# Kasetsart Journal of Social Sciences

# A framework for promoting botanical gardens as informal learning centers: A case study of Thailand

Sornpravate Krajangkantamatr*, Patranit Srijuntrapun[†], Wee Rawang[†]

*Environmental Education Program, Department of Education, Faculty of Social Sciences and Humanities, Mahidol University, Nakorn Pathom 73170, Thailand*

## Article Info

## Abstract

A botanical garden is an institution for scientific research, conservation, education, and recreation. However, botanical gardens in Thailand are confronted with problems, as they cannot reach their potential as informal learning centers because of their low number of visitors. Thus, the opportunity for learning from these precious learning centers is being wasted. To overcome these challenges, this case study conducted in-depth interviews with 16 botanical garden executives and staff members and five focus group discussions with 60 community leaders. It also applied a service marketing mix concept to create a potential framework for promoting botanical gardens in Thailand. The results showed that this framework can therefore help botanical gardens in Thailand attract more visitors and become more effective informal learning centers for visitors from around the world. Ultimately, this will revive their main functions and importantly, cultivate environmental awareness among a larger number of visitors.

© 2021 Kasetsart University.

## Introduction

A botanical garden is an institution for scientific research, conservation, education, and recreation (Hengky & Kikvidze, 2018). It is also a place where people's awareness of natural resource conservation can be formed (Ballantyne, Packer, & Hughes, 2008). It is unique in being an informal learning based educational tool, where individual interests trump the need for teachers or lesson plans (Kiriktas & Eslek, 2017) and various pedagogical methods (i.e. edutainment learning media) such as video games, interactive games, and other scientific products for educational purposes can be utilized (Corona, Cozzarelli, Palumbo, & Sibilio, 2013; Krishnan & Novy, 2016).

There are 34 botanical gardens in Thailand. Most of them are under the supervision of government and state enterprises. Each garden has a common aim – to be a center for informal learning which can then be widely spread to the public. However, botanical gardens in Thailand have never set a number for visitors. This reflects that authorities in Thailand do not consider botanical gardens as a vital part of informal learning, resulting in low visitor rates (Office of the Education Council, 2005). In 2016, there were only 249,629 visitors who came to the six state-owned botanical gardens located throughout Thailand (Botanical Garden Organization, 2016), while there were about two million tourists who traveled to visit the Royal Botanic Gardens in Victoria, Australia and the Royal Botanical Gardens in

* Corresponding author.
  E-mail address: sornpravate@gmail.com (S. Krajangkantamatr).
† Co-first authors.
  E-mail addresses: nisa_lay@hotmail.com (P. Srijuntrapun),
                    csemodel@hotmail.com (W. Rawang).

Kew, the United Kingdom, combined (Board of Trustees of the Royal Botanic Gardens, Kew, 2018; Royal Botanic Gardens Board Victoria, 2017). This means that botanical gardens in Thailand do not effectively attract visitors to come and learn in the gardens, and therefore cannot reach their full potential as informal learning centers. We will further examine how this problem stems from the lack of management of marketing practices by the government and state enterprise employees. This issue wastes the opportunity for many people to experience these informal learning centers of Thailand.

In the past, the management of botanical gardens was conducted using business strategies as majority tools (Christian, Gamayanto, Wibowo, & Astuti, 2018; Liedtka, 2008), while tourism management concepts, such as flagship or mega-attractions, have been employed as minority solutions (Sharpley, 2007). However, such management tools have never been applied to solve the problems faced by botanical gardens in Thailand. Hence, this case study intended to apply the service marketing mix to create a framework for promoting botanical gardens as informal learning centers. This concept promotes the success of a service business by measuring various 'success factors' and serves as a marketing tactic to help achieve the botanical garden's objectives, maintain their functions, and better attract visitors – all while encouraging them to stay longer to both enjoy and learn from each garden (Ching & Mahmood, 2016; Sarker, Wang, & Begum, 2012). This method could greatly influence levels of success by renovating botanical garden management practices in Thailand, concurrently making these places become more attractive informal learning centers. In addition, this concept can help revive the larger goal of cultivating environmental awareness in the garden's visitors.

