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# RANGSIT JOURNAL OF SOCIAL SCIENCE AND HUMANITY (RJSH)

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## Editor's Note

Dr. Arthit Ourairat, Founding President Emeritus of Rangsit University, has had the dream of building the best educational university with the most comprehensive programs that can develop the people to be the strength of our country. He has spent his whole life making this dream come true. On May 9, 2022, the 84th anniversary of his, Dr. Arthit Ourairat passed this mission on to Dr.Attawit Ourairat to continue working on these ideals. At the same time, the RJSH journal continues to help lead intellectualism to its respected place in society.

This issue presents you with 9 articles from various disciplines. In the first article, Asekha Khantavchai, Pailin Chayapham, and Siriwong Earsakul studied tourist behavior and developed new travel routes in Udonthani. By using social network analysis, 16 travel routes were developed. The authors found that the satisfaction of tourists toward these travel routes was at the highest level. In addition, the authors presented these travel routes via the Android application named "Tiew Muang Rong Udonthani" (Secondary City Tourism in Udonthani).

In the second article, Pawinee Chuayprakong studied the emotional labor and job performance of local revenue collectors in Thailand. Through the process-tracing method and in-depth interviews, the authors found that the local revenue collectors performed both surface acting and deep acting. Their surface acting might lead to relatively low levels of job performance, but their deep acting might lead to relatively high levels of job performance among the local revenue collectors.

Next, Nhat Khanh Le and Boon Anan Phinaitrup studied factors affecting the work motivation of civil servants in Vietnam and found that work conditions and supervisor support significantly affected the work motivation of civil servants working in the Department of Home Affairs in Ho Chi Minh City.

In the fourth article, Nirumon Rattanarat studied the elder abuse situation in Nang Rong district, Buriram province, Thailand, and proposed guidelines for the prevention of elder abuse in the community.

In the fifth article by Supawadee Boonyachut and Terdpong Boonpan, they aimed to design the mascot and cultural tourism map for old Trat's town community, the so-called "Chiang Khan of the eastern land" by foreign tourists. Through the public participation process, mascots of "the happy grandmother and grandfather" were selected, and the cultural tourism map was created.

In the sixth article, Zheng Zheyun explored Chinese national self-confidence and out-group trust during the Tokyo Olympics. Based on a survey of the Mainland Chinese public, the author found that though the Olympic Games had had a positive impact on Chinese national self-confidence, they had had a negative impact on the out-group trust.

In the seventh article, Rosatorn Toobunterng studied the process of access to a cashless society of the baby boom generation in Thailand, and the factors affecting the access. The author found that this process required the support of the government, the private sector, and the people. Through in-depth interviews, the author specified 8 factors that affect access, namely, social influence, effort expectation, facilitating conditions, performance expectation, price value, habit, hedonic motivation, and perceived risk.

In the eighth article by Issara Suwanragsa, Pathathai Sinliamthong, Pallapa Srivalosakul, Nopphon Tangjitprom, and Chainarin Srinutshasad, the authors studied trends of electronic payment and its impact on the Thai economy. They found that internet/mobile banking had been the most popular E-payment in Thailand since 2017. In addition, they found that the E-payment had a positive impact on the Thai economy.

The last article is from Malaysia. Based on the Malaysian parent survey, Yek Ming Liew and Hwee Ling Siek designed a multi-functional baby naptime device for safe and eco-friendly modern living.

We welcome your comments and, of course, your manuscripts. Links to our manuscript submission site can be found at RJSH Online Submission and Review System: www.rsu.ac.th/rjsh. We look forward to hearing from you and thank you in advance.

Thamavit Terdudomtham

Editor-in-chief

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# The Study of Tourist Behavior and the Development of Local Community Travel Routes from Talaybuadang to Khamchanod in Udonthani

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## Abstract

The research article entitled "The Study of Tourist Behavior and the Development of Local Community Travel Routes from Talaybuadang to Khamchanod in Udonthani" was intended to develop new travel routes in Udonthani so as to improve tourism in Udonthani and neighboring provinces and to develop a new travel platform using websites and applications as a medium connecting communities with tourists with ease. The present study employed social network analysis. Tourist attractions and activities in Udonthani were determined as nodes in the network. In addition, it investigated travel behavior among 400 tourists to serve as edges between each node so as to establish a travel network connecting tourist spots in the province in which Khamchanod and Talaybuadang were primary tourist attractions. Social network analysis was then conducted; as a result, there were 5 main tourist attractions, 17 secondary tourist attractions and 8 community and local business tourist spots. Despite that, the results indicated that the eigenvector centrality score was most consistent with the sample group's satisfaction level. Subsequently, the research team developed travel routes each with primary tourist attractions, accompanied by secondary tourist attractions and community and local business tourist spots. More importantly, all travel routes must have close eigenvector centrality values. Consequently, there were 16 suitable travel routes. Once 16 travel routes were established, the satisfaction among 400 tourists was investigated. It was discovered that the tourists' satisfaction towards all 16 travel routes was at the highest level with a mean score of 4.55 and a standard deviation of 0.53. Afterwards, the researchers presented all 16 travel routes via the Android application named "Tiew Muang Rong Udonthani" (Secondary City Tourism in Udonthani) on Google Play Store. The satisfaction of 400 tourists was at a high level with a mean score of 4.48 and a standard deviation of 0.63.

***Keyword:*** *Social Network Analysis, Travel Routes, Udonthani*

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## 1. Introduction

Udonthani is a province with identities and distinction as the origin of Esan heritage and the lifestyles of people in Mekong river, and its distinctive features extend to eating, music, natural attractions and dhamma sites which are worth for the entrance of new Esan. In fact, the word E S A N conveys several meanings; specifically, *Eating* refers to eating identities such as sticky rice and papaya salad, *Song* involves music and performing arts identities such as Morlam and Ponglang, *Amazing destination* is relative to fascinating tourist attractions as in Talaybuadang, Watpaphukon and Phutok, and *Natural life* pertains to living identities of people assimilating with nature, generosity and friendliness to visitors. In terms of economy, the upper northeastern provinces have geographic potential which can connect transportation in ASEAN countries, are undertaking the construction project of the Nong Khai-Khon Kaen double-track railway and, most importantly, are one of China's strategic plans One Belt One Road. Thus, it can be stated that they are transitioning into new Esan with considerable economic growth and developing into the land of opportunities for entrepreneurs, investors and people in the areas (National News Bureau of Thailand, 2018).

There are only a few tourist attractions in Udonthani, irrespective of the fact that its location is suitable and can accommodate tourists. In fact, its well-known tourist attractions are Talaybuadang and

Khamchanod. If both places are used as a basis to explore new tourist spots and design interesting travel routes, it will contribute to an influx of tourists and promote travel activities throughout the year. As an example, there is a salt farm in Bandung district, apart from Khamchanod, with spectacular scenery which should be perceived as Esan sea and cultural foods. Serving as a new tourist attraction, it will in turn create occupational opportunities and generate sustainable incomes for salt and rice farmers and people in communities.

Currently, with the technological advancement, social media or online channels are becoming increasingly important for information retrieval and increase convenience of travel among tourists. Based on Euromonitor's prediction, the global average growth rate of online travel revenues would be 10% per year, which increased from 166 thousand million dollars in 2011 to 363 thousand million dollars in 2020. Notwithstanding that, Thailand's infrastructure and potential of information and communication system have had some limitations to development. As a result, the Second National Tourism Development Plan (2017-2021) provides that the government shall give precedence to investments in developing and promoting an online tourism system as well as promoting new information technology for local businesses in response to changing tourism trends. However, Thailand's tourism has still fallen behind with promotion of information and convenience for tourists via online channels which are urged to be developed to fulfill their future needs (National Tourism Policy Committee, 2016).

Therefore, the present research aimed to develop an online-offline travel application for travel routes from Talaybuadang to Khamchanod in Udonthani. It was conducted in the hope of developing new travel routes to improve tourism in Udonthani and nearby provinces and to develop a new travel platform using websites and applications as a medium to connect communities with tourists with ease. Moreover, social network analysis was employed to facilitate the development of new travel routes according to tourists' needs.

Social network analysis is defined as an analysis of mathematical structure in terms of graphs consisting of nodes and edges that connect one another to create networks (Freeman, 2004; Knoke, & Yang, 2008; Otte, & Rousseau, 2002; Prell, 2012). In the analysis, a node qualified as the best representative of nodes is selected. There are many qualities in the analysis. However, in this study, degree centrality, triangles, betweenness centrality, closeness centrality, clustering coefficient and eigenvector centrality were used to find the best representative of nodes representing the prime ministerial candidate of Thailand reflecting the most satisfaction of the voters for both majority and minority.

Borgatti, Mehra, Brass, and Labianca (2009) proposed that the importance of social network analysis is to calculate centrality values of the social network graphs. On the other hand, this study considers values that are appropriate for the network of votes in Thailand's election as described below.

Degree centrality is the fundamental degree centrality having been used since the early study of graph theory. It counts how many lines or edges the nodes have and consists of both degree centrality and weight degree centrality (Golbeck, 2013; Golbeck, 2015). The degree centrality is the simplest centrality to compute but has little political reconciliation.

There is a hypothesis of betweenness centrality that any nodes present between the connection of other nodes serve as the hub of the network because the node in this position is able to control any interactions among the nodes connected through the node itself (Goh, Oh, Kahng, & Kim, 2003). The node can serve as the controller of the door of relations or prevent any undesirable connection (Wasserman, & Faust, 1994). The algebraic equation of the betweenness centrality or $b(i)$ of $i$ is shown below.

$$b(i) = \sum_{j.k} \frac{g_{jik}}{g_{jk}}$$

$g_{jik}$ is a number of the shortest edge from the hub *j* to *k* through $i$ .

