework for organizing and integrating cultural elements into product design. The findings emphasize the transformative potential of cultural knowledge as a strategic asset that not only drives economic growth but also promotes cultural preservation and strengthens community identity.

A central outcome of the study is the creation of a structured knowledge framework for building community product identity. This framework, comprising 3 main classes, 18 sub-classes, and 59 divisions, serves as a robust resource with diverse applications. It provides a foundation for the development of ontologies in information systems, enhancing the efficiency of data organization and retrieval. It can also guide the creation of subject headings and search terms relevant to cultural knowledge and community product innovation.

Moreover, the structure offers a promising blueprint for the development of digital platforms. By embedding its categories and classifications, online systems can be designed to: (1) Enable knowledge sharing, fostering online communities focused on cultural heritage and community product development; (2) Improve product discovery, ensuring culturally rich products are easily found by users through targeted search and classification; and (3) Support product development, providing clear pathways for creators to incorporate cultural elements into their designs using the framework.

In conclusion, this research lays the groundwork for a culturally responsive approach to product development within communities. By applying the knowledge structure in digital platforms and product design, communities can create meaningful, identity-driven products that contribute to economic sustainability and cultural continuity. The study also opens opportunities for future research into the use of cultural knowledge in product innovation and its broader social and economic impacts.

Based on these findings, two main recommendations are proposed: (1) Development of an online platform or digital library that collects, organizes, and shares cultural knowledge in an accessible format. Such a platform should serve community entrepreneurs, researchers, and other stakeholders, fostering collaboration and knowledge sharing. (2) Utilization of the knowledge structure as the basis for ontology development to support efficient data organization, product discovery, and cultural content retrieval. This ontology can power intelligent systems that assist in culturally grounded product development and branding.

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