

# Value Creation through Urban Community Intellectual and Human Capital: A Case Study of Thai Herbal Products in Dusit District, Bangkok

Wanee Promdao<sup>1</sup>, Phusit Phukamchanoad<sup>2\*</sup>, Narin Kakatum<sup>3</sup>, Saengsit Kritsadee<sup>4</sup>, Pennapa Palapin<sup>5</sup>

## KEYWORDS

Herbal Products, Intellectual Capital, Human Capital, Urban Community, Cooperative Learning, Social Support

## ABSTRACT

This research explores the incorporation of local knowledge and human capital in the development of herbal products in Dusit District, Bangkok Thailand, aiming to enhance community socioeconomic value. Using a mixed-methods approach, including surveys, semi-structured interviews, and focus group discussions, the study engaged 153 research participants. The Appreciation, Influence, and Control (AIC) process was applied through workshops to examine power dynamics in the local product development process. The study highlights the community's collaborative efforts in creating herbal products such as balms, oils, and inhalers, drawing on traditional knowledge. The findings revealed that Dusit District, once home to Thai royalty, preserves a rich legacy of traditional knowledge and cultural value. This heritage, passed down from Generation X to Generation Y, embodies local wisdom and human capital, with the use of herbs in daily life emerging as a key area for generating community income. By developing innovative herbal products unique to the urban community, such as herbal balms, the community can improve physical and mental health while generating economic income and fostering social value for its elders, whose wisdom was essential to the development of these products. This social support strengthened community cohesion and promoted sustainable development.

<sup>1</sup> Department of Applied Thai Traditional Medicine, College of Allied Health Sciences, Suan Sunandha Rajabhat University, Bangkaew, Muang, Samut Kongkhrum, 75000, Thailand; Email: wanee.pr@ssru.ac.th, ORCID id: <https://orcid.org/0000-0003-4382-9241>

<sup>2</sup> Department of Social and Cultural Development Management, Faculty of Humanities and Social Science, Suan Sunandha Rajabhat University, Bangkok, Thailand, Email: phusit.ph@ssru.ac.th, ORCID id: <https://orcid.org/0000-0003-0705-221X> (\*Corresponding author)

<sup>3</sup> Department of Applied Thai Traditional Medicine, College of Allied Health Sciences, Suan Sunandha Rajabhat University, Bangkaew, Muang, Samut Kongkhrum, 75000, Thailand; Email: narin.ka@ssru.ac.th, ORCID id: <http://orcid.org/0000-0003-3787-3684>

<sup>4</sup> Department of Applied Thai Traditional Medicine, College of Allied Health Sciences, Suan Sunandha Rajabhat University, Bangkaew, Muang, Samut Kongkhrum, 75000, Thailand, Email: Saengsit.Kr@ssru.ac.th, ORCID id: <https://orcid.org/0000-0002-1141-5813>

<sup>5</sup> Department of Social and Cultural Development Management, Faculty of Humanities and Social Science, Suan Sunandha Rajabhat University, Bangkok, Thailand, Email: pennapa.pa@ssru.ac.th, ORCID id: <https://orcid.org/0009-0008-5305-6549>

## **Introduction**

Sustainability goals align with health-related studies, particularly in urban areas, where culture and intellectual capital significantly contribute to economic development. It is a global priority for every country to establish a plan by 2030, as outlined in the United Nations' objectives (United Nations, 2015). Sustainable, participatory, and integrated management of human settlements not only enhances the preservation and conservation of cultural and natural heritage but also strengthens the connections between economic, social, and environmental sustainability, as well as overall well-being and mental health for residents in urban, peri-urban, and rural areas. Well-planned and compact cities can positively impact the environment, people's health, and overall well-being (Bibri, Krogstie, & Kärrholm, 2020).

In particular, priority should be given to the elderly and those living in urban slums. The principle of "leaving no one behind" is essential for communities worldwide (Independent Group of Scientists appointed by the Secretary-General, 2023). Industrialization and urbanization have shaped modern society, and in this context, the elderly often serve as cultural keepers. They play key roles as village elders, teachers, doctors, and senior welfare officers, preserving traditions, customs, religion, property ownership, and sources of income (Spytska, 2023). In many communities, the drive to improve the quality of life for the elderly is motivated by interdependent relationships that aim to meet their physical, psychological, and social needs. This is exemplified in Nang Rong village, Buriram Province (Wannatrong, Yoannok & Srisuk, 2018).

The elderly in urban communities also play a key role in development by creating social activities and utilizing their intellectual capital. The Dusit urban community in Bangkok, Thailand, exemplifies this potential, ensuring its long-term viability through collective action (Phukamchanoad, 2023; 2024). Community leaders collaboratively designed the Dusit Brand logo and proposed a seven-stage process for urban community product development. This process incorporates local wisdom, reflects community identity, fosters public participation, develops local knowledge, exhibits products, builds community reputation, and establishes community standards. A similar study emphasizes that sustainable community products emerge through a process of understanding, accessing, and developing the local economy and society, with a focus on enhancing social quality for sustainability (Phukamchanoad, Palapin, Supromin, 2024).

Bangkok, a rapidly growing metropolis, is home to a large and diverse population, including many low-income individuals. Consequently, the city faces a range of challenges, including slums with unhealthy living conditions, pollution, poverty, inequality, and various health issues such as obesity, diabetes, high blood pressure, and cardiovascular disease. The urban population is also heavily impacted by air pollution, which exacerbates these health problems (Hongwiwat & Sri-ngernyuang, 1990; Chuengsatiansup, 2006). Among the most vulnerable groups are the elderly individuals living in metropolitan neighborhoods. Many elderly people live alone, which increases the risk of depression. Addressing this issue involves providing social support for these elderly individuals by encouraging their participation in product creation activities. These activities not only generate income but also enhance self-worth and independence by allowing elderly participants to utilize their intellectual capital. Research has shown that elderly individuals who receive strong social support are more likely to feel valued and experience reduced depression (Chanapan et al., 2013; Nagy-Pénzes et al., 2020).

Social support, including emotional support from family, friends, and community members, plays a critical role in reducing stress and supporting recovery from depression (Schreiber, 1996; Peden, 1996). However, it is important to note that some studies, such as those involving older cancer patients, suggest that social support may not always be a positive predictor of psychological well-being (Anyorah et al., 2023). The social and environmental context of urban communities significantly affects health, lifestyles, and well-being (Phukamchanoad, 2023; 2024). Public health is closely linked to the social environment, with urbanization and living conditions playing key roles in health outcomes. Social epidemiology shows how urban living conditions and lifestyle factors contribute to health problems and overall well-being (Blum, 1974; Morris, 1975; Travis, 1977; Kaufman & Poole, 2003; Ratiolan, 2009).

This research focuses on 46 urban settlements in five subdistricts of Bangkok's Dusit District, located near Chitlada Palace. Originally inhabited by peasants who cultivated local herbs and courtiers employed at the palace, the Dusit community is now characterized by a diverse mix of intellectual capital, society, and culture. People's lifestyles vary depending on their origins. Although the original inhabitants are now fewer in number, the community still includes both wealthy and impoverished individuals (Phukamchanoad, 2020). Social and economic disparities are evident, as wealthier individuals have easier access to natural resources, while poorer individuals face health challenges due to limited access (Boonwan, 2021). To address these issues, it is crucial to create opportunities for accessing natural resources by fostering stable careers and generating income through the active participation of urban community members. This collaborative effort, combining community intelligence and human capital, can transform natural resources into valuable products. When people gain access to income, the overall economic value of the community improves.