$g_{jk}$ is a number of the shortest edge from hub *j* to hub *k.*

Closeness centrality is a measure of the speed of a node and to what extent it is able to connect to the other nodes in the network (Ruhnau, 2000). The edges that directly come out and indirectly come out through other nodes in the network are considered. This means the higher score of closeness a node has, the faster ability it has to connect to or affect other nodes. Moreover, the closeness with a high score indicates the efficiency of communication about information or comments throughout the network, and this also expresses little necessity of dependence on other nodes in transferring the information. Therefore, the algebraic equation of closeness centrality or $b(i)$ of node $i$ can be written as follows:

$$\mathrm{c}(i) = \sum_j d_{ij}$$

$d_{ij}$ is a number of connections in the shortest distance from $i$ to *j*.

Clustering coefficient is a measure of cluster (Schank, & Wagner, 2005). That is, if a group of nodes represents a cluster, it means that the group has high density of nodes at that network area. However, if clustering coefficient equals to 1, it means that every node directly connects to the other nodes in the network, but if the clustering coefficient equals to 0, it means there is not any connection among the nodes in the network.

$$cc(v) = \frac{2N_v}{K_v(K_v - 1)}$$

$K_v$ is a number of nodes connecting to the centrality.

$N_v$ is a number of relations of edges between the node and the centrality.

Eigenvector centrality is a measure of the influence value of the network elements. The principle used is that an element connecting to other elements with high influence values has higher eigenvalue than that connecting to other elements with low influence values (Ruhnau, 2000).

Chairatana, and Na Thalang (2017) formulated an integrated tourism development plan in Udonthani and investigated satisfaction towards the assessment of the potential of sustainable tourism development in Udonthani. Her study found that: in terms of nature, Khamchanod in Bandung district was rated with the highest mean score, with Nongprachak public park coming in second, while Phufoilom in Nongsaeng district had the lowest mean score. As regards cultures and history, Watpaphukon in Namsom district achieved the highest mean score, secondarily followed by Khamchanod in Bandung district. Watnakhathewi in Bannakha, Mueang Udonthani district was rated with the lowest mean score. On festivals, it was discovered that the worship of Prince Prajak annually held on January 18th at the statue of Prince Prajak was rated with the highest mean score, while the worship of Phraphutthabatbuabok at Watphraphutthabatbuabok in Banphue district came second. Mango's fair in Nong wua so district had the lowest mean score. Concerning activities, paying respect to buddha and making a wish at Watpabantad in Mueang Udonthani district earned the highest score, with a sightseeing cruise in Talaybuadang in Kumphawapi district coming in second place. Loy krathong festival held at Nongprachak public park was rated with the lowest mean score. Regarding services, the aspect with the highest mean score was the convenience of transportation modes, e.g. vehicles, buses, trains and air planes, and the sufficient accommodation for tourists, e.g. hotels, resorts and homestays, and its reasonable prices came second. The aspect with the lowest mean score was clarity of the sign, such as directional signs and advertising.

In conclusion, the qualitative research conducted through a review of literature, observation, interviews and meetings with three groups of concerned parties, e.g. the public sector, the private sector and people in tourist attractions, found that maintaining tourist satisfaction for repeat purchases and word of mouth would promote the popularity of tourist attractions and allow for continuous marketing.

Aeknarajindawat (2018) reveals that the development approach for the Talaybuadang, Udonthani province creative tourism included six areas: (1) diverse tourist attraction development, (2) increase in channels and access to tourist information, for examples, tourism websites, or biking activity, (3) increase in the facilities, (4) organizing various tourism activities, (5) tourism services, (6) tourism development with the integration of public, private, tourist and community partnerships, as well as the establishment of tourism network among six ferries and the nearby tourist attractions.

Sritalalai (2020) conducted a study on cultural tourism in the belief about "Naga" of Thai tourists in the northeast Thailand (Udonthani, Nongkhai, Bueng Kan, and Nakhon Phanom province). It was found that as regards purposes of travel, the majority of the sample intended to relax themselves and enhance their knowledge and experience on tourist attractions or Naga-based traditions in which they share belief. Apart from that, the results showed that the most preferred tourist attraction was Khamchanod forest, Udonthani province.

In the meantime, Sujjasapho (2020) carried out research on promoting approach for Buddhist tourism management of temples in Nayung district, Udonthani province. The results showed that regarding problem states of Buddhist tourism management, Watpaphukon had six aspects as follows: 1) accommodation: inadequate accommodations for dhamma practice; 2) personnel: a lack of interpreters; 3) temple development: a landscape in Buddhism-based tourism; 4) environmental conservation: appreciation of the environment; 5) tourism: insufficient public relations; and 6) facilities: convenient transport and sufficient parking lots. Moreover, Watpanakhamnoi had two aspects, namely waste management including waste disposal and unsorted waste, and public relations as in a need for public relations of spiritual tourism.

Angskun, and Angskun (2014) also conducted a study on the design and development of an online travel itinerary planner under energy saving constraints. The study points out that tourists are using the Internet as an important tool to design travel plans; specifically, they use it not only to search for desired destinations but also to minimize travel expenses effectively.

Jungsaman, Lonkuntod, Wongchaipatoom, and Doomnin (2020) developed an Android-based mobile application for tourist attractions in Surin; the application can show information of the destinations, pinpoint users' location, display news from websites and search for information of tourist attractions. The results demonstrated that there was a high level of overall satisfaction among the users towards the mobile application.

Similar to the previous study, Chormuan, Jaidee, and Kasetpaisit (2014) developed an Android-based travel application. It was purposefully designed to provide convenience of travel for tourists desiring to travel to Kanchanaburi by allowing them to search for relevant information and watch videos of tourist attractions before making decisions; the application can also arrange tourist attractions based on graph theory and simulate the shortest route to minimize expenses and duration, and it can identify tourists' location during travel to ensure the correct route to the destination as well. On tourists' satisfaction towards the application, the results demonstrated that they were satisfied with the application ($\bar{X}$ = 4.37, S.D. = 0.47).

Similarly, Sittiwiset, Tungkawet, Nanthapoom, Yomchinda, and Thepbundit (2019) developed an application for promoting self-guided tourism in Nang Lae sub-district, Chiang Rai, and investigated Thai and foreign tourists' satisfaction towards the application. In terms of the application development, nine tourist attractions and seven restaurants and cafes were chosen by the community. In addition, regarding qualified experts' quality evaluation, the application was rated with the highest level of overall quality ($\bar{X}$ = 4.45, S.D. = 0.61). It was also found that there was a high level of tourists' overall satisfaction towards the application ($\bar{X}$ = 4.12, S.D. = 1.45).

As evidenced in prior studies, it can be noticed that the major problem of tourism in Udonthani lies in inadequate public relations and facilities. What's more, the literature on travel application development points out that the application indeed is effective and can satisfy tourists remarkably. Consequently, the present study sought to develop the application to promote tourism in Udonthani.

## 2. Objectives

The objectives of this study are listed as follows:

1) To develop new travel routes in Udonthani so as to improve tourism in Udonthani and neighboring provinces

2) To develop a new travel platform with websites and applications as a medium connecting communities and tourists with ease.

## 3. Materials and Methods

The research consisted of 5 steps executed for the period of 6 months. All steps are detailed below.

**3.1 Data Collection**

Data were collected and synthesized from a thorough review of books, documents and prior studies related to tourism management and a community way of life in Udonthani. Afterwards, the research proceeded as clarified below.

1) The research team and villagers formulated a plan and undertook a field study to obtain data on existing and new community lifestyle tourist attractions, natural attractions and architecture which could be used to map travel routes in the application.

2) The research team approached community leaders, a government sector, public and private organizations and politicians for establishing a collaboration and liaison network which would contribute to achieving the objectives of this research.

**3.2 Application Creation and Development**

After the collection of data on community lifestyle attractions and other tourist attractions in the areas, the application was created while travel routes were designed as elucidated below.

1) The researchers reached a conclusion and designed the application in concert with villagers, travel bloggers and communities in the areas to fulfill communities' and tourists' needs successfully and to benefit community lifestyle-based tourism in Udonthani. It was also designed for ease of use for villager users as well as ease of searching travel routes according to tourists' needs.

2) Public relations activities for the project were undertaken to encourage communities ready to be community local tourist attractions to be included in travel routes.

3) A training session, a seminar and a share and learn meeting, together with a field study, were organized; guest speakers and community representatives of community lifestyle tourist attraction models offered suggestions to communities ready to be developed into community lifestyle tourist attractions. After the training session and the seminar, the communities' readiness was assessed before being developed into community lifestyle tourist attractions.

4) 16 travel routes were designed using social network analysis. In particular, the routes would connect to Talaybuadang, Khamchanod and Esan sea which can be traveled within one day. Apart from that, tourists in Udonthani's opinions were explored while travel routes were also improved to fulfill tourists' needs.

5) The application was then developed on the basis of ease of use, a beautiful user interface and novelty. It comes with a One Day Trip menu which displays all 16 travel routes, It allows tourists to choose travel routes based on suggestions and provides information on experiences of community lifestyles in each route to help tourists choose the routes and to improve the their quality .

6) Upon the completion of application creation, community representatives as community lifestyle tourist attractions in the project were trained in the use of the application by the research team. Particularly, the simulation was performed to test the system and their understanding. Moreover, their opinions, satisfaction and suggestions were sought and taken into account to help improve the application.

7) The survey results from 6 were taken into account to enhance the efficiency of the application according to communities' and tourists' use. The opinion survey and the application improvement were constantly conducted throughout the period of this research and after the official launch.

8) The trial version of the application was released.

The research team formulated the following conceptual framework to develop the efficient and practical application as shown in Figure 1.

**3.3 Quality Testing for Website and Travel Route Development**

Application tests serve as the essential process. Given that this form of the service was still a novel idea for the communities participating in this project, they may have encountered certain problems and were unable to solve them. The research proceeded as clarified below.