**Literature Review**

Botanical gardens have been organized emphasizing on business advantages (Christian, Gamayanto, Wibowo, & Astuti, 2018; Sharpley, 2007). However, botanical gardens in Thailand need to be managed differently to erase their weaknesses, such as human resources development, media used for informal learning, and promoting the gardens to the public (Office of the Educational Council, 2005). Therefore, a service marketing mix is the best solution for solving these problems. A service marketing mix concept promotes the success of a service business. It consists of seven success factors (Gurel & Aydin, 2016). Importantly, these are different from goods and general consumables markets. For example, the first factor is the service itself. Most products in the service market are intangible, such as in the tourism industry, where beauty of nature could be considered an intangible consumer product. The second

factor is the price point for the service. The price point includes the cost of production, delivery, and promotion of the service. The third factor is the place or location of the service, such as the appropriate time to visit. The fourth factor is promotion. This includes the tools used to change the attitudes and behaviors of consumers to participate in a service, comprising of advertising, sales, personal sales, sales promotion, public relations, and direct sales. The fifth factor is people or employees. They play an important role in managing and coping with problems and serve as representatives of the service market in their expressions of hospitality. The sixth factor is the process. The process should lead to the success of the service, with success defined as providing an accurate and timely service that satisfies consumers. Finally, the seventh factor is physical evidence. Physical evidence includes the physical characteristics of a location, such as cleanliness and speed of the service. These seven factors of service marketing should be combined in a way that is appropriate to the individual business environment and service style, as no fixed formula will be appropriate for all service businesses.
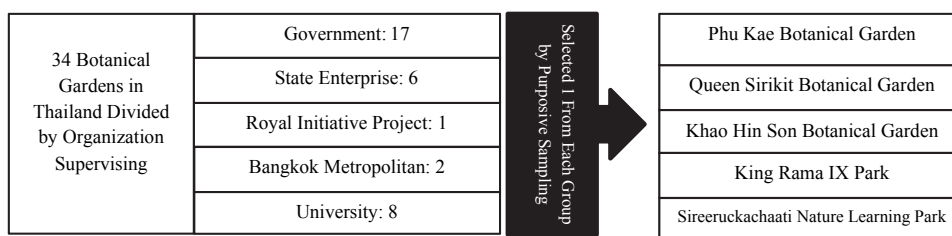
**Methodology**

This case study aimed to create a framework to aid in managing botanical gardens in Thailand. It was divided into two phases. Phase one: study the current management of botanical gardens through in-depth interviews and focus group discussions. Phase two: study the main factors that create a framework for sustainable management of botanical gardens in Thailand based on the service marketing mix concept.

*Study Areas*

Botanical gardens in Thailand are supervised by five different organizations. One garden from each group was selected using a purposive sampling technique. Therefore, five botanical gardens were examined (Figure 1). The criteria for study area selection were as follows: (1) well-known and have many tourists (2) promote community participation in organizing learning activities and (3) data collection allowed and welcoming to researchers.

*Participant and Data Collection*

This study was separated into two phases. Purposive sampling was employed for selecting participants in both phases since it allowed researchers to choose key informants to gain a deeper understanding of the issues these parks face (Neuman, 2014). In the first phase, the main focus was on the current situation of management of botanical gardens in Thailand. The data were collected from two different groups of participants. The first group

| 34 Botanical Gardens in Thailand Divided by Organization Supervising | Government: 17 | Selected 1 From Each Group by Purposive Sampling → | Phu Kae Botanical Garden |
| | State Enterprise: 6 | | Queen Sirikit Botanical Garden |
| | Royal Initiative Project: 1 | | Khao Hin Son Botanical Garden |
| | Bangkok Metropolitan: 2 | | King Rama IX Park |
| | University: 8 | | Sireeruckachaati Nature Learning Park |

**Figure 1**    Sampling framework for study area selection

was eight botanical garden staff members. They consisted of three heads of the botanical gardens, two administrators of the Department of National Parks, Wildlife and Plant Conservation (which belongs to the government sector), and three administrators (under the Botanical Gardens Organization, which belongs to the state enterprise section of Thailand). This group of participants gave rich information from their experiences about the problems related to the management of botanical gardens located throughout Thailand. In-depth interview was employed as a tool for data collection because it provided more detailed information than what was available through other data collection methods (Boyce & Neale, 2006).