Herbs, as local natural resources, are commonly used and processed in Thailand for medicinal and culinary purposes. The use of herbs has become an integral part of national identity, generating income and serving as a key economic sector (Tananchai Singmat, 2019). Herbs are regarded as economic crops, attracting foreign investment and being processed into pharmaceuticals for disease treatment (Division of Alternative Medicine, Ministry of Public Health, 2021). The quality of herbs must be carefully monitored, as physical, chemical, and geographic factors can affect their quality (Balekundri & Mannur, 2020). Many countries, including Thailand, export a variety of herbs, such as cardamom, turmeric, rue, and tamarind, which continue to see high demand in global markets, generating significant revenue each year. The herbal sector is seen as a promising industry with the potential for sustainable development and economic growth (Suriyawattayawate, 2019). However, challenges such as economic instability, intense competition in the herbal medicine market, and the emergence of new health issues must be addressed. To overcome these obstacles, it is essential to develop the community's core strengths and expand the development of herbal products. This study, therefore, focuses on leveraging the intellectual and human capital of the local urban community to create herbal products that enhance income, promote the community's identity, and support sustainable health and well-being, especially among the elderly population.

## **Literature Review**

## **Herbal Products**

In ancient Greece, the philosopher Theophrastus categorized plants into three main groups: trees, shrubs, and herbs (Bremness, 1994). Herbs were further divided into three types: potted herbs, sweet herbs, and salad herbs (Stuart, 1989). The use of herbs and spices dates back thousands of years, with humans employing medicinal plants since ancient times, passing down this knowledge from generation to generation (Brown, 1995). Around 4,000 years ago, herbal gardens first appeared in Egypt. By approximately 2,000 BC, cultures in the Middle East, Greece, China, and India had already recognized the healing power of nature and developed their own herbal remedies. The earliest known herbal collection, compiled by the king of Sumeria, included 250 herbal compounds, such as garlic (Fetrow & Avila, 1999).

Herbs encompass crude plant materials, including leaves, flowers, fruits, seeds, stems, wood, bark, roots, rhizomes, or other plant parts, which may be used whole, fragmented, or powdered (Ahmad, Gupta, & Katiyar, 2022). Historically, herbs have been utilized in both medicine and cooking. Today, they are increasingly recognized for their nutritional value and health benefits, leading to a growing demand for herbs in healthcare products. As a result, the definition of herbs has evolved from being simply plants to encompassing any naturally occurring substance. Herbs are now understood as natural products derived from plants, animals, microorganisms, or minerals, which are processed into herbal products (Peter & Nirmal Babu, 2012; Kumar, Marković, Emerald, & Dey, 2016; Food and Drug Administration, 2024).

The quality of herbs can vary significantly based on their physical, chemical, and geographical characteristics (Yoon & Horne, 2001). In urban areas, herbal products are increasingly used to support the health of elderly women. The consumption of herbal remedies in these settings is rising, as they are believed to reduce the severity of illnesses and improve health-related quality of life. For example, 71.7% of people use herbal medicine to treat menstrual irregularities, often without consulting a doctor (Ahmed et al., 2017; Balekundri & Mannur, 2020). This study aims to teach elderly residents of Bangkok's urban communities how to independently produce and select herbs and herbal products, under the guidance of professionals in applied Thai traditional medicine.

## **Intellectual Capital**

A key component of intellectual capital is the knowledge and skills possessed by individuals, which are essential for navigating crises. This expertise helps protect society from internal and external threats and is linked to attitudes and behaviors that strengthen social institutions and contribute to national development. Intellectual capital, also known as structural capital, encompasses the knowledge, expertise, experience, and skills that add value to an organization or community (Stewart, 1991; Edvinsson & Malone, 1997; Khaliq et al., 2011; Sirichotirat, 2016; Vechnant, 2008).

Intellectual capital is widely recognized as a critical factor in an organization's success. It consists of six key components: human capital, customer capital, structural capital, social capital, technological capital, and spiritual capital (Khaliq, Shaari, & Isa, 2013). For resources to be effective, they must be distinctive—valuable, rare, inimitable, and difficult to replicate. Enhancing

the "resource uniqueness" of each dimension of intellectual capital can lead to improved organizational performance (Kamaluddin & Rahman, 2013).

In Dusit District, Bangkok, local leaders focus on community-driven development by leveraging intellectual capital to create opportunities for elderly people, thereby enhancing their careers and income sources. Promoting active engagement between elderly members and the broader community is crucial for fostering community growth (Phukamchanoad, Palapin, Supromin, 2024).

## **Social Support**

Social support is defined as the perception or experience of being loved and cared for by others, esteemed and valued, and being part of a social network that offers mutual assistance, obligations, and support. This type of support has positive effects on both mental and physical health (Wills, 1991; Taylor, 2011). Social support can come from various sources, including a partner, family, friends, co-workers, social ties, and community connections (Allen, Blascovich, & Mendes, 2002). It arises from personal relationships and social interactions (Gottlieb & Bergen, 2010).

Basically, social support includes two key components of social relationship structure: (1) "social integration," which refers to an individual's sense of belonging to a group, and (2) "social network structure," which pertains to the qualities that define a group of relationships. These structures impact individuals through three main social processes: (1) social support (the emotionally or instrumentally sustaining quality of relationships), (2) relational demands and conflict (the negative or conflictive aspects of social relationships), and (3) social regulation or control (the regulating or controlling quality of relationships) (House, Umberson, & Landis, 1988).

The concepts of social integration and social support are valuable for evaluating social factors and their effects on health and longevity. They demonstrate how social support helps reduce stress, enhances coping abilities, and improves health-related self-efficacy. Social support assists individuals in recovering from illness, leading healthier lives, and experiencing less distress (Berkman, Glass, Brissette, & Seeman, 2000; Schwarzer, Knoll, & Rieckmann, 2004). In the Dusit urban community of Bangkok, Thailand, local government agencies, businesses, and educational institutions play a central role in providing social support. They contribute primarily to career development, urban community development, health, and social welfare.

## **Cooperative Learning**

This study builds upon the foundational principles of cooperative learning in the classroom, extending them into the realm of community action through a concept termed "community cooperative learning." The original concept of cooperative learning (CL) is a pedagogical approach in which students work in small groups and are rewarded or recognized for their collective performance. This method aims to enhance academic achievement, promote positive intergroup relations in desegregated schools, foster shared concerns among students, and bolster self-esteem (Slavin, 1980). According to the Johnson & Johnson model (Johnson & Johnson, 1989), cooperative learning is one of the most widely recognized and utilized methods in higher education.

Cooperative learning is a process where students collaborate in groups to achieve a common goal, and this process is guided by several key principles: (1) “positive interdependence,” where team members rely on one another to reach the goal; failure by one member results in consequences for the entire group; (2) “individual accountability,” which ensures that each student is responsible for their own contributions and for mastering the material; (3) “face-to-face promotive interaction,” where group members engage in interactive work, providing feedback, challenging each other’s reasoning, and most importantly, teaching and encouraging one another; (4) “appropriate use of collaborative skills,” which encourages students to develop essential interpersonal skills such as trust-building, leadership, decision-making, communication, and conflict management; and (5) “group processing,” which involves regular self-assessment of the group’s functioning (Johnson, Johnson, Smith, 1998; Felder & Brent, 2007). Thus, involves students working together on a project or assignment while adhering to these principles to overcome common obstacles and achieve success.

In addition to its educational context, the concept of “community cooperative learning” refers to collaborative efforts within a community, where members work as a team to address local challenges and create products that emphasize collective effort. An example of this is the creation of *Phayayor Green Oil*, a community-driven product developed through collaboration between the Bhatphat Career Group, local community leaders, students from Wat Pracharabuedham School, Suan Sunandha Rajabhat University, and officers from the Dusit District Office’s Department of Community Development and Welfare. This product not only added value to the community but also contributed to its sustainability (Phukamchanoad, 2023).