1) In the trial, the sample group used the application to allow community lifestyle attractions to provide full services in practice. It would help identify issues before the official launch.

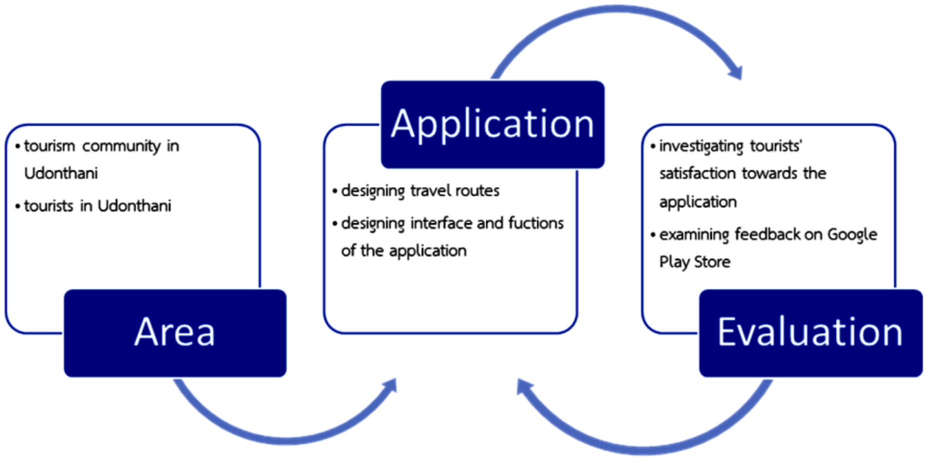


**Figure 1** Conceptual framework for research

2) After the trial, a meeting of the community representatives was held. The sample group as the first group of users also joined this meeting to share their experiences, suggestions and issues as well as to seek solutions in concert with the community representatives. This was regarded as the crucial step to allow the community representatives and local guides to exchange their thoughts with the sample group. It would also promote villagers' confidence in the service provision of the project.

3) The research team had a meeting to review the implementation to analyze outcomes and to improve the application efficiency before further public relations.

### 3.4 Official Launch and Value Creation of Research Results

This process involved the official launch and public relations of the application for tourists' application trial.

1) The application was officially launched.

2) Documents for public relations through various channels were produced, for example, sending articles to bloggers and other media in Thailand for news publication, creating and sharing infographics in social media, purchasing ads on those media and hiring well-known bloggers to use the application and publish contents which create effective impacts on search results in Google or other websites. Based on Thiangthae, Napompech, and Kuawiriyapan (2016), study the Internet most influences decisions to travel to Thailand. Thus, the researchers were able to manage public relations in accordance with the goals most effectively.

### 3.5 Conclusion of Research Results

The research team concluded research results and sought feedback from villagers in the involved communities, the tourist users and social media users to improve the application, travel routes and services to achieve the objectives of the project.

## 4. Results

After the research team and community leaders collected the data and developed the application, the training program, the seminar, the share and learn meeting (as shown in Figure 2) and the field study were conducted to provide suggestions for communities and local businesses interested to participate in the project. Subsequently, 8 communities and local businesses were chosen to be developed into tourist attractions, namely Dose factory, Gray cabin, Option coffee bar, The good day café, Banna café, Phaeangnamphan, Suansittikorn and Khiriwongkot village.

**Figure 2** Share and learn meeting

The research team and the communities also discussed popular tourist attractions in Udonthani. As a result, another 22 tourist attractions were chosen, including Khamchanod, Huailuang dam, Talaybuadang, Khoinang waterfall, Hintang waterfall, Udonthani city museum, Banchiang national museum, Phufoilom, Wangsammor forest park, Watthamsumonthaphaowana, Watpabantad, Watpaphukon, Watpadongrai, Watpothisomphon, Watphuthongthepnimit, UD town (lifestyle mall), Nongprachak public park, Ho Chi Minh educational and tourism historical site, Huaitatkha reservoir, Nayung-Namsom national park, Thanngam waterfall and Phuphrabat historical park.

### 4.1 Social Network Analysis

After determining 30 tourist attractions through a share and learn meeting with the communities, the research team undertook a field study in tourist attractions to distribute questionnaires and conduct interviews with 400 tourists about travel in Udonthani and about which of the 30 attractions they visited each time. A cross-national sample of 400 participants was determined by Yamane's calculation formula, particularly, the population was all tourists traveling to Udonthani in 2020, as shown in Table 1.

**Table 1** A total number of tourists visiting Udonthani in 2020.

| Population of the research | Number |
|---|---|
| Thai tourists | 2,200,819 |
| Foreign tourists | 35,473 |
| **In total** | **2,236,292** |

Source: Minister of Tourism and Sports (2021)

Afterwards, all 400 responses were drawn on to generate a table provided that a tourist has traveled to both attractions A and B in each of their trips, the value in AB and BA is 1. As a result, a relationship table of all 30 tourist attractions was produced and further drawn on to generate a network with weight as shown in Figure 3.

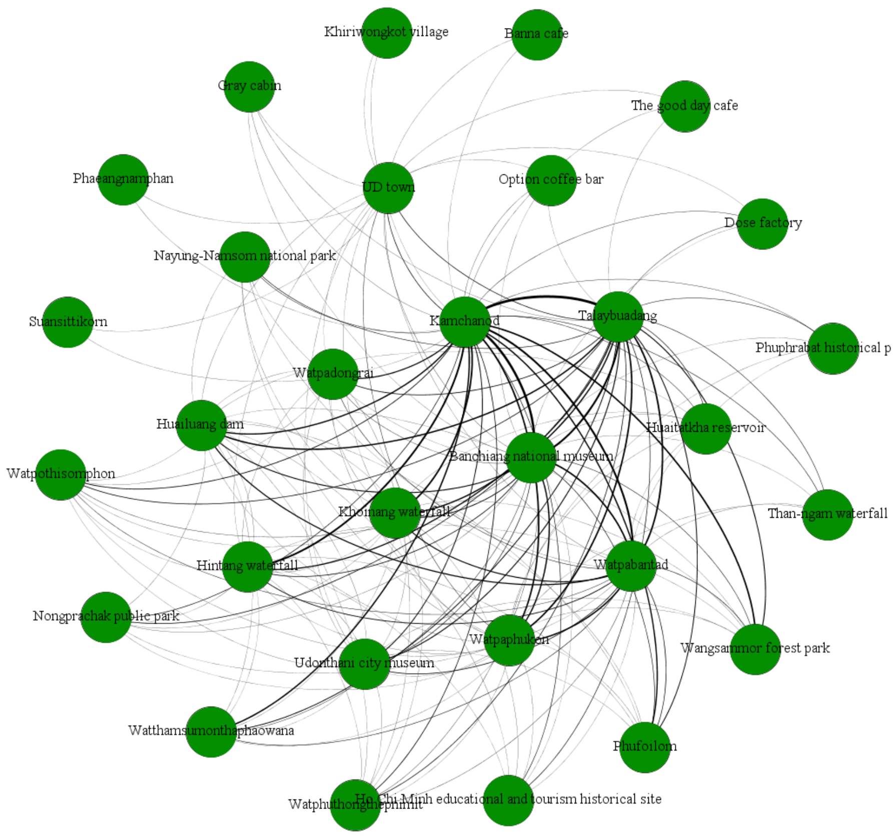


**Figure 3** The network of the relationship among tourist attractions

Afterwards, the network of the relationship among tourist attractions was analyzed to calculate degree centrality, betweenness centrality, closeness centrality, clustering coefficient and eigenvector centrality using the NodeXL software. The analysis showed that the first five tourist attractions with the highest centrality were Khamchanod, Talaybuadang, Banchiang national museum, Watpabantad and Watpaphukon.

**Table 2** The first five tourist attractions with the highest centrality.

| ID | Degree | Betweeness | Closness | Clustering | Eigenvector |
|---|---|---|---|---|---|
| Khamchanod | 29 | 112.7440476 | 1 | 0.167487681 | 1 |
| Talaybuadang | 25 | 39.74404762 | 0.878787879 | 0.219999999 | 0.969925917 |
| Banchiang national museum | 24 | 30.57738095 | 0.852941176 | 0.23550725 | 0.958435578 |
| Watpabantad | 21 | 13.57738095 | 0.783783784 | 0.288095236 | 0.912231624 |
| Watpaphukon | 21 | 13.57738095 | 0.783783784 | 0.288095236 | 0.912231624 |

As shown in Table 2, degree centrality refers to a number of routes or lines connecting a particular tourist attraction, and betweenness centrality is defined as the extent to which such an attraction is a passage through the destination or other places. Closeness centrality involves the closeness of a particular tourist attraction to the others while clustering coefficient indicates how frequently such a tourist spot is included in tourists' travel itinerary. Lastly, eigenvector centrality points out the extent to which such an attraction can influence tourists to visit the other places.

The research team further explored satisfaction towards the results; the centrality was calculated using social network analysis with the sample of 400 tourists. It was showed that eigenvector centrality ranked the centrality which was most consistent with the sample group's satisfaction; it had a score of 4.5 and a standard deviation of 0.58. Eigenvector centrality of all 30 tourist attractions is displayed in Table 3.