The second group consisted of twelve community leaders (i.e. headmen) living nearby each botanical garden. Focus group discussion was employed as a tool for data collection, as this method frequently brings out unexpected aspects of a topic that would otherwise not have been provided from individual, researcher-led interviews (Babbie, 2011). This group of participants gave information about the management problems as seen from a visitors' perspective, and helped the researchers to understand the situation more comprehensively.

The second phase of data collection concerned the factors affecting the management of each botanical garden. Eight botanical garden staff members who had worked for at least 3 years at the administrative level were selected. They each had rich experiences in managing the botanical gardens, and gave essential information about various factors that arose while managing the botanical gardens. In-depth interview was employed as a tool for data collection.

Furthermore, non-informant observation and semi-structured interviews were employed by the researchers. Some of these occurred simultaneously while others were held individually. Triangulation was applied for obtaining the reliability of data using different information sources. This included staff members, executives of gardens, and community leaders.

*Data Analysis*

In this study, content analysis was employed to analyze qualitative data. First, data generated from qualitative interviews and focus groups were transcribed. Next, transcribed data were coded and analyzed to generate themes and sub-themes to further dissect the current management practices of botanical gardens.

After that, participants were asked to prioritize the factors affecting the increasing visitor numbers and that which could lead to successful informal learning in botanical gardens. Most of them concluded that there were four factors which were urgent and needed to be solved first. Data were then categorized into two groups by researchers to demonstrate the factors affecting the sustainability of the management of each botanical garden. The first group of four factors was prioritized as 'needed to be managed first', while the second group was comprised of three factors marked 'needed to be managed next'. The framework was then created using these factors. To obtain reliability and accuracy, this framework was validated by experts.

**Results**

*Current Situation of Botanical Gardens in Thailand*

The findings can be presented by utilizing the service marketing mix concept as follows:

1. Place, findings revealed that most visitors, especially local people, were able to visit botanical gardens easily because they were living nearby.

2. Product, it was found that the botanical gardens were not able to transform the rich knowledge of plants to the edutainment media needed to draw visitors' attention, resulting in a lower number of visitors coming to the gardens.

*"There was lots of knowledge in botanical gardens, but we cannot produce attractive learning media to draw visitors' attention ourselves. We can hold only exhibitions; it did not attract people to come learning at botanical gardens."*

*(Executive of botanical garden)*

3. Price, we found that the cost of admission was set too high, resulting in lower numbers of visitors.

4. Promotion, it was found that those responsible staff only completed these tasks as a part of their routine, generally only completing what was necessary in order to pass the working evaluation criteria. For example, many officers promoted their respective garden's activities via

social media once a month, as specified by their job description, which is clearly not enough to properly promote an already underserviced product. Therefore, less information about the activities of the botanical gardens was communicated to the public.

*"The staff just did the PR because they had to follow their job description. They did not want to fail the performance assessment and lose their jobs. So, it never works, no surprise."*

*(Head of botanical garden)*

5. Employees or People, have been a major obstacle for botanical gardens, which are striving to meet their full potential. Executives have generally paid less attention to these gardens because they represent such a small part of the service industry with low visitor numbers. In addition, local staff members often lack standard job qualifications (including professional degrees, designation or certifications).

*"The problem of botanical gardens that has long been is the lack of staff that hold a specific degree, such as biology. Now, we hire staff who hold political science or business administration qualifications to work on conserving plants."*

*(Head of botanical garden, in current position for more than five years)*

6. Physical evidence, it was found that most of the botanical gardens still lack the facilities needed to fulfill their functions, including a library or a laboratory. In addition, the lack of general upkeep in the existing facilities has resulted in deterioration. For example, many gardens have bathrooms that are not clean.

7. Process, it was also found that providing information and a service to walk-in visitors was a problem because of the low number of staff members.