Community cooperative learning extends beyond product creation to encompass broader participation in community life, involving activities such as problem identification, brainstorming, decision-making, implementation, stakeholder management, investment, evaluation, resource mobilization, and problem-solving (Reeder, 1974; Erwin, 1976; Cohen & Uphoff, 1977, 1980; Phukamchanoad, 2024). This model of learning encourages active engagement from all community members and fosters a collaborative environment aimed at improving the well-being and sustainability of the community.

## **Research Methodology**

This study employs a mixed-methods approach, integrating both health science and social science concepts to collect and analyze data. The project was approved by the Institutional Review Board (COE.1-069/2022) of Suan Sunandha Rajabhat University. The research process follows a collaborative, action-based learning model, aimed at fostering a shared objective for success among community members.

## **Study Area and Participants**

The study area is located in Dusit District, Bangkok, an urban community comprising 43 communities across five sub-districts: Dusit (3 communities), Suan Chitlada (4 communities), Watchira Phayaban (5 communities), Si Yaek Mahanak (3 communities), and Thanon Nakonchai Si (28 communities). The research participants included:

1. *Questionnaire*: A total of 100 respondents were selected for their knowledge and experience with environmental factors, especially those related to the technical and economic aspects of herbal product development. Non-probability snowball sampling was employed to identify and recruit participants. The 100 key informants included local wisdom practitioners, elders, clergypersons, tourists, vendors, youth, and other community stakeholders involved in or impacted by herbal product development.
2. *Semi-Structured Interviews*: A group of 43 local leaders was selected to participate in semi-structured interviews. These leaders were also involved in the Appreciation, Influence, and Control (AIC) process, a workshop-based method used to explore power dynamics in herbal product development. The AIC process consists of: (A) appreciation through listening, (I) influence through dialogue, and (C) control through action.
3. *Focus Group Discussions*: Three Small group discussions were organized with a variety of 10 community stakeholders, including local scholars, monks, government agencies, customers, vendors, and youth groups, to gather collective insights on the development and potential of herbal products. Participants were chosen by community leaders and professional contact people based on their qualifications, which included having purchased herbal products, studied, observed, inquired, studied, and received services.

## Research Tools

The study utilized several tools to collect both quantitative and qualitative data:

1. *Questionnaire*: A questionnaire was distributed to 100 community members, divided into three sections:
  - Demographic information (closed-checklist questions)
  - Participation in local herbal product development
  - Satisfaction with herbal products, using a rating scale

Descriptive statistics, such as percentage, mean, and standard deviation, were applied to analyze the data. The questionnaire also included open-ended questions regarding challenges, problems, and suggestions.

2. *Semi-Structured Interviews*: In-depth interviews were conducted with community leaders to explore the herbal plant distribution process and identify medicinal plants suitable for product development. This involved five representatives from each of the five districts.
3. *Focus Group Discussions*: Discussions were held with diverse community members to assess perspectives on herbal product development, identify challenges, and engage stakeholders in decision-making processes.
4. *Observation*: Site visits to the study area were organized to explore the biodiversity of local herbs and natural resources.

## Community Engagement and Cooperative Learning

In addition to quantitative and qualitative data collection, the study focused on knowledge sharing and preparing the Dusit community for the development of herbal products. The community cooperative learning process aimed to engage participants in the creation and design of herbal products, transforming them into part of the community's identity. Key activities included:

1. *Knowledge Transfer and Community Workshops:* Through the AIC process, community leaders and participants brainstormed herbal product ideas, considering local identity and potential products. These workshops were designed to enhance knowledge sharing and develop strategies that aligned the herbal products with the community's needs.
2. *Planning and Role Definition:* Knowledge transfer activities were planned, with roles and responsibilities assigned to a team that included community leaders, elderly participants, public health volunteers, teachers, students, university lecturers, and officials from the Community Development and Social Welfare Division of Dusit District Office. A total of 50 participants were involved in these efforts.
3. *Training and Seminars:* Training sessions were organized for 100 community members, focusing on the creation and processing of five types of herbal products unique to the Dusit community. These included:
  - o Massage oil
  - o Balm
  - o Herbal inhaler
  - o Camphor water
  - o Yellow oil
4. *Small Group Discussions and Product Design:* Small group discussions and brainstorming sessions were conducted to design herbal products that were both functional and aesthetically appealing. These activities also emphasized the health benefits of the products and their potential to enhance quality of life.
5. *Health and Quality of Life Enhancement:* Activities offered healthcare information, highlighting the personal care and well-being benefits of using herbal products. Additionally, programs were designed to strengthen and develop human resources within the community, fostering long-term community empowerment.

## Stage 5 Data Analysis

Data analysis was conducted using both quantitative and qualitative methods:

1. *Quantitative Data:* The questionnaire data were analyzed using descriptive statistics, such as percentage, mean, and standard deviation, to summarize the characteristics of the sample group.



2. *Qualitative Data*: The qualitative data collected from the area research were analyzed using content analysis, identifying key themes and insights regarding the community's herbal product development and the factors affecting their success.

## Results

The findings of this study were categorized into three themes, as outlined below:

### 1. Traditional Intellectual Capital of Herbal Products

In 1898, King Chulalongkorn (Rama V) of the Rattanakosin period provided his personal funds to purchase a garden and rice field to build a royal residence, naming the sub-district "Suan Dusit." He also ordered the construction of a pavilion, which became known as "Wang Suan Dusit" (Dusit District Office, Bangkok, 2015). The royal household has since made the Grand Palace its home for over 126 years. The local community, living in proximity to the palace, has been influenced by its royal aura, fostering a unique cultural intelligence in the people of Dusit District, who embody the charm and values of the palace. Particularly, the products used by the palace's inhabitants were designed to produce a pleasant fragrance, elevating aroma to an art form that was essential for maintaining personal health. There are seven sources of distinct fragrance types that form part of the intellectual capital of the Dusit community: 1) flowers, 2) fruits, 3) vegetables and leaves, 4) animal fats, 5) wood, roots, and bark, 6) seeds, and 7) resins (Chaemchusin, 1932). Nowadays, ready-made chemical elements such as borneol, camphor, menthol, cloves, agarwood, and nutmeg are utilized to enhance aroma, in addition to traditional wisdom.

Herbal products in the Dusit area are considered part of the local intellectual capital, with roots in research on Suan Sunandha Palace-style aromatherapy. These products, such as the handmade *Som-O inhaler*, represent the identity of the Dusit community. This art form combines health science, social science, and palace lifestyle, and is taught through a cooperative learning process in the community using the Appreciation, Influence, and Control (AIC) method. The *Som-O-Mue* is an inhaler made from rough-skinned pomelos combined with a variety of natural substances. It is used to treat conditions such as flatulence and colds, and is traditionally sold during the moon-worship season. The process to create *Som-O-Mue* involves:

- 1) Steaming pomelo peels (similar to pickling limes and kaffir limes).
- 2) Air-drying and repeating the steaming process.
- 3) Kneading the peels until soft and small enough to fit into an inhaler.
- 4) Mixing the pomelo peels with compounds like borneol, menthol, and camphor.
- 5) Adding herbs such as clove, agave, and sandalwood to the mixture.
- 6) Placing the final blend in an inhaler bottle to complete the herbal process.