**Table 3** The eigenvector centrality of 30 tourist attractions.

| ID | Eigenvector |
|---|---|
| Khamchanod | 1 |
| Talaybuadang | 0.969925917 |
| Banchiang national museum | 0.958435578 |
| Watpabantad | 0.912231624 |
| Watpaphukon | 0.912231624 |
| Huailuang dam | 0.872385648 |
| Khoinang waterfall | 0.872385648 |
| Hintang waterfall | 0.818474937 |
| Udonthani city museum | 0.75797099 |
| UD town(lifestyle mall) | 0.673870911 |
| Watpadongrai | 0.65804766 |
| Watpothisomphon | 0.579477869 |
| Watphuthongthepnimit | 0.579477869 |
| Phufoilom | 0.53593838 |
| Wangsammor forest park | 0.53593838 |
| Watthamsumonthaphaowana | 0.53593838 |
| Nongprachak public park | 0.485832972 |
| Ho Chi Minh educational and tourism historical site | 0.485832972 |
| Huaitatkha reservoir | 0.431725527 |
| Nayung-Namsom national park | 0.431725527 |
| Than-ngam waterfall | 0.31631346 |
| Phuphrabat historical park | 0.31631346 |
| Dose factory | 0.240879397 |
| Gray cabin | 0.240879397 |
| Option coffee bar | 0.240879397 |
| The good day café | 0.177133278 |
| Banna café | 0.112526981 |
| Phaeangnamphan | 0.112526981 |
| Suansittikorn | 0.112526981 |
| Khiriwongkot village | 0.112526981 |

The eigenvector centrality of tourist attractions could be ranked using the size of nodes as illustrated in Figure 4.

Based on the analysis of eigenvector centrality, it is apparent that there were 5 tourist attractions with higher centrality values than the others. As a result, these 5 tourist attractions were defined as primary tourist attractions, namely Khamchanod, Talaybuadang, Banchiang national museum, Watpabantad and Watpaphukon. Meanwhile, 17 tourist attractions were assigned as secondary tourist attractions, including Huailuang dam, Khoinang waterfall, Hintang waterfall, Udonthani city museum, Phufoilom, Wangsammor forest park, Watthamsumonthaphaowana, Watpadongrai, Watpothisomphon, Watphuthongthepnimit, UD town(lifestyle mall), Nongprachak public park, Ho Chi Minh educational and tourism historical site, Huaitatkha reservoir, Nayung-Namsom national park, Than-ngam waterfall and Phuphrabat historical park. Finally, the other 8 community and local business tourist spots included Dose factory, Gray cabin, Option coffee bar, The good day café, Banna café, Phaeangnamphan, Suansittikorn and Khiriwongkot village.

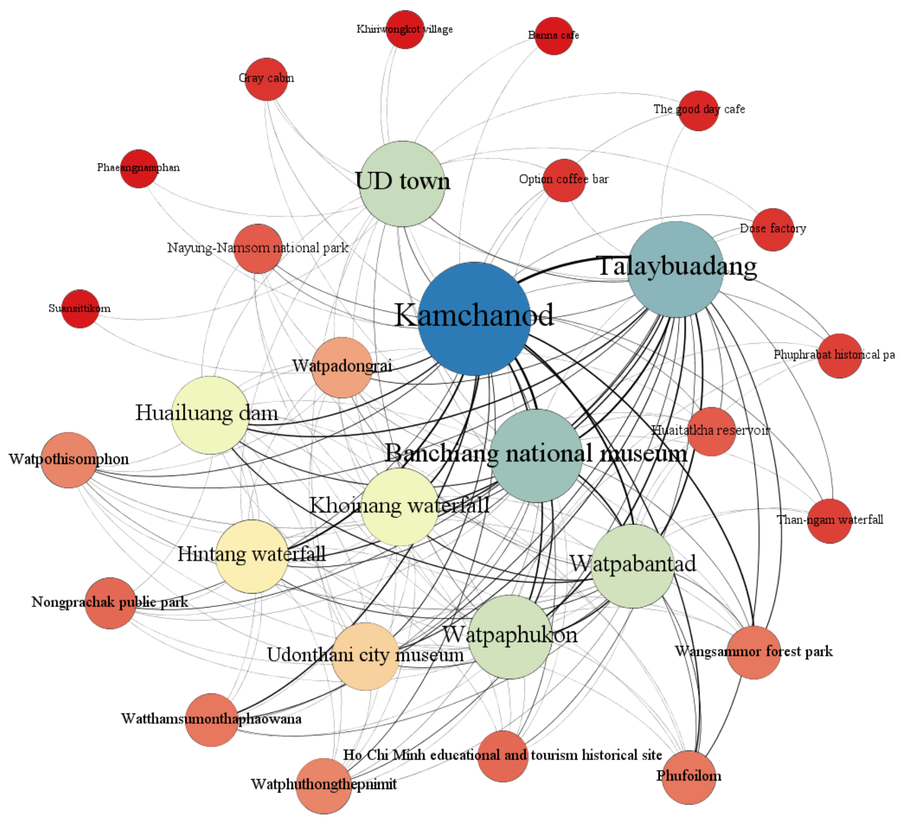


**Figure 4** The eigenvector centrality according to the size of nodes of tourist attractions

**4.2 Travel Routes**

Considering the centrality of the network of tourist attractions in Udonthani, there were 5 primary tourist attractions, 17 secondary tourist attractions and 8 community and local business attractions. Afterwards, the research team and communities had a meeting together and developed travel routes based on the data and the tourists' preference, and each route must have a close centrality value and can be traveled within one day. As a result, 16 travel routes were developed as follows:

1) Temples tour and enjoy nature includes Khamchanod, Talaybuadang, Huailuang dam, Nayung-Namsom national park and Watpaphukon.
2) Temples tour, enjoy riding E-tak tractor and water adventure includes Phaeangnamphan, Khamchanod, Talaybuadang, Huaitatkha reservoir and Khiriwongkot village.
3) Food and temples tour includes Dose factory, Option coffee bar, Banna café, Talaybuadang and Khamchanod.
4) Temples tour and lotus sightseeing includes Watpabantad, Watphuthongthepnimit, Talaybuadang, Watthamsumonthaphaowana and Khamchanod.
5) Temples tour and let's ride a duck boat includes Khamchanod, Nongprachak public park, Watpothisomphon, Watphuthongthepnimit and Talaybuadang.
6) Traces of heritage tour includes Khamchanod, Banchiang national museum, Talaybuadang, Ho Chi Minh educational and tourism historical site and Phuphrabat historical park.
7) Enjoy Udonthani city like a local includes Khamchanod, Banchiang national museum, Udonthani city museum, Talaybuadang and Wangsammor forest park.
8) Adventure and temples tour includes Hintang waterfall, Khoinang waterfall, Than-ngam waterfall, Talaybuadang and Khamchanod.

9) Fun-Filled vacation includes Phaeangnamphan, Khamchanod, Talaybuadang, Phufoilom and Huailuang dam.
10) Temples tour and bon appetit includes Khamchanod, Watpadongrai, Talaybuadang, The good day café and Grey cabin.
11) Amazing garden and city tour includes Khamchanod, Talaybuadang, UD town (lifestyle mall), Nongprachak public park and Suansittikorn.
12) Temples tour and city sightseeing includes Khamchanod, Nongprachak public park, UD town (lifestyle mall), Watpabantad and Talaybuadang.
13) Bon appetit and café hopping includes The good day café, Dose factory, Grey cabin, Option coffee bar and Banna café.
14) Adventure tour and roaming around includes Khiriwongkot village, Nayung-Namsom national park, Phaeangnamphan, Huaitatkha reservoir and Hintang waterfall.
15) Let's travel and learn includes Phuphrabat historical park, Ho Chi Minh educational and tourism historical site, Udonthani city museum, Banchiang national museum and Wangsammor forest park.
16) Let's make merit and be happy includes Watpaphukon, Watpothisomphon, Watpabantad, Watphuthongthepnimit and Watthamsumonthaphaowana.

All 16 travel routes covered 30 tourist attractions. What's more, primary tourist attractions, secondary tourist attractions and community and local business attractions were appropriately assigned to each route. It is important to note that too many travel routes can render tourists unable to make decisions on the routes. Thus, it was resolved that 16 travel routes were appropriate and adequate.

### 4.3 Android Application

Based on a review of tourist attractions in Udonthani, the researchers learned some details of tourist attractions, travel routes and types of tourist attractions. Consequently, the information was presented through the development of the smartphone application for secondary city tourism in Udonthani using Android Studio 3.5.3. The application provides tourists with information regarding 30 tourist attractions and the shortest route from one attraction to another as well as with suggestions of routes to all those attractions. In addition, its "One Day Trip" menu suggests routes for 5 popular primary tourist attractions in Udonthani, accompanied by secondary tourist attractions and community and local business attractions, as shown in Figure 5.

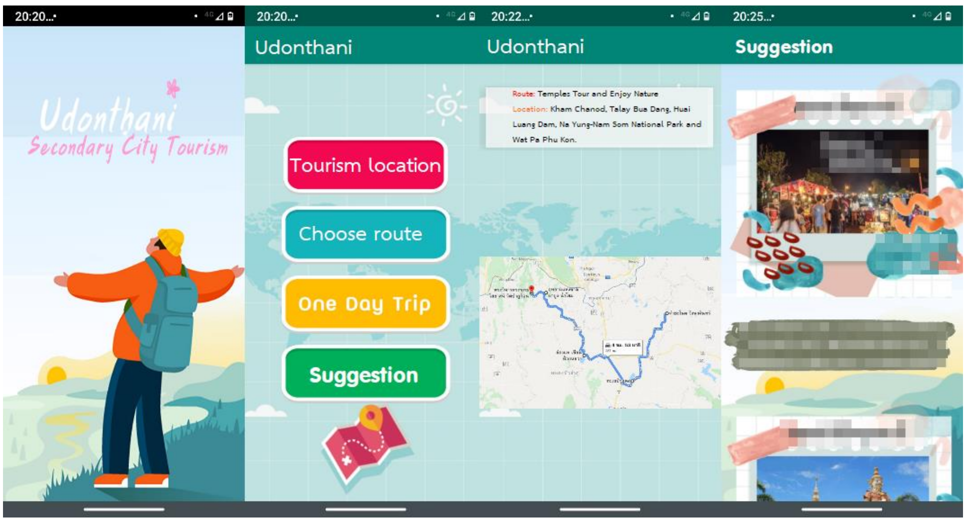


**Figure 5** The smartphone application for secondary city tourism in Udonthani

The application also comes with the “Tourism location” menu which presents information about all 30 tourist attractions; in the meantime, the “Choose route” menu suggests the best route between 2 tourist attractions, while the “Suggestion” menu suggests stops and interesting activities. The current version of this application is available only in Thai. However, the future version will be available in English and Chinese in preparation for foreign tourists’ travel after the COVID-19 situations improve and Thailand is ready to admit foreign visitors to the country.