*"We want the staff who can give information to walk-in visitors. Now, the staff members facilitate only tourists or students who visit as group."*

*(Community headman)*

*The Framework for Promoting the Botanical Gardens in Thailand as Informal Learning Centers*

These findings revealed that in order to better manage Thai botanical gardens, the seven success factors of the service marketing mix concept must be used, and should even be divided into two levels to indicate the function and priority of each factor (Figure 2). The first level, more important than the second level, contains four factors that must be managed first. They consist of location accessibilities, organizational awareness, edutainment products, and integrated promotions. A botanical garden needs to be located nearby a community or highway; the staff members need to be passionate about their jobs; the media employed needs to be fun for everyone who comes to learn; and the learning activities need to be promoted

through various channels to reach target groups of all ages in order to attract more visitors. These factors can help promote botanical gardens as an attractive learning source for visitors and inspire them to visit and partake in experiential learning.

The second level is comprised of three factors which are important to be managed next. They consist of quality of services and facilities, value of natural resources, and financial value. The botanical gardens need to provide good services to visitors with facilities that are ready to use. This includes the general upkeep of those facilities and the garden, which in turn increases the value of the natural resources. In addition, it is important to note that visitors will need to be satisfied with the overall experience, as they generally must spend large amounts of time and money traveling to a more remote garden. These three factors help raise visitors' satisfaction and ensure they will return to the gardens in the future, which ultimately will help botanical gardens in Thailand maintain their function and become an attractive destination for visitors from all around the world. This framework has been evaluated by a staff member at a study area. Based on the Kirkpatrick's concept (2006) score of 8.69 out of 10, this framework should be a practical solution that can be applied to botanical gardens across Thailand.

**Discussion**

As they are now, botanical gardens in Thailand cannot reach their full potential. This framework was developed to help solve these problems using a service marketing mix concept. This framework has the potential to become a powerful model for improving the management of botanical gardens in Thailand. Additionally, there are broad issues that have come to light from this examination, consisting of two major themes:



**Figure 2** The two levels of factors promoting botanical gardens to be effective informal learning centers

*Human Resources of Botanical Gardens*

Human resources are generally considered the most valuable aspect of any organization, as one can use their intelligence along with other abilities and skills to sustain and create a distinctive character for their organization (Houghton, 2017). They can even widen their skillset if appropriately motivated, ideally applying these in order to help achieve the organization's long-term goals. However, our findings uncovered that the employees of the botanical gardens lack this potential to efficiently manage the botanical gardens as an informal learning source. There are two essential groups of human resources affected by this issue:

*Executives*: This investigation found that executive community members paid less attention to Thai botanical gardens because they attract a small number of visitors when compared to other conservation units (i.e. National Parks) under the Department of National Parks, Wildlife and Plant Conservation. This results in a lack of support for staff, as well as inadequate equipment to help provide adequate services. These executives play a vital role in supporting the botanical gardens to increase their potential and achieve their goals (Gibson, Ivancevich, Donnelly, & Konopaske, 2012). Executives should therefore raise their organizational awareness to strengthen their department's problem-solving processes. This corresponds with Goleman (2017) who argues that executives can help their staff handle problems appropriately by determining a practical vision and mission by increasing their organizational awareness (Jabbar & Hussein, 2017).

Although botanical gardens are small conservational units, they are still a significant learning source and play a vital role in preserving natural resources. Hence, executives need to pay more attention to botanical gardens and raise their organizational awareness. This could help botanical gardens receive the support they need from their executives in order to become capable of providing their services efficiently.

*Staff:* This study also found that staff members generally lack the job qualifications necessary to be effective in their roles (including specific degrees, knowledge, and professional designation). This is a key problem that impedes the success of the services being offered in botanical gardens. Human resources are an important part of any organization, and can be positively related to the performance and formation of knowledge about an organization (Seleim, Ashour, & Bontis, 2007; Tai-Ning, Hsiao-Chen, Shou-Yen, & Chiao-Lun, 2011). If staff lack appropriate knowledge, it directly affects a botanical garden's ability to achieve its goals, as seen in other case studies (Qumsiyeh et al, 2017).

In response, staff members in various botanical gardens of Thailand need to be trained or encouraged to continue their studies in a related field in order to increase their knowledge and skills to be suitable for their individual tasks and responsibilities. This can also help in aiding staff's ability to create edutainment media and activities to use as tools for attracting more visitors to learn in the gardens.