Furthermore, interviews with 43 key informants, including local leaders, local wisemen, elders, clergypersons, tourists, vendors, and other stakeholders, revealed that the Dusit District's community herbs and natural resources were abundant enough to be developed into a community

identity. Most residents grew herbs at home or purchased them from nearby markets. The study identified four categories of medicinal herbs used in the community:

- *Herbs for gastrointestinal problems:* Ginger, galangal, lemongrass, turmeric, cultivated banana, sweet basil, guava, permanganate, basil, garlic, and fingerroot
- *Herbs for respiratory issues:* Kariyat, white crane flower, Indian shot, edible-stemmed vine, chili, lime, and tamarind
- *Herbs for urinary tract problems:* Lemongrass, pineapple, and roselle
- *Herbs for skin conditions:* Philippines violet, turmeric, aloe vera, and betel leaf
- *Other herbs:* Bengal root, used for treating bruises and pains

## 2. Development of Herbal Products as an Urban Community Identity

### 2.1 Herbs in Urban Communities

The majority of residents in the urban community of Dusit District, Bangkok, believed that there were herbs suitable for development into community-based herbal products. The research revealed that research participants strongly agreed that Bengal root had the greatest potential for development, receiving the highest mean score of 4.44. This was followed by turmeric (mean = 4.38), lemongrass (mean = 4.27), and wild turmeric (mean = 4.22). While many respondents also agreed that ginger (mean = 4.16), black pepper (mean = 4.16), galangal (mean = 4.05), Philippines violet (mean = 3.86), and Kariyat (mean = 3.45) could be developed into community herbal products, they received lower scores, suggesting relatively lesser potential. In contrast, herbs such as fingerroot received a neutral rating, with the lowest score of 3.33. Based on these findings, the herbs with the highest scores—Bengal root, wild turmeric, ginger, and black pepper—were selected for further development into community herbal products (see **Table 1**).

**Table 1:** Perception on the Potential of Herbal Plants in the Urban Community

Community Herbs	Scientific Name	Mean	S.D.	Level of Potential
1) Ginger	<i>Zingiber officinale</i> Roscoe	4.16	0.87	High
2) Galangal	<i>Alpinia galang</i> (L.) Willd	4.05	0.96	High
3) Lemongrass	<i>Cymbopogon citratus</i> Stapf	4.27	0.82	Very High
4) Turmeric	<i>Curcuma longa</i> L.	4.38	0.73	Very High
5) Kariyat	<i>Andrographis paniculata</i> (Burm.f.) Wall.ex Nees	3.45	1.04	High
6) Bengal root	<i>Zingiber cassumunar</i> Roxb	4.44	0.65	Very High
7) Wild Turmeric	<i>Curcuma aromatica</i> Salisb.	4.22	0.92	Very High
8) Black Pepper	<i>Piper nigrum</i> L.	4.16	0.95	High
9) Philippines Violet	<i>Barleria Lupulna</i>	3.87	1.13	High
10) Others (Fingerroot, Wildbetal Leafbush)	<i>Boesenbergia rotunda</i> (L.) Mansf.	3.33	1.40	Moderate

	<i>piper sarmentosum Roxb.</i>			
<b>Total</b>		<b>4.03</b>	<b>0.95</b>	<b>High</b>

## 2.2 Transformation from Community Herbal Products to Dusit District Identity

The research identified a strong consensus among key informants regarding the potential for herbal products to become integral to the community's identity. The highest-rated products for development into community identity were balm (mean = 4.55), borneol essential oil (mean = 4.48), inhalers (mean = 4.35), and massage oil (mean = 4.22). Respondents also agreed that acriflavine solution (mean = 4.00) had potential for becoming a part of the community's identity. In contrast, the support for herbal compress (mean = 3.29) and brewed tea (mean = 2.89) was more neutral, while products such as herbal soap (mean = 2.51), and others (i.e. mosquito repellent and mouth spray) (mean = 2.36) received lower ratings. Based on these findings, the top four products—balm, borneol essential oil, inhalers, and massage oil—were selected as the primary candidates for development into products representing the Dusit District identity, as shown in **Table 2**.

**Table 2:** Perception on Herbal Product Development into Community Identity

<b>Community Herbal Products as Dusit District Identity</b>	<b>Mean</b>	<b>S.D.</b>	<b>Level of Potential</b>
1) Balm	4.55	0.57	Very High
2) Massage oil	4.22	0.85	Very High
3) Inhaler	4.35	0.74	Very High
4) Herbal Compress	3.29	1.32	Moderate
5) Brewed Tea	2.89	1.41	Moderate
6) Soap	2.51	1.25	Low
7) Borneol Essential Oil	4.48	0.74	Very High
8) Basic Herbs	2.55	1.19	Low
9) Acriflavine Solution (Yellow Oil)	4.00	0.97	High
10) Others (i.e. Mosquito Repellent, Mouth Spray)	2.36	1.28	Low
<b>Total</b>	<b>3.52</b>	<b>1.03</b>	<b>High</b>

## 2.3 Community Participation in Herbal Product Development

This study also examined the perspectives of Dusit District community members on their potential involvement in herbal product development, should the project proceed. The results indicated that the community was generally engaged in the development process (mean = 3.42). The highest level of participation was reported in benefit sharing (mean = 4.16), followed by understanding and awareness (mean = 3.76), decision-making (mean = 3.36), evaluation (mean = 3.35), and implementation (mean = 3.31). However, the lowest level of engagement was seen in collaborative thinking (mean = 2.55). These findings suggested that while the community was highly interested in activities related to benefit sharing and understanding the development process, there was less enthusiasm for working together on the actual design and development of the herbal products, as shown in **Table 3**.

**Table 3:** Community Participation Levels in Herbal Product Development in Dusit District

Participation in Herbal Product Development	Mean	S.D.	Level
1) Perception and understanding	3.76	1.06	High
2) Thinking	2.55	1.23	Low
3) Decision making	3.36	1.17	Moderate
4) Implementation	3.31	1.11	Moderate
5) Evaluation	3.35	1.24	Moderate
6) Benefit sharing	4.16	0.89	High
<b>Total</b>	<b>3.42</b>	<b>1.12</b>	<b>High</b>

## 2.4 Developing Herbal Products for an Integrated Community Identity through Local Intellectual and Human Capital

A knowledge transfer meeting involving 43 stakeholders from 43 communities in Dusit District, Bangkok, was facilitated by experts with over ten years of experience in product transformation. The research explored the potential of mobilizing intellectual and human capital to develop natural resources from local communities into herbal product prototypes, transforming herbs into marketable goods while preserving local identity.

One such example is the establishment of the Foot Massage Group in the Wat Pracharabuedham community in Dusit District, Bangkok. The group, founded in 2011, emerged from academic research addressing urban social inequality, particularly urban poverty, which had been neglected by government institutions. The initiative aimed to strengthen the community, integrate research outputs with teaching, and foster cooperative learning. This research eventually led to the creation of the *Center for Learning, Research, Academic Services, and Innovation Transfer for Urban Community Development* at Suan Sunandha Rajabhat University in 2014, a center dedicated to solving urban community problems through knowledge transfer.

Through this collaboration, Dusit District's local community has successfully transformed local herbs into five unique herbal products that reflect the district's identity. These products, derived from the wisdom of the local community, are designed for application, rubbing, and massage. The five products (see **Figure 1**) are described below:

### 1. **Herbal Inhaler** (*Chil-Ha-Nang-Phlai*):

The herbal inhaler is a home remedy used for treating dizziness, fainting, blurred vision, colds, nasal congestion, and fatigue. Simple to prepare, it requires easily accessible herbs. Initially used by middle-aged and older individuals, the inhaler has evolved into a compact and modern form, now appealing to younger generations. The ingredients include *Myristica fragrans* (nutmeg), cardamom (*Amomum krervanh*), cloves (*Syzygium aromaticum*), black pepper (*Piper nigrum*), *Kaempferia galanga* (galangal), and cinnamon (*Cinnamomum spp.*).

2. **Borneol Essential Oil** (*Haddha-Thara*):

Derived from the *Pogostemon cablin* plant, Borneol essential oil is extracted from all parts of the plant: branches, leaves, trunk, and roots. After being cut, cooked, and distilled, the oil is used in perfumery and blended with other essential oils to relieve congestion and disorientation. Key ingredients include menthol, borneol camphor, camphor, and eucalyptus oil (*Eucalyptus globulus*).