**4.4 Satisfaction**

After officially launching the application named “Tiew Muang Rong Udonthani” )Secondary City Tourism in Udonthani) on Google Play Store for the period of 3 months, the research team undertook a field study to explore 400 tourists in Udonthani’s satisfaction towards the application. They were asked to plan a trip using the application. Subsequently, they were asked to complete the questionnaires about their satisfaction; specifically, the questionnaires consisted of 15 items divided into 4 aspects, namely contents (5 items), usage (3 items), design (3 items) and satisfaction towards travel routes in the “One Day Trip” menu (3 items). The results indicated that the contents were at a high level of satisfaction (a mean score of 4.44), the usage at the highest level (a mean score of 4.52), the design at a high level (a mean score of 4.38) and the satisfaction towards routes in the “One Day Trip” menu at the highest level (a mean score of 4.55). Hence, it can be concluded that the sample group’s overall satisfaction towards the application was at a high level (a mean score of 4.48).

**5. Discussion**

The research team collaborated with the communities throughout all stages of this research, including data collection, selection of tourist attractions, travel route and application development and satisfaction survey and interviews with the tourists. Consequently, the application “Tiew Muang Rong Udonthani” was successfully developed according to the communities’ needs; moreover, tourists had a high level of satisfaction towards the application. As regards social network analysis, it served as an effective instrument for developing 16 travel routes appropriately, and the users had the highest level of satisfaction. Thus, it can be concluded that the successful local development in compliance with the objectives of this project lies in the integration of knowledge, technology and communities.

**6. Conclusion**

This research was intended to develop new travel routes in Udonthani so as to improve tourism in Udonthani and neighboring provinces and to develop a new travel platform using websites and applications as a medium connecting communities with tourists with ease. The present study employed social network analysis. Tourist attractions and activities in Udonthani were determined as nodes in the network. In addition, it investigated travel behavior among 400 tourists to serve as edges between each node so as to establish a travel network connecting tourist spots in the province in which Khamchanod and Talaybuadang were primary tourist attractions. Social network analysis was then conducted; as a result, there were 5 main tourist attractions, 17 secondary tourist attractions and 8 community and local business tourist spots. Despite that, the results indicated that the eigenvector centrality score was most consistent with the sample group's satisfaction level. Subsequently, the research team developed travel routes each with primary tourist attractions, accompanied by secondary tourist attractions and community and local business tourist spots. More importantly, all travel routes must have close eigenvector centrality values. Consequently, there were 16 suitable travel routes. Once 16 travel routes were established, the satisfaction among 400 tourists was investigated. It was discovered that the tourists' satisfaction towards all 16 travel routes was at the highest level with a mean score of 4.55 and a standard deviation of 0.53. Afterwards, the researchers presented all 16 travel routes via the Android application named "Tiew Muang Rong Udonthani" )Secondary City Tourism in Udonthani) on Google Play Store. The satisfaction of 400 tourists was at a high level with a mean score of 4.48 and a standard deviation of 0.63.

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# Taxing you is tiring me out: Emotional labor and job performance among local revenue collectors in Thailand

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## Abstract

In a cash-based economy, local governments depend on local tax collectors non-professional employees who wander in neighborhoods to collect cash as tax payments from local residents. Their encounters, nonetheless, may not always go smoothly. Despite being mentally exhausted, local tax collectors must effectively exert emotional labor the management of feelings to create preferred facial and bodily display to maximize local revenue. Most studies on emotional labor focus on professional occupations in developed countries. Hence, through a process-tracing method, this study qualitatively inquires the causal sequence of emotional labor and job performance of local revenue collectors in Thailand. Fifteen in-depth interviews were conducted and a constant comparative method was applied to analyze the interview data. The results offer a preliminary causal process of emotional labor and job performance, underscoring the existence and the relationship between emotional labor on performance. Particularly, general tax knowledge among the residents and revenue collectors' local knowledge can simmer down the intense encounters and lower the levels of emotional labor. In the case of surface acting, the revenue collectors can seek support and professional advice from the online network of the local revenue administration to surpass those intense encounters without jeopardizing the revenue-generating performance. Meanwhile, the revenue collectors' local knowledge leads them to perform deep acting and provide tax education to the local residents, which eventually boosts their willingness to pay local taxes. This study recommends that local policymakers include emotional labor training into their organizations' performance improvement platforms. It also discusses methodological limitations and future research directions.

***Keywords:*** *emotional labor, process tracing, revenue collection, taxation, performance, local public finance*

## 1. Introduction

In a cash-based economy, local governments in rural areas are largely dependent on local tax collectors nonprofessional employees who wander in neighborhoods to inform local residents of their tax dues, service charges, or fees, collect cash as tax and fee payments from the residents, and eventually make revenue collection reports back to their finance department heads as a part of revenue budgets. The encounters between these revenue collectors and local residents may not always go smoothly, especially during the economic downturn resulting from the COVID-19 pandemic. Despite, mentally exhausted, the local revenue collectors must perform emotional labor the management of feelings to create publicly facial and bodily display intended to produce a particular state of mind in others (Hochschild, 1983) to maximize their local governments' revenue and to minimize overdue payments. Most studies on emotional labor involve such professional occupations or experts as teachers (Schwarzer, Schmitz, & Tang, 2000), attorneys, cops (Maynard-Moody, & Mushenno, 2003), physicians, nurses, correction officers (Mastracci, Newman, & Guy, 2010) who directly deliver public services to public organizations' clients or local residents (i.e., education, public health, and public security) in the developed countries, particularly the US. In other words, a research gap exists in extant Public Administration research because related studies have inadequately investigated the emotional labor that the non-professional and low-ranking public employees experience and rarely applied this concept to understand emotional labor under the context of developing countries.

This exploratory study, therefore, aims to fill such a research gap by describing the emotional labor performed by the local revenue collectors in a developing county and explaining whether and how it leads to local revenue generation. It concentrates on the local revenue collectors in Thailand since there has been a limited number of studies investigating emotional labor in such occupational groups (Sutton, 1991) and a developing country in the Southeast Asian region (Tamronglak, 2019). In particular, it asks the following research questions:

1) What kind of emotional labor are the local revenue collectors performing routinely?
2) How is emotional labor associated with revenue-raising performance?

## 2. Objectives

1) To provide a thick description of emotional labor the nonprofessional public employees experience and how they manage it daily while keeping a high level of revenue-raising performance
2) To identify additional causal mechanisms of a causal process of emotional labor and its outcomes under the context of a developing country
3) To inform the policymakers in the developing countries of how to recognize and promote emotional labor management in a way that possibly enhances the revenue-raising performance among local government employees

## 3. Materials and Methods

Since emotions and emotional labor are of people's subjective experiences, this study applies a qualitative approach to unpack the interrelationships among the local revenue collectors' occupational lives, activities, situations, and circumstances (Leavy, 2017). Specifically, the process tracing methods were chosen to develop the causal process and identify possible causal mechanisms of how emotional labor leads to revenue-raising performance under the particular occupational and spatial contexts previously mentioned (Collier, 2011). A process-tracing method centers on the abductive logic that builds an inference from both deduction and induction or analytics and empirics respectively (Van de Ven, 2007; Bennett, & Checkel, 2014). While the latter component is based on empirical data discussed later in the result section, the first component largely depends on theory construction or insight into prior knowledge and its diagnostic evidence (Collier, 2011; Mahoney, 2015).

### 3.1 Conceptualization, Conceptual Framework, and Propositions

Three groups of related concepts and studies were focused here emotional labor, a causal sequence highlighting a process of casual mechanisms relating emotional labor to performance (from antecedents, mediators, and outcomes), and previous studies identifying and explaining the sequential mechanisms and the associations between emotional labor, mediators, and individual performance.

***Emotional labor:*** Generally, emotional labor is the management of feeling to create a publicly facial and bodily display, which usually results in suppressing or inducing one's feelings that are not always pleasant, and occasionally require employees to employ a series of emotive strategies and techniques to regulate their emotions (Hochschild, 1983). These strategies and techniques can be categorized into two groups surface acting and deep acting.

1) Surface acting occurs when frontline staff members regulate, modify, and possibly pretend to have particular appropriate emotional expressions or outward displays without altering their inner feelings while reacting and engaging to a given situation (Cheung, & Tang, 2010; Hsieh, 2019; Roh, Moon, Yang, & Jung, 2016). Examples of surface acting include faking a smile or feigning cool and confident gestures when dealing with difficult customers.
2) Deep acting occurs when frontline employees modulate or elicit their inner feelings or feel underlying emotions corresponding to align with the expressions their organizations prefer, (Nixon, Yang, Spector, & Zhang, 2011; Noor, & Zainuddin, 2011). For instance, despite being mentally exhausted, a social worker always appears to be cheerful toward orphans because she or he believes that this can radiance positivity and make a huge difference in the orphans' lives (Guy, Newman, & Mastracci, 2008).