*Learning Media in the Botanical Gardens*

Learning media is a critical component to the learning processes as it can be an effective tool in engaging people, therefore enhancing the effectiveness of learning. If learning media is appropriately designed, produced, and applied, it will greatly improve learning outcomes (Naz & Akbar, 2008). However, the findings of this study indicate that botanical gardens in Thailand lack learning media which properly engage visitors. In contrast, many international botanical gardens have employed attractive learning media which not only attracts more visitors, but also creates new learning experiences, and encourages learners to engage with their informal learning environment (Office of the Education Council, 2005). These learning media should be easily accessible and respond to the learning needs of visitors as they do in other botanical gardens, such as in Australia (Phau, Lee, & Quintal, 2013). Without this, botanical gardens in Thailand will not reach their full potential.

Learning requires attractive media to create an enjoyable environment that fosters the development of cognitive skills in learners (Greenfield, 2009). Edutainment learning media such as video games, interactive games, and scientific products promote informal learning to be both more attractive and enjoyable. They also help in creating positive learning experiences that develop learners' understanding. They can draw attention to and inspire learners' motivation better than the other forms of learning media (Corona et al., 2013). This confirms the thinking of Rodgers and Withrow-Thorton (2005) as well as Aksakal (2015), who argue that edutainment is a unique tool in that it can combine educational aims to create memorable learning experiences. It also effectively helps develop other skills, such as problem-solving and teamwork.

In conclusion, botanical gardens in Thailand need to be encouraged to utilize edutainment media to attract more visitors. Improving Thailand's botanical gardens to maintain their capabilities as informal learning centers will ultimately lead to the cultivation of environmental awareness in visitors.

**Conclusion and Recommendation**

This framework can be applied to other botanical gardens in Thailand to help them reach their potential. Based on the results of our analysis, we suggest four areas which need to be organized first as the target for improving the management of botanical gardens:

## Human Resources of Botanical Gardens

Executives should focus on developing the potential of staff members by encouraging them to further their studies in a related field such as plant identification and ecology to increase their knowledge and skills to better fulfill their responsibilities.

## Learning Media in Botanical Gardens

Learning media in botanical gardens should use edutainment principles which encourages visitors to develop their knowledge of plants and their uses through virtual learning activities.

## Local Accessibility

Botanical gardens in Thailand should apply online platforms that make virtual trips easy for both Thai and foreign visitors.

## Integrated Promotion

Botanical gardens in Thailand should create a smart ticketing system that visitors can use for travelling to the gardens throughout Thailand for one special price.

## Conflict of Interest

There is no conflict of interest.

## Acknowledgement

## References

Aksakal, N. (2015). Theoretical view to the approach of the edutainment. *Social and Behavioral Sciences*, *186*, 1232–1239.

Babbie, E. (2011). *The basics of social research*. Belmont, CA: Wadsworth.

Ballantyne, R., Packer, J., & Hughes, K. (2008). Environmental awareness, interests and motives of botanic gardens visitors: Implications for interpretive practice. *Tourism Management*, *29*(3), 439–444.

Board of Trustees of the Royal Botanic Gardens, Kew. (2018). *Royal Botanic Gardens, Kew Annual Report and Accounts for the year ended 31 March 2018*. Richmond, UK: Royal Botanic Gardens, Kew.

Botanical Garden Organization. (2016). *Strategic plans of botanical garden organization. phase 2, 2017–2021*. Chiangmai, Thailand: Botanical Garden Organization. [in Thai]

Boyce, C., & Neale, P. (2006). Conducting in-depth interviews: *A guide for designing and conducting in-depth interviews for evaluation input*. Massachusetts, MA: Pathfinder International.

Ching, G. H., & Mahmood, N. (2016). The user's perceptions of Perdana Botanical Garden in Kuala Lumpur. *Journal of Design and Built Environment*, *16*(1), 27–36.

Christian, H., Gamayanto, I., Wibowo, S., & Astuti, Y. P. (2018). The impact & innovation of E=K.MC² in Singapore Botanic Garden (SBG): The business strategy to gain competitive advantage. *Journal of Economics and Management Sciences*, *1*(1), 166–174.