3. **Herbal Balm** (*Hathai-Phayawan*):

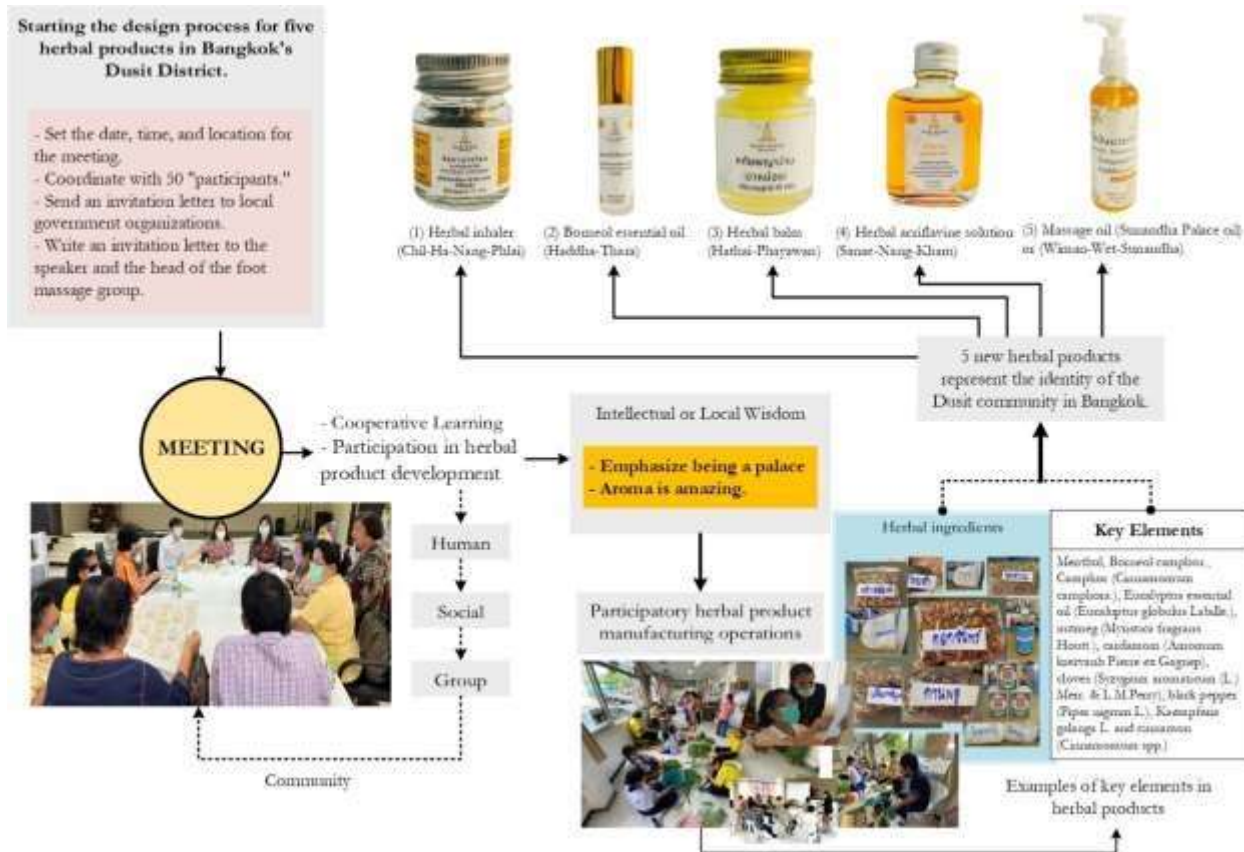
Originating in Europe, balms are soft, fragrant liquids used to treat dizziness, motion sickness, nausea, muscle swelling, fatigue, bruises, and insect bites. This product is formulated using herbs from the *Wan* group, including fingerroot, turmeric, cloves, and *Nang Kham* aloe. The balm's main ingredients are turmeric oil (*Zingiber cassumunar*), clove oil (*Syzygium aromaticum*), *Nang Kham* aloe oil (*Curcuma aromatica*), camphor, menthol, borneol camphor, and eucalyptus oil.

4. **Herbal Acriflavine Solution** (*Sanae-Nang-Kham*):

This solution, which has been used since the Sukhothai era, is applied externally to treat aches, pains, swelling, sprains, insect bites, and other wounds. It combines several herbs known for their anti-inflammatory and pain-relieving properties, including turmeric, fingerroot, and *Nang Kham* aloe. The main ingredients are turmeric oil, clove oil, *Nang Kham* aloe oil, and camphor oil.

5. **Massage Oil** (*Wiman-Wet-Sunandha*):

Aromatherapy, dating back over 6,000 years to ancient Egypt, has long been used for its therapeutic properties. Thai traditional medicine, especially Thai massage, has flourished over the centuries and is now a key element of the Thai Spa industry. The *Wiman-Wet-Sunandha* massage oil incorporates ingredients such as white oil (*Paraffinum Liquidum*), grape seed oil (*Vitis vinifera*), sweet almond oil (*Prunus dulcis*), and carnation oil (*Dianthus caryophyllus*).



**Figure 1:** Five Herbal Products Representing the Identity of Dusit Community

## 2.5 Community Views on Product Development Regarding Healthcare Behavior

Participants in the participatory product development activity focused on healthy behavior revealed several key demographic characteristics: the majority were of the same gender (78.57%), aged 51 years or older (41.83%), and had a secondary education or equivalent (43.87%), such as Grade 1-6 or a Vocational Certificate. Many participants were housewives (32.65%) and reported monthly incomes of less than 5,000 baht (29.59%) or between 10,001-15,000 baht (22.44%).

In addition to the demographic details, participants offered valuable insights into healthy lifestyle habits while introducing the five new herbal products from the Dusit community. **Table 4** shows that participants rated "Healthy Environment" (mean = 3.66) and "Healthy Diet" (mean = 3.52) the highest, signaling strong adherence to these behaviors. "Emotional Management" was also rated positively (mean = 3.15), reflecting a moderate but reasonable level of attention to emotional well-being. In contrast, "Exercise" (mean = 2.90) and "Rest/Relaxation" (mean = 2.83) were rated moderately, indicating that while these behaviors are recognized as important, they may not always be consistently practiced. The lowest score was for "Healthy Hobbies/Leisure Activities" (mean = 2.58), indicating that participants may place less emphasis on recreational activities as part of their health routine. Lastly, "Disease Prevention" (mean = 3.13) was also rated moderately, suggesting a reasonable focus on preventative health measures, though there may be potential for greater

emphasis on this area. Overall, their views on fundamental health behaviors were more modest, as reflected in the total mean of 3.11, suggesting a moderate level of practice across the different categories of healthy behaviors.

**Table 4:** Participants' Perspectives on Healthy Behaviors

Healthy Behaviors	Mean	S.D.	Level of Practice
1) Healthy diet	3.52	1.13	High
2) Exercise	2.90	1.22	Moderate
3) Rest/Relaxation	2.83	1.20	Moderate
4) Emotional Management	3.15	1.30	Moderate
5) Healthy Environment	3.66	1.19	High
6) Healthy Hobbies/Leisure Activities	2.58	1.22	Low
7) Disease Prevention	3.13	1.28	Moderate
<b>Total</b>	<b>3.11</b>	<b>1.22</b>	<b>Moderate</b>

Furthermore, workshop participants expressed high satisfaction with the use of the five herbal products for enhancing their health. Overall satisfaction was very high (mean = 4.24). Specific products that received particularly positive feedback included “Borneol Essential Oil (Haddha-Thara)” (mean = 4.52), “Herbal Balm (Hathai-Phayawan)” (mean = 4.48), and “Herbal Acriflavine Solution (Sanae-Nang-Kham)” (mean = 4.29), all of which were rated as very high. Other products, such as the “Herbal Inhaler (Chil-Ha-Nang-Phlai)” (mean = 3.98) and “Massage Oil (Sunandha Palace Oil or Wiman-Wet-Sunandha Oil)” (mean = 4.07), were rated as high, as shown in **Table 5**.