Under the context of public administration, the frontline public employees often interact with citizen customers while delivering such public goods and services as health care, education, emergency services, social work, and law enforcement (i.e., correctional measures and rehabilitation and police interrogation). As a result, appropriate displays of feelings become indispensable for quality interactions between public employees and citizen clients and determine individuals' job performance as well as an everyday performance of any public organizations and how well these organizations can achieve their goals (Ashforth, & Humphrey, 1993; Guy, Mastracci, & Yang, 2019).

***A causal sequence of emotional labor and job performance:*** Generally speaking, every event in the workplace (especially one where employees feel they are treated unfairly) directly has an impact on employees in terms of their emotional reactions, feelings, and behaviors (Simillidou, Christofi, Glyptis, Papatheodorou, & Vrontis, 2020; Rupp, & Spencer, 2006). However, allowing interactional mistreatment to spawn negative feelings and later unleash anger via undesirable reactions towards customers or clients is not the best way to accomplish both individual tasks and organizational goals. Consequently, reaching high levels of both individual and organizational performance, organizations often make employees respond to those unfair treatments with appropriate displays of feelings. This type of appropriate feelings employees are expected to perform is called an organization display rule which ensures that an employee suppresses the undesirable emotions and only expresses the desirable ones (Holman, Martinez-Iñigo, & Totterdell, 2008; Allen, & Augustin, 2021). Other organizational measures and supports are also in place; for instance leadership, team support, competency-building and training programs, and a supportive work environment. Meanwhile, each employee applies self-regulation of emotions and reactions through emotional intelligence and emotional labor as previously explained. Other individual characteristics such as gender and work experience also mediate the negative impacts of those unfair treatments on job performance. The sequence of all related affective activities here can be broadly summarized by the feedback loop(s) of action or, under this context, the emotion-related management of negative input to eventually offers positive output (Diefendorff, & Gosserand, 2003; Klein, 1989).

***Empirical findings:*** Based on previous studies on emotional labor, this article explains the causal sequences of emotional labor and job performance as follows.

1) The citizen-state interactions: Under the context of policy implementation and service delivery, policy designs can elicit citizens' attitudes, perceptions, and expectations of states and, as a result, determine the nature of encounters between the frontline public employees and customers or clients, which is called citizen-state interactions (Jakobsen, & Mortensen, 2016; Moynihan, Herd, & Harvey, 2014; Nisar, 2018), can incite negative feelings among the first party and require the emotional strategies and techniques later in the process.

2) Emotional dissonance: Often, there is a discrepancy between how a frontline employee feels and how he or she is expected to feel according to a certain display rule they believe to exist (Kammeyer-Mueller et al. 2012; Nguyen, Groth, & Johnson, 2016), which triggers emotional labor, taking two forms surface acting and deep acting explained earlier.

3) Emotional regulation strategies or emotional labor: Surface acting is usually negatively associated with job performance (Hülsheger, Lang, & Maier, 2010; (Hur, Shin, & Moon, 2020; Lively, 2013). For instance, public school students can detect emotional inauthenticity from surface acting performed by trainee teachers in German public schools who engage in surface acting. The students negatively perceive this fake effective delivery of their trainee teachers, resulting in the teachers' relatively low score on teaching performance (i.e., their classroom interactions become unpleasant and mundane and teaching style is not perceived as friendly and warm) (Hülsheger et al., 2010). On the contrary, deep acting often shows positive consequences on individual and organizational performance (Lee, 2021; Lee, & Kim, 2020; Liu, Prati, Perrewé, & Ferris, 2008). Specifically, despite emotional exhaustion, deep acting has positive ramifications on work outcomes in the long run by buffering the employees against negative emotions and ego depletion (Hur et al., 2020). For example, hotel employees who truly prefer to work in service organizations frequently emotionally invest in and are attentive to interactions can deliver excellent hotel service to the customers (Lee, & Kim, 2020).

4) Job performance: There are three components of job performance by each frontline employee especially in public organizations task performance, service performance, and relational performance. Under the revenue collection's context, task performance shows how well one can deliver the taxing service for which he or she is responsible. The relevant performance indicators include several taxpayer registrations, revenue levels, overdue tax payment, reduction of tax compliance cost, to name a few (National Audit Office of the United Kingdom, 2008). However, during the citizen-state interactions, public employees are also expected to actively promote equity, transparency, responsiveness, as well as other democratic outcomes

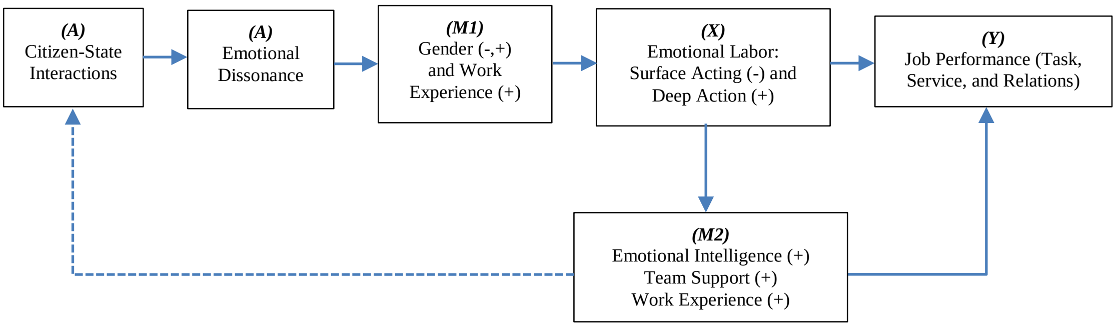
(Boyne, 2002; Bozeman, 2013; Brewer, & Walker, 2009). Additionally, through emotive work, human relations, and communication skills during such interactions, a frontline employee can build or strengthen good relationships between his or her taxing organization and its citizens or taxpayers (Erickson, & Ritter, 2001; Mastracci, Newman, & Guy, 2006).

5) Mediators of emotional labor and job performance: Several intervening factors moderate the negative impact emotional labor has on performance. The frequently discussed mediators include gender, team support, emotional intelligence, and work experience. According to the Gender study in the US federal and subnational governments, a female employee is expected to be cordial, tender, and supportive during the citizen-state interactions so that they must engage in these emotions to reach high-performance levels (Yang, & Guy, 2015; Bishu, & Heckler, 2020; Meier, Mastracci, & Wilson, 2006). Note that most interactions between a frontline employee and a customer go through two feedback loops or more before ending with a certain outcome (or performance in this context).

Some mediators are involved in this type of citizen-state interaction. For example, a nurse is highly likely to offer support if he or she witnesses that his or her teammate performs deep acting (Becker, Cropanzano, Van Wagoner, & Keplinger, 2018). It significantly reduces the turnover intention that makes the employees stay on the tasks more and tends to result in desirable performance. Besides, emotional intelligence is the ability to accurately sense and constructively control one's emotional state, to sense the emotional state of another person, and as a result, to respond in a way that elicits desirable behaviors (Liu et al., 2008; Guy, & Lee, 2015). This social skill assists Chinese employees in public organizations to correctly detect interpersonal emotional cues and select the most appropriate emotional strategies to enhance his or her performance and to accomplish the individual and organizational goals (Simillidou et al., 2020; Ma, Silva, Trigo, & Callan, 2020).

The final mediator here is work experience that is positively associated with high levels of job performance. Particularly, a frontline volunteer in a nonprofit organization with many years of volunteering experience tends to feel less distressed and mentally exhausted while interacting with customers or clients (Allen, & Augustin 2021). They can perform either surface acting or deep acting, which is a part and parcel of quality service delivery. Their polite and cordial displays smooth the conflicting interactions and eventually lead to the preferred performance.

***Conceptual framework:*** Based on both the relevant concepts and the previous studies on emotional labor and job performance, the conceptual framework (Figure 1) summarizes the hypothesized causal sequence from antecedents and mediators to the outcome of emotional labor (job performance).




**Note:** (A) = antecedent, (M) = mediator, (X) = causal factors, (Y) = outcome, (-) = negative association with outcome, (+) positive association with outcome, → = casual sequence, and ⇢ feedback loop and causal sequence

**Figure 1** The causal sequence and hypothesized associations between antecedents, mediators, and outcome of emotional labor (job performance)

***Propositions:*** Given that local revenue collection is one type of service by a public organization, the details in Figure 1 can broadly offer the propositions to the research questions as follows.

*Proposition 1: The local revenue collectors must perform both surface acting and deep acting during the citizen-state interactions*

*Proposition 2: Deep acting is positively associated with revenue-raising performance, but surface acting is negatively associated with such performance. Meanwhile, work experience, emotional intelligence, and team support are associated more with deep acting, resulting in enhanced job performance.*

### 3.2 Methods

Applying a process-tracing method, this exploratory study qualitatively investigates the causal sequence using causal process observations (observations on contexts, process, or mechanisms) to evaluate prior explanatory propositions as well as to provide alternative means of the causal relationship of interest (Collier, 2011; Bennett, & Checkel, 2014). As a qualitative study with a process tracing, this section elaborates research design, case study and sampling, data collection, and data analysis as follows.

***Research design:*** This study applies a theory-guiding process-tracing method as an overarching approach to understanding the causal process of emotional labor and job performance. A process tracing is a temporal and causal analysis of the sequence of events that constitute the causal process which must be theoretically and operationally conceptualized in detail with references to previous theories and related studies (Falleti, 2016). On this ground, the research design for a process-tracing method is abductive reasoning in which logical conclusions are drawn from both deduction and induction (Bennett, & Checkel, 2014; Van de Ven, 2007).