Corona, F., Cozzarelli, C., Palumbo, C., & Sibilio, M. (2013). Information technology and edutainment: education and entertainment in the age of interactivity. *International Journal of Digital Literacy and Digital Competence*, *4*(1), 12–18.

Gibson, J. L., Ivancevich, J. M., Donnelly, J. H., & Konopaske, R. (2012). *Organizations: Behavior, structure, processes*. New York, NY: McGraw-Hill.

Goleman, D. (2017). *How organizational awareness leads to success*. Retrieved from https://www.kornferry.com/institute/organizational-awareness-leadership

Greenfield, P. M. (2009). Technology and informal education: What is taught, what is learned. *Science*, *323*(5910), 69–71.

Gurel, E., & Aydin, S. I. (2016). Public relation in service marketing. *The Journal of International Social Research*, *9*(45), 803–810.

Hengky, S. H., & Kikvidze, Z. (2018). Tourism sustainability in the Bogor botanical gardens, Indonesia. *Urban Forestry & Urban Greening*, *30*, 8–11.

Houghton, E. (2017). *Human capital theory: Assessing the evidence for the value and importance of people to organizational success*. London, UK: Chartered Institute of Personnel and Development.

Jabbar, A., & Hussein, A. (2017). The role of leadership in strategic management. *International Journal of Research-Granthaalayah*, *5*(5), 99–106.

Krishnan, S., & Novy, A. (2016). The role of botanic gardens in the twenty-first century. *CAB Reviews*, *11*(23), 1–10.

Kiriktas, H., & Eslek, S. (2017). The experience of assessing out-of-school learning environment. *Universal Journal of Educational Research*, *5*(8), 1410–1424.

Kirkpatrick, D., & Kirkpatrick, J. (2006). *Evaluating training programs*. San Francisco, SF: Berrett-Koehler.

Liedtka, J. (2008). Strategy making and the search for authenticity. *Journal of Business Ethics*, *80*(2), 237–248.

Naz, A. A., & Akbar, R. A. (2008). Use of media for effective instruction its importance: some consideration. *Journal of Elementary Education*, *18*(1–2), 35–40.

Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches*. Harlow, UK: Pearson Education Limited.

Office of the Education Council. (2005). *Research report on learning management of life-long learning source: Botanical gardens*. Bangkok, Thailand: Phimdee Karnphim. [in Thai]

Phau, I., Lee, S., & Quintal, V. (2013). An investigation of push and pull motivations of visitors to private parks: The case of Araluen Botanic Park. *Journal of Vacation Marketing*, *19*(3), 269–284.

Qumsiyeh, M., Handal, E., Chang, J., Abualia, K., Najajreh, M., & Abusarhan, M. (2017). Role of museums and botanical gardens in ecosystem services in developing countries: Case study and outlook. *International Journal of Environmental Studies*, *74*(2), 340–350.

Rodgers, D. L., & Withrow-Thorton, B. J. (2005). The effect of instructional media on learner motivation. *International Journal of Instructional Media*, *32*(4), 333–342.

Royal Botanic Gardens Board Victoria. (2017). *Annual report 2016–17*. Melbourne, Australia: Royal Botanic Gardens Victoria.

Sarker, M. A. H., Wang, A., & Begum, S. (2012). Investigating the impact of marketing mix elements on tourists' satisfaction: An empirical study on East Lake. *European Journal of Business and Management*, *4*(7), 273–282.

Seleim, A., Ashour, A., & Bontis, N. (2007). Human capital and organizational performance: A study of Egyptian software companies. *Management Decision*, *45*(4), 789–801.

Sharpley, R. (2007). Flagship attractions and sustainable rural tourism development: The case of the Alnwick Garden, England. *Journal of Sustainable Tourism*, *15*(2), 125–143. doi: 10.2167/jost604.0

Tai-Ning, Y., Hsiao-Chen, C., Shou-Yen, L., & Chiao-Lun, T. (2011). Knowledge creation and intellectual capital on securities investment services. *African Journal of Business Management*, *5*(3), 924–933.