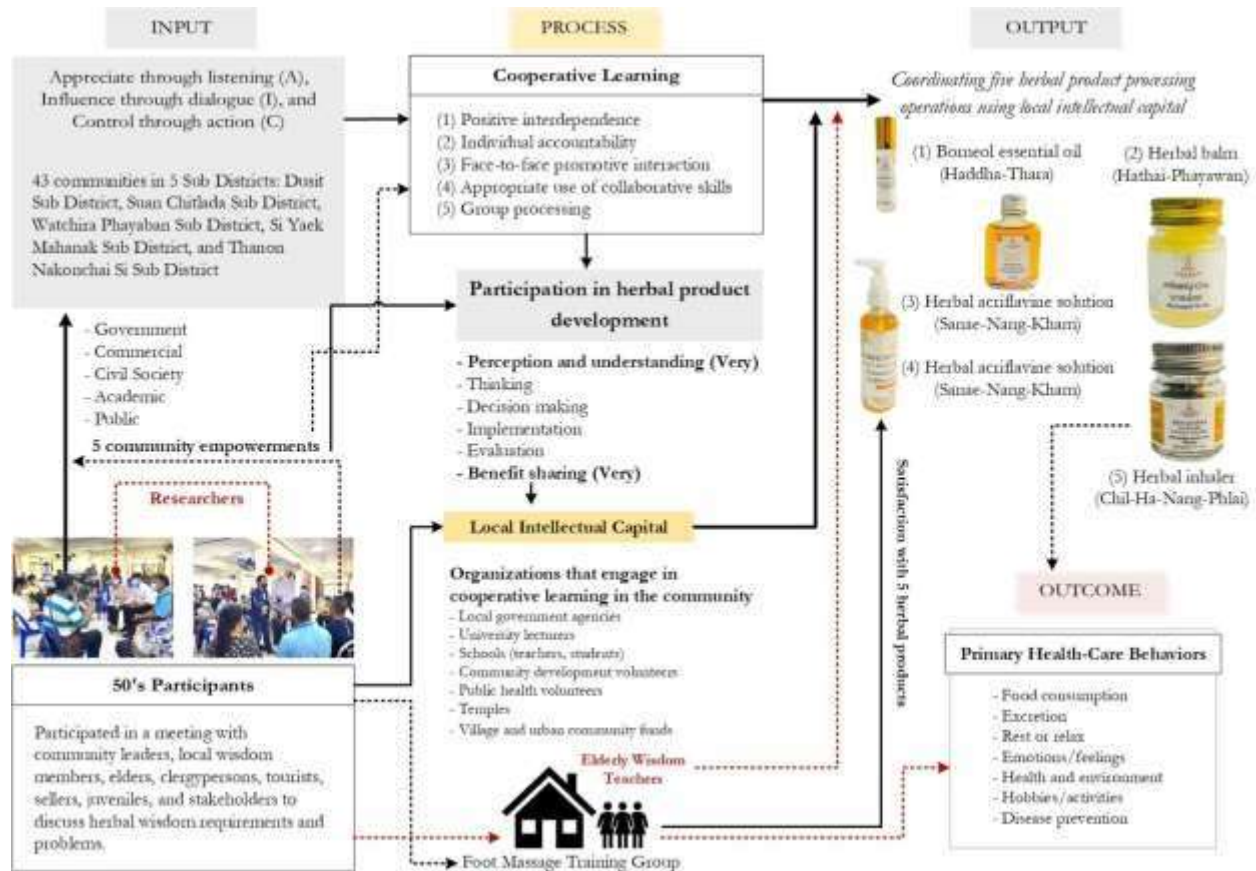
**Table 5:** Satisfaction Levels with the Five Herbal Products

Satisfaction with the 5 Herbal Products	Mean	S.D.	Level
1) Herbal Inhaler (Chil-Ha-Nang-Phlai)	3.98	0.99	High
2) Borneol Essential Oil (Haddha-Thara)	4.52	0.63	Very High
3) Herbal Balm (Hathai-Phayawan)	4.48	0.76	Very High
4) Herbal Acriflavine Solution (Sanae-Nang-Kham)	4.29	0.90	Very High
5) Massage Oil (Sunandha Palace oil or Wiman-Wet-Sunandha Oil)	4.07	0.98	High
<b>Total</b>	<b>4.24</b>	<b>0.88</b>	<b>Very High</b>

### 3. Social Support through Community Empowerment and Cooperative Learning

Local residents of the Dusit community received various forms of social support from government agencies across multiple areas, including career development, community product development, research knowledge, health knowledge transfer, community finance, and social welfare. Additionally, support was provided through community development volunteers, community health initiatives, development plans, and partnerships. This comprehensive support system covered all stages of life, ensuring safety, security, and community governance, in alignment with the welfare state model. In the private sector, social support focused on community economic development and product creation. Notably, the 43 urban communities involved leaders,

community committees, and engaged members who participated in a collaborative learning process with the “five entities of empowerment,” including government bodies, commercial entities (entrepreneurs), civil society, academia, and the public. The researcher synthesized the roles and processes of social support in herbal product development, integrating local intellectual capital, as illustrated in **Figure 2**.



**Figure 2:** Cooperative Learning System Process for Five Entities of Empowerment

## Discussion

Conducting research in urban communities presents unique challenges, particularly when researchers must actively engage with the community to foster cooperative learning. This process requires the involvement of key participants, including community leaders, local wisemen, professional groups who serve as role models, public health volunteers, community development and social welfare departments, elderly members of the community, and students or youth groups representing all 43 urban communities in Dusit District. One challenge identified in another study was the social disparity within the research area, as many participants had demanding work schedules, often starting early in the morning and returning home late at night, leaving little time for social engagement. During the day, community development volunteers, elderly residents, and community leaders managed various community activities (Phukamchanoad, 2023).



To overcome these time constraints, the research team organized cooperative learning workshops. These workshops provided participants with practical tools and clear findings, allowing them to engage with the research process despite their busy schedules. The workshops focused on identifying local intellectual capital and utilizing it to develop herbal products, which could generate income through government social assistance programs. The findings revealed that the study area, originally the site of a royal palace and courtiers, had few gardeners or farmers. As a result, the palace became a central hub for intellectual capital. Various aromatic plants, such as ginger, galangal, lemongrass, turmeric, kariyat, bengal root, wild turmeric, black pepper, philippine violet and others (fingerroot, wildbetal leafbush) were commonly used to flavor dishes for ordinary people. These plants could be transformed into herbal components for products.

This aligns with a previous study on herbal products, which also drew inspiration from royal traditions, leading to the development of *Suan Sunandha Palace Style Aromatherapy*. This research highlighted an inhaler made from Buddha's hand (*Citrus medica* L.), known as "Yadom-Som-O-Mue," which was a popular item in the palace during the reigns of King Rama V and VI, before the democratic revolution of Thailand in 1932. The transformation of Buddha's hand herb into a Buddha's hand inhaler became an example of how an herbal product could become a symbol of community identity (Promdao, 2016). Similarly, the study of Suan Sunandha Palace's Scented Water (also known as "Nam Prung") (Chunta, 2019) and the herbal inhaler Tripaka "Keangwang" (Center of Excellence in Elderly Care Services, 2020) further emphasized the connection between royal traditions and community-based herbal products.