For a theoretical component or deductive reasoning, the previous section thoroughly reviews related theories, conceptions, and previous studies. Then, it offers a theoretical framework identifying antecedents, causal factors, mediations, and outcomes of emotional labor as well as how these variables are possibly interrelated and positively or negatively associated (Collier, 2011). Additionally, as a part of the theory-guided process-tracing method, propositions based on the conceptual framework are set to guide data collection specifically through the causal process observations (Falleti, 2016; Collier, 2011). For operational competence or inductive reasoning, this study centers on the data collection methodologically based on the causal process observations. The data collected in this study should be able to present good snapshots at a series of specific moments on how emotional labor leads to job performance (Collier, 2011). Eventually, with both deductive and inductive reasoning, the research results from a process-tracing method are presented via a causal process, incorporating an extensive process (the empirically key variables) and an intensive process (the causal interrelations among those key variables) (Falleti, 2016; George, & Bennett, 2005).

***Case study and sampling scheme:*** As mentioned earlier, the emotional labor performed by nonprofessional public employees in a developing country has been inadequately explored. Therefore, this study serves as a heuristic case study that attempts to identify new variables, hypotheses, causal mechanisms, or causal paths by concentrating on the new group of participants whose expertise is relatively low but emotional labor performed is high (George, & Bennett, 2005). Note that tax collection is a unique service in that it does not directly offer any benefits to citizens. These tax collectors usually wander from one household to another either campaign or collect tax dues. See Table 1 which details how local revenue collectors do their job, the work context, and work roles that justify the possibly high levels of emotional labor (Morris, & Feldman, 1996).

To represent and highlight what is descriptively normal or average in terms of job performance in Thailand, this study selects and qualitatively collects related data from the typical cases from Thai localities (Miles, & Huberman, 1994; Gerring, 2017). Given that a per capita income can reflect an overall level of economic development, it signals the standard of living, the quality of life of the population, and the main economic activities in a particular area. These aspects, to some extent, determine the constructs of this study's interest the education level, the nature of interactions among residents (providing that most of the local revenue collectors are the local), and the level of local revenues the subnational governments can collect. These three local characteristics are thus conceptually related to task performance, service performance, and relational performance. As a result, this study samples the localities which statistically presents the average of the Office of the National Economic and Social Development Councils' 2019 gross provincial product (GPP) per capita, 172,789.92 Baht (or $5,252.93 on July 30, 2021, as 32.894 Bath is equal to 1 USD) with the standard deviation of 158,695.55 Baht ($4,824.45). Table 2 shows the sampling frame of typical cases of job performance among local revenue collectors in the seven provinces (approximately 10 percent of totally 76 provinces in Thailand), whose GPPs per capita are the closest to the calculated mean.

**Table 1** Dimensions of Emotional Labor performed by Thailand's Local Revenue Collectors

| Dimension | Related Work Roles | Relatively High Levels of Emotional Labor |
|---|---|---|
| Frequency of interactions | Daily interactions with taxpayers, campaigning, and collecting several types of revenues (usually costing less than $2 per transaction, in total about 1,000 transactions per local revenue collector) | The requirement to build affective bonds of liking, trust, and respect despite the irritation and confusion of newly implemented property tax shared among taxpayers |
| Attentiveness | Most of the time, feeling persuasion, enthusiasm, cheerfulness, detachment as well as coercion is required in a quite long encounter with each taxpayer especially when wandering in the neighborhoods | Uncertainty and unpleasantness during such encounters demanding emotion management to successfully convince each taxpayer to pay their tax obligations |
| Variety of emotions required | A variety of emotions as well as neutral demeanors ranging from cheerfulness, politeness, ignorance, to toughness necessary for taxing service | A wide range of work roles demanding revenue collectors exerting different types of emotions for long work hours per day |
| Emotional dissonance | Always being confident, cheerful, helpful, and informative toward difficult, impolite citizens doubting authority's transparency and fiscal prudence | Dissident, suspicious taxpayers causing emotional dissonance and exhaustion among local revenue collectors |

**Table 2** The Sampling Frame Based on the Gross Provincial Product (GPP)

| Province | GPP (Million Baht) | Population (1,000) | GPP Per Capita (Bath) | Z-Score |
|---|---|---|---|---|
| Songkla | 24,5770.92 | 1649.17 | 149,027.03 | -0.149 |
| Phetchaburi | 74,883.656 | 499.98 | 149,772.70 | -0.145 |
| Kam Phang Phet | 11,9598.93 | 780.82 | 153,169.56 | -0.123 |
| Trat | 43,891.07 | 269.69 | 162,740.96 | -0.063 |
| Surat Thani | 210,396.35 | 1142.13 | 184,214.01 | 0.071 |
| Prachuab Kiri Khan | 95,604.16 | 487.96 | 195,923.01 | 0.145 |
| Nonthaburi | 345,410.65 | 1,751.93 | 197,159.05 | 0.153 |

This study randomly selects Prachuab Kiri Khan province to conduct the in-depth interviews. Based on Table 2, Prachuab Khiri's GPP per capita is equal to 195,923.01 Baht ($5,956.19) per year. Furthermore, there are three types of local jurisdictions in Thailand and most of them (about 5,300 out of 7,850 local governments) are Subdistrict or Tambon Administrative Organizations (TAOs). This study, hence, qualitatively examines the emotional labor and job performance of TAO revenue collectors in Prachuab Kiri Khan. The data collection ends once it reaches the saturation point to avoid inundation and redundancy (Leavy, 2017). However, it also sufficiently theoretically and guarantees that everything can be reasonably and diligently undertaken so that this study can identify all relevant data (Randolph, 2009).

**Data Collection:** Since most Thai localities are of a cash-based economy, direct and prolonged state-citizen encounters are a daily routine of most local revenue collectors. Often, these encounters are possibly complex and pertaining to several factors. This study, thus, conducted in-depth interviews with the semi-structured questions to grasp how those factors and revenue collection performance are interrelated as well as to facilitate comparisons of findings to the existing literature shown in the conceptual framework, enhancing confidence in the trustworthiness of the interview data (Fujii, 2018). Based on the interview protocol used to examine emotional labor performed by public officials in the United States (Guy, Newman, & Mastracci, 2008), the interview protocol for this study included the following questions.

1) Tell me about a typical day at your work
2) What is the work environment like?
3) How can you describe success in revenue collection? What are the key indicators of your job performance?
4) How do you establish rapport on your job especially with your clients or taxpayers?
5) Do you engage in emotional management and how? Can you provide examples?
6) What are gestures or emotional displays your organization prefers you to show?
7) How do your feelings or emotional conflicts with your organization's display rules affect your job performance?
8) What does make those situations less intense and how?

**Participants:** The in-depth interviews take place in five randomly selected local jurisdictions (whose pseudonyms are TAO A, B, C, D, and E) in Prachuab Kiri Khan Province during January 5 and February 5, 2021. There are fifteen interviewees from both executive and operational levels. The interview data from the first group (two TAO mayors and one TAO clerk) provide the overall current situations of the local revenue collections as well as the contextual elements of the sampled localities. Meanwhile, the data from the latter (three finance department heads, five revenue collectors, and three assistants to the revenue collector) offers the understandings regarding the revenue collection process, emotional labor, and job performance. Table 3 summarizes the key characteristics of all interviewees in this study.

**Table 3** Demographic Characteristics of Interviewees at the Time of Interview

| Characteristics | Women (n=11) | Percent | Men (n=4) | Percent |
|---|---|---|---|---|
| Work positions | | | | |
| Executive leve | 0 | 0.00 | 3 | 75.00 |
| Operational level | 11 | 100.00 | 1 | 25.00 |
| Education | | | | |
| High school graduate | 6 | 54.54 | 1 | 25.00 |
| Bachelor's degree | 5 | 45.46 | 2 | 50.00 |
| Graduate's degree | 0 | 0.00 | 1 | 25.00 |
| Average work experience (years) | 13.89 | - | 17.54 | - |
| Family status (married with children) | 9 | - | 4 | - |
| Working in the hometown | 9 | - | 3 | - |

**Data Analysis:** To develop empirically-grounded themes or main patterns concerning key elements and their associated relationships with emotional labor and revenue-raising performance, this study conducts a constant comparative analysis based on the interview transcripts (Nowell, & Albrecht, 2018; Glaser, & Strauss, 2006; Morse et al., 2009). In other words, the transcripts are deliberately read (open coding) and then some chunks of data are chosen and summarized (selective coding) to incorporate a complete causal process (Strauss, & Corbin, 1998). Particularly, these descriptions are compared to the conceptual framework elaborated in the literature review section to (dis)confirm the propositions regarding the sequential and causal associations between emotional labor (deep acting and surface acting), its mediators (gender, work experience, emotional intelligence, and team support), other key contextual elements, and local revenue-raising performance. Also, this study applies the in-vivo coding or includes the direct quotes from the interviewees into the research results to certainly offer the thick descriptions reported in the next section.

## 4. Results

This section summarizes the study's context, its findings based on the research questions and the propositions set according to the conceptual framework, and its emergent findings, which report the results that capture themes beyond the study's original propositions.

**The overall context of sampled jurisdictions:** Most residents in the sampled localities work in the agricultural section (i.e., farming, fishery and aquaculture, and ranching). The main crops are coconuts and oil palms. A fewer number of the residents engage in retail merchandising at their own houses, at the markets, or on the wheels, selling ready-to-eat food and beverages. Their daily routines, especially men, are out to the farm or the ocean during the day. The women are mostly stay-at-home wives, living with and taking care of the seniors their in-laws.

Regarding taxation and revenue administration, there are two main types of TAO's own-source revenues (taxes and service charges). Their main taxes include signboard tax and property tax. The central government has just updated the tax rate of the first in 2021. However, it had radically changed the whole tax structure of property tax and promulgated this new property tax in 2020. Both new standard operations procedures and new tax administration (new tax bases and property categorization, their tax rates, and their deductions and exempts) have been effective and, as a result, added into the tax calculations in each local government briefly after such promulgation as well the nation-wide administrative and managerial preparations. Besides, the service charges these localities collect are tap water charges (usually $3.25 a month per household) and garbage management fees (the flat rate payment of $1.25 or 50 Baht each month).