The research also focused on enhancing intellectual and human capital by developing local natural resources across 43 communities in the Dusit District of Bangkok. A training program was launched to educate participants on herbal product development, which not only preserved local traditions but also helped transform the community's identity. As a result, five herbal products were created as part of the Dusit District community identity: (1) herbal inhaler ("Chil-Ha-Nang-Phlai"), (2) Borneol essential oil ("Haddha-Thara"), (3) herbal balm ("Hathai-Phayawan"), (4) herbal acriflavine solution ("Sanae-Nang-Kham"), and (5) massage oil ("Sunandha Palace oil" or "Wiman-Wet-Sunandha"). This outcome aligns with a study on amazing herb soap (Tepaya, 2006), which found that using natural herbs as ingredients in soap is increasingly popular due to their medicinal properties, including essential oils that aid in disease treatment. These herbal-based soaps are valued for being colorful, beautiful, affordable, safe, non-toxic, and free from synthetic chemicals.

The research underscores the importance of collaboration among stakeholders in local community development. From the initial brainstorming of research questions to the design and implementation of research activities, the community was actively involved at every step. As a result, the creation of five herbal products representing the Dusit District community identity not only preserves local heritage but also holds significant potential for future economic and social growth. These products could contribute to the local economy, offer sustainable livelihoods, and provide opportunities for future trade and development.

## Conclusions

The development of five new herbal products in Dusit District represents a successful fusion of local knowledge and commonly used herbs, such as Bengal root, turmeric, wild turmeric, ginger, and black pepper. These products were developed through a formal academic learning process, which engaged community members in workshops that combined traditional wisdom with modern research methods. The study highlights the collaborative efforts within the community, focusing on the transformation of raw materials into balms, camphor oils, inhalers, and massage oils, which promote both physical and mental wellness. This initiative not only provides economic opportunities but also strengthens social support networks, contributing to a sustainable and resilient community economy. The research demonstrates the power of local knowledge and human capital in driving innovation, offering long-term benefits in terms of income generation, social cohesion, and sustainable development for Dusit District's residents.

**Acknowledgment:** This research is supported by the Institute for Research and Development, Suan Sunandha Rajabhat University (SSRU), and Thailand Science Research and Innovation (TSRI).

**Ethical considerations:** Ethics approval was received from Suan Sunandha Rajabhat University's Institutional Review Board (COE: 1-069/2022)

## References

- Ahmad, S., Gupta, A., & Katiyar, C.K. (2022). *Chapter 33 - Clinical research on herbal/ASU/traditional drugs in India*, Editor(s): Pulok K. Mukherjee, Evidence-Based Validation of Herbal Medicine (Second Edition), Elsevier, <https://doi.org/10.1016/B978-0-323-85542-6.00035-4>.
- Ahmed, A., Tan, C. L., Jatau, A. I., Lua, P. L., Jofry, S. M., Abdullah, A. H., & Wong, T. W. (2017). Consumption of herbal products: a study of urban community survey. *Australasian Medical Journal* (Online), 10(2), 124. <https://doi.org/10.21767/AMJ.2017.2797>
- Allen, K., Blascovich, J., & Mendes, W. B. (2002). Cardiovascular reactivity and the presence of pets, friends, and spouses: The truth about cats and dogs. *Psychosomatic Medicine*, 64, 727-739.
- Anyorah, G. C., Michael O. E., Umeaku, N. N., Okpala, M. O., & Okoye, B. (2023). Illness Perception, Personality Traits and Perceived Social Support as Predictors of Psychological Distress Among Prostate Cancer Patients. *Interdisciplinary Journal of African & Asian Studies (Ijaas)*, 9(3): 1-9. <https://nigerianjournalsonline.com/index.php/ijaas/article/view/4121/3992>
- Balekundri, A., Mannur, V. (2020). Quality control of the traditional herbs and herbal products: a review. *Futur J Pharm Sci*. 6, 67. <https://doi.org/10.1186/s43094-020-00091-5>
- Balekundri, A., Mannur, V. (2020). Quality control of the traditional herbs and herbal products: a review. *Futur J Pharm Sci*. 6, (67). <https://doi.org/10.1186/s43094-020-00091-5>
- Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social science & medicine*, 51(6), 843-857. <https://www.sciencedirect.com/science/article/pii/S0277953600000654>
- Bibri, S. E., Krogstie, J., & Kärrholm, M. (2020). Compact city planning and development: Emerging practices and strategies for achieving the goals of sustainability. *Developments in the Built Environment*, 4: 100021. <https://doi.org/10.1016/j.dibe.2020.100021>.
- Boonwan, S. (2021). Factor correlated with happiness in work of health personnel of Kanchanaburi Province. *Academic Journal of Community Public Health*, 7(4), 139-151.
- Bremness, L. (1994). *The complete book of herbs*. Viking Studio Books.
- Brown, J. D. (1995). *The Elements of Language Curriculum: A Systematic Approach to Program Development*. Boston, Heinle & Heinle.
- Center of Excellence in Elderly Care Services. (2020). *Herbal inhaler Tripaka "Keangwang"*. Suan Sunandha Rajabhat University. <http://eec.skm.ssrui.ac.th/en/news/view/3season>

- Chaemchusin, P. (1932). *The story of 7 perfumes, gardening, farm*. Europlanet Printing House,
- Chanapan, N., Seeherunwong, A., Yuttatri, P., & Kongsakon, R. (2013). Relationship between the Factors of Social Support and Self-Insight and Self-Regaining amongst Female Depression Patients. *Thai Journal of Nursing Council*, 28(2) 44-57. <https://he02.tci-thaijo.org/index.php/TJONC/article/download/11642/10498>
- Chuengsatiansup, K. (2006). *Holistic medicine and health in socio-cultural dimension*. Sirindhorn Anthropology Center.
- Chunta, P. (2019). The Study of Nam Prung in Suan Sunandha. *UMT Poly Journal*, 16(2), 388-394. <https://so06.tci-thaijo.org/index.php/umt-poly/article/view/232101>
- Division of Alternative Medicine Department of Thai Traditional and Alternative Medicine Ministry of Public Health. (2021). *Economic medicinal herb plants towards standards for medicine*. V Indie Design. <https://thaicam.dtam.moph.go.th/>
- Dusit District Office, Bangkok. (2015). *Dusit Century*. Dusit District Office, Bangkok.
- Edvinsson, L., & Malone, M. S. (1997). *Intellectual Capital: Realizing your Company's True Value by Finding its Hidden Brainpower*. Harper Business.
- Felder, R. M., & Brent, R. (2007). Cooperative learning. *Active learning: Models from the analytical sciences*, 970, 34-53. [https://www.academia.edu/download/33048365/cooperative\\_learning.pdf](https://www.academia.edu/download/33048365/cooperative_learning.pdf)
- Fetrow, C.W. and Avila, J.R. (1999) *Professional's Handbook of Complementary & Alternative Medicines*. Spring House, Spring House, Pa, USA.
- Food and Drug Administration. (2024). *Herbal Products*. Ministry of Public Health. <https://en.fda.moph.go.th/entrepreneurs-herbal-products/category/what-is-herbal-products/>
- Gottlieb, B. H., & Bergen, A. E. (2010). Social support concepts and measures. *Journal of psychosomatic research*, 69(5), 511-520. <https://doi.org/10.1016/j.jpsychores.2009.10.001>.
- Hongwiwat, T., Sri-ngernyuang, L. (1990). *Strategies for self-care*. Center for Public Health Policy, Mahidol University.
- House, J. S., Umberson, D., & Landis, K. R. (1988). Structures and processes of social support. *Annual review of sociology*, 14(1), 293-318. <https://doi.org/10.1146/annurev.so.14.080188.001453>
- Independent Group of Scientists appointed by the Secretary-General. (2023). *Global Sustainable Development Report 2023: Times of crisis, times of change: Science for accelerating transformations to sustainable development*. United Nations, New York. [https://sdgs.un.org/sites/default/files/2023-09/FINAL%20GSDR%202023-Digital%20-110923\\_1.pdf](https://sdgs.un.org/sites/default/files/2023-09/FINAL%20GSDR%202023-Digital%20-110923_1.pdf)
- Johnson D. W., & Johnson, R. (1989). *Cooperation and competition: Theory and research*. Edina, MN: interaction Book Company.
- Johnson, D. W., & Johnson, R. (1999). *Learning together and alone: Cooperative, competitive, and individualistic learning* (5th Edition.). Boston: Allyn & Bacon.
- Johnson, D. W.; Johnson, R. T.; Smith, K. A. (1998). *Active Learning: Cooperation in the College Classroom*, (2nd ed.); Interaction Book: Edina, MN.
- Kamaluddin, A., & Rahman, R. A. (2013). The intellectual capital model: the resource-based theory application. *International Journal of Learning and Intellectual Capital*, 10(3-4), 294-313. <https://doi.org/10.1504/IJLIC.2013.057427>
- Khalique, M., Shaari, J. A. N. B., & Isa, A. H. B. M. (2013). The road to the development of intellectual capital theory. *International Journal of Learning and Intellectual Capital*, 10(2), 122-136. <https://doi.org/10.1504/IJLIC.2013.052953>
- Khalique, M., Shaari, J. A. N., Ageel, A., & Isa, A. H. B. M. (2011). Role of Intellectual Capital on the Organizational Performance of Electrical and Electronic SMEs in Pakistan. *International Journal of Business and Management*, 6(9), 253-257. <https://ssrn.com/abstract=1921304>
- Kumar, V., Marković, T., Emerald, M., & Dey, A. (2016). *Herbs: Composition and Dietary Importance*, Editor(s): Benjamin Caballero, Paul M. Finglas, Fidel Toldrá, Encyclopedia of Food and Health, Academic Press. <https://doi.org/10.1016/B978-0-12-384947-2.00376-7>.
- Nagy-Pénzes, G., Vincze, F., Bíró, É. (2020). Contributing Factors in Adolescents' Mental Well-Being—The Role of Socioeconomic Status, Social Support, and Health Behavior. *Sustainability*, 12(22): 9597. <https://doi.org/10.3390/su12229597>
- Peden, AR. (1996). Recovering in depression: a one year follow - up research. *J Psychiatr Ment Health Nurs*, 149(8): 289-95.
- Peter, K.V., & Nirmal Babu, K. (2012). Introduction to herbs and spices: medicinal uses and sustainable production, Editor(s): K.V. Peter, In Woodhead Publishing Series in Food Science, Technology and Nutrition,

- Handbook of Herbs and Spices (Second Edition), Woodhead Publishing,  
<https://doi.org/10.1533/9780857095688.1>.
- Phukamchanoad, P. (2021). *Enhancing the Potentials of Community Enterprise in Wat Pracharabuedham in the Scope of Bangkok's Urban Community Contexts*. National Research Council of Thailand (NRCT), Bangkok, Thailand.
- Phukamchanoad, P. (2023). Urban community study on design thinking: A case study of product development in Wat Pracharabuedham community 1–4, Dusit District, Bangkok, Thailand. *Kasetsart Journal of Social Sciences*, 44(1), 61–72. <https://doi.org/10.34044/j.kjss.2023.44.1.07>
- Phukamchanoad, P. (2024). Innovative approach to full-service participatory occupational group development for the elderly in Bangkok, Thailand. *International Journal of Advanced and Applied Sciences*, 11(7), 124-137. <https://doi.org/10.21833/ijaas.2024.07.014>
- Phukamchanoad, P., Palapin, P. & Supromin, C. (2024). The Role of Urban Community Leaders in Local Product Development Using Intellectual Capital: A Case Study of Bangkok, Thailand. *Journal of Ecohumanism*, 3(7): 4143 – 4156. <https://doi.org/10.62754/joe.v3i7.4536>
- Promdao, W. (2016). *Suan Sunandha Palace Style Aromatherapy*. Suan Sunandha Rajabhat University.
- Schreiber, R. (1996). Defining myself: Women's process of recovery from depression. *Qual Health Res*, 6(4): 469-91.
- Schwarzer, R., Knoll, N., & Rieckmann, N. (2004). Social support. *Health psychology*, 158, 181. [https://books.google.com/books?hl=en&lr=&id=yRnxqo-3sQcC&oi=fnd&pg=PA283&dq=Social+support&ots=c7rxoGJaAD&sig=7hI9LBIgTG\\_zZaXNvbgQRTUdH38](https://books.google.com/books?hl=en&lr=&id=yRnxqo-3sQcC&oi=fnd&pg=PA283&dq=Social+support&ots=c7rxoGJaAD&sig=7hI9LBIgTG_zZaXNvbgQRTUdH38)
- Singmat, T. (2019). *The create value-added of herb products for community enterprise in Maha Sarakham Province*. Maha Sarakham: Maha Sarakham Rajabhat University.
- Sirichotirat, N. (2016). *Principles of Human Resource Management in the 21st Century* (2nd edition). Chulalongkorn University.
- Slavin, R. E. (1980). Cooperative Learning. *Review of Educational Research*, 50(2), 315-342. <https://doi.org/10.3102/00346543050002315>
- Spytska, L. (2023). Social And Psychological Problems of The Elderly in The Modern Society. *SWorldJournal*, 3(18-03), 108–112. <https://doi.org/10.30888/2663-5712.2023-18-03-007>
- Stewart, T. A. (1991). Brainpower: Intellectual Capital is Becoming Corporate America's Most Valuable Asset and can Be its Sharpest Competitive Weapon; the Challenge is to Find What you Have - and Use it. *Fortune*, 123 (11), 44-60.
- Stuart, M. (1989). *The Encyclopedia of herbs and herbalism*. Crescent Books.
- Suriyawattayawate, C. (2019). From National Strategy 20 Years to National Master Plan for Thai Herbs Development by Integrating Agricultural Education. *Journal of Industrial Education*, 18(1): 240-250. <https://ph01.tci-thaijo.org/index.php/JIE/article/download/157072/134936/579612>
- Taylor, S. E. (2011). Social support: A review. *The Oxford handbook of health psychology*, 1, 189-214. [https://books.google.com/books?hl=en&lr=&id=apBoAgAAQBAJ&oi=fnd&pg=PA189&dq=Social+support&ots=76zetyJ7rM&sig=0yKYn\\_qjxsbbF1hdQdggEso6hfg](https://books.google.com/books?hl=en&lr=&id=apBoAgAAQBAJ&oi=fnd&pg=PA189&dq=Social+support&ots=76zetyJ7rM&sig=0yKYn_qjxsbbF1hdQdggEso6hfg)
- Tepaya, N. (2006). Amazing Herb Soap. *Journal of Yala Rajabhat University*, 1(2), 156-164. [https://so04.tci-thaijo.org/index.php/yr\\_u\\_human/article/view/124807](https://so04.tci-thaijo.org/index.php/yr_u_human/article/view/124807)
- United Nations. (2015). Transforming our World: The 2030 Agenda for Sustainable Development, A/RES/70/1, Resolution adopted by the General Assembly on 25 September 2015. <https://documents.un.org/doc/undoc/gen/n15/291/89/pdf/n1529189.pdf>
- Vechanont, N. (2008). *A New Dimension in Human Capital Management*. Graphico Systems.
- Wannatrong, N., Yoannok, S., & Srisuk, K. (2018). "The Development of Online Community Model to Promote the Life Quality Level of the Elderly in Urban Society," 2018 16th *International Conference on ICT and Knowledge Engineering (ICT&KE)*, Bangkok, Thailand, 2018, pp. 1-6, <https://doi.org/10.1109/ICTKE.2018.8612369>.
- Wills, T. A. (1991). Social support and interpersonal relationships. In M.S. Clark (Ed.), *Prosocial behavior*, pp. 265-289. Newbury Park, Sage.
- Yoon, S. J. L., & Horne, C. H. (2001). Herbal products and conventional medicines used by community-residing older women. *Journal of advanced nursing*, 33(1), 51-59.