Partially elaborated earlier in Table 1, the local revenue collectors' work roles include three main areas tax policy campaign, tax administration, revenue collections, and enforcement of tax laws and regulations. A tax policy campaign includes such activities as attending a community meeting and engaging in a locality's community outreach to ensure that all residents understand and accept the tax policy. Regarding the tax and revenue administration, these local revenue collectors wander about the neighborhoods to conduct the tax survey (i.e., measuring and counting signages); to measure and determine types of buildings located in a certain parcel of land; to calculate tax dues according to the tax bases, tax rates, tax deductions, and tax-exempts; and to mail and hand in the tax notice to the residents. Then, the local revenue collectors proceed with the tax or revenue collection. Most of the time, they ride their motorbikes to each household in the locality where the interactions take place and emotional labor is intensively used and managed. The local revenue collectors engage in emotional labor to avoid the mismatch between their emotional gestures and the local government's emotional display rules and to maximize tax compliance and the levels of tax revenue and service charges. Eventually, the local revenue collectors pay their attention to the tax overdue. As an unofficial measure, they usually call or visit a taxpayer and give a gentle reminder at first. These interactions also elicit intense emotional labor from the revenue collectors. However, as an official measure, they sometimes issue follow-up letters or calls. Some fines or other types of penalties may be enforced.

**Findings:** Before directly answering the research questions, this sub-section begins with an abductive picture of a causal process of emotional labor and job performance of the local revenue collectors in Thailand. Both theoretical and empirical data are incorporated and painstakingly analyzed. Note that this part identifies two groups of causal mechanisms (one triggering emotional labor and another associated with revenue-raising performance) and, simultaneously, clarifies that each mechanism is of theoretical themes according to the conceptual framework and its propositions or emergent themes according to the empirical data from the in-depth interviews. This sub-section proceeds from the antecedents (citizen-state interactions and emotional dissonance), the gender and work experience, the causal factor (emotional labor), the mediators' work experience and team support includings emotional intelligence, and the outcome (revenue raising tasks, forging good citizen-state relationships, and customer service with equity and democracy)

*Antecedent (1) Citizen-State Interactions*

Some contextual elements play a crucial role in shaping the emotional landscape of these interactions or encounters. The interviewees specify that the relatively low level of general understanding of local taxation and the promulgation of the new property tax causes some confusion, suspicion, and dissidence toward the local governments as well as the local revenue collectors. They specifically note these emergent themes as follows:

> "50 percent may understand that local tax revenue goes to community development. Another half thinks we collect their money to share and spend it with our team members" (The assistant to local revenue collector at the TAO C, January 21, 2021).
>
> "If you talk to local residents or villagers here, you would realize that their basic knowledge on taxing system and local politics are starkly different from those who live in the city. Even we repeatedly try explaining local tax and revenue systems to them, they would just bring the issue to

the Office of Ombudsman or related agencies. This situation will never happen in urban areas" (The local revenue collector at the TAO C, January 21, 2021).

"Admittedly, the new property tax is the most complicated tax I have ever experienced. We are not well prepared. So how can we really make the local people understand and comply with it?" (The local revenue collector at the TAO E, February 3, 2021).

*Antecedent (2) Emotional dissonance*

The emotional discrepancy occurs when what the local revenue collectors feel toward the interactions with their taxpayers is different from what they should feel according to their organization's emotional display rules. As a result, it can easily trigger intense emotional labor. As theoretically anticipated, the organization's emotion display rule exists and triggers the intensive use of emotional labor. This rule is an unwritten but generally accepted display rule that expects highly of female local revenue collectors. Particularly, they should cheerfully greet each taxpayer, invite taxpayers into the office and offer them iced water, politely and respectfully converse with them, and, restrictively, avoid confrontation with any taxpayer at all cost. Few interviewees mention that:

"Revenue collection is a woman's work. Almost every revenue collector is female. Women pay more attention to details. They are good at math. Importantly, they are much more polite, cordial, amiable, and sweeter than men" (The mayor of TAO A, January 11, 2021).

"Generally, women have manners more than men. They are usually better with people. We send them out to the community to talk with local residents and make them understand the tax and service charges the local government collects" (The finance department head at the TAO A, January 11, 2021).

"While interacting with local residents, we have to talk nicely. Remember we work in the customer service kind of department. The mayor specifically demands that we greet the residents first whatever the reason they come in or see us" (The assistant to revenue collector at the TAO B, January 13, 2021).

"When a taxpayer comes in, we have to greet and bring them some water. Also, always keep in mind that we will never fight with them whatsoever" (The finance department head at the TAO A, January 11, 2021).

*Causal Factor (1) Surface acting*

The local revenue collectors underscore the surface acting they often perform when interacting with taxpayers. As the conceptual framework suggests, work experience involves performing this type of emotional labor. The local revenue collectors--especially the inexperienced ones or the experienced ones facing unusual new situations or new difficult taxpayers--attempt to hide or conceal their true feelings and then politely note the issues to deal with later. Some local revenue collectors relate work experience with surface acting as follows:

"It is incredibly exhausting when a taxpayer is coming in just to rant. And we cannot and should not react" (The assistant to revenue collector at the TAO C, February 3, 2021).

"All we have for them are manners. We cannot argue or challenge them back. So, we can do nothing except politely ask them to take it easy" (The revenue collector at the TAO A, January 11, 2021).

"When I have just started working, I always said 'yes, all right' while dealing with a difficult taxpayer or while in an intense situation. We have to face it with smiles on our faces. We cannot show our anger" (The assistant to revenue collector at the TAO D, January 21, 2021).

*Causal Factor (2) Deep Acting*

The local revenue collectors perform deep acting in a variety of situations. Somewhat elaborated in the conceptual framework, work experience plays a key role in eliciting deep acting. Additionally, the emergent themes point out the cause of deep acting. Often, based on their previous social interactions and understanding the background of each household, the local revenue collectors truly understand that the source of anger, suspicion, and dissidence among local residents or villagers. It is possibly rooted in the complex tax administration, the lack of tax education, or the socioeconomic background of each taxpayer. Therefore, their ability to come to terms with the unfriendly encounters or not to take any altercation personally largely depends on both their work experiences and their local knowledge as being a local resident for a long time.

> "It does not make sense if we show disappointment or disagreement to our taxpayers. They barely understand the new property tax. So, how could they really be willing to pay tax? As you see, the central government has done so little on tax campaigns specifically for the grassroots level. These taxpayers are out to the farm almost all day. They do not even really have time for watching TV" (The finance department head at the TAO A, January 11, 2021).
>
> "Well, I go to their house asking for their money every month. And usually more than once a month for different types of taxes or service charges. Also, it's difficult to directly link their tax payment to the benefits they receive. Yeah, so it is common if they get sick of us" (The assistant to revenue collector at the TAO A, January 11, 2021).
>
> "The key to managing our emotions is to keep in mind that there is a misunderstanding in the new property tax. The residents and villagers have to pay for this tax a lot more than before so they get angry. We just stay calm and are not going to take it personally because whoever talks to them regarding this matter will just get scolded" (The finance department head at the TAO D, February 2, 2021).
>
> "It does not seem like some of them are not willing to pay. They are simply very poor. Or occasionally they cannot make ends meet" (The assistant to revenue collector at the TAO C, February 3, 2021).

**Research Question 1 and Proposition 1:** The research results on the associations between the antecedents, the mediators of emotional labor, and the emotional labor can be summarized that similar to proposition 1, the local revenue collectors in Thailand perform both surface acting and deep acting due to the emotional dissonance between what they actually feel and what they are expected to feel, or called the organization's display rules. Particularly, this discrepancy is caused by the collector's demographic characteristics (being female and limited work inexperience), the lack of general knowledge of the local tax system among local residents, and the complex tax administration designed by the central government (especially in case of the promulgation of new property tax in 2020). These causal elements elicit high levels of emotional labor, particularly surface acting, from the local revenue collectors. Nonetheless, some mediators can lessen the intensity of emotional labor. Work experience and local knowledge among the local revenue collectors require lower levels of emotional labor from the local revenue collectors. Also, these two causal elements diverge them to perform deep acting, instead of surface acting.

*Job performance*

There are two paths of the causal process from emotional labor to revenue-raising performance. The first path is how surface acting is associated with job performance. This type of emotional labor usually ends with the local revenue collectors fading or disappearing from the intense situations or altercation with the taxpayers. Some of the local revenue collectors provide the following examples of this emotional withdrawal, which results in undesirable performance or sometimes results in acceptable revenue-raising performance if there is support from their team members or their professional network.

"I just step back from an angry taxpayer and inform him that I will come back later. But sometimes I will ask my work partner or other team members to revisit that angry resident's house (The assistant to revenue collector at the TAO A, January 11, 2021).

"Sometimes in a difficult situation or intense exchange with taxpayers, I make an ingenuine apology and leave the scene. I just need a break at that moment" (The assistant to revenue collector at the TAO B, January 13, 2021).

"If there is an altercation, I will just ask them to come in and pay at the local government building later" (The revenue collector at the TAO E, February 3, 2021).

"If it is urgent, I can call someone in the LINE group of local revenue collectors and ask for their suggestions. Most of them are informative and helpful" (The revenue collector at the TAO A, January 11, 2021).

Meanwhile, the second path of the causal process shows how deep acting is associated with job performance. The experienced local revenue collectors must put more emotional effort in terms of tax education to make the taxpayers with limited understanding of the local tax system comply with the tax rules and regulations, which can forge good relationships with local residents; add equity, transparency, and democracy into taxing service; and eventually increase the levels of revenue generation. The following statements are the example of enhanced job performance from deep acting.

"Our accomplishment is to have zero tax overdue. If there is a chance and I can explain my tax calculation, the residents tend to pay their tax dues. So, if there are confusions or questions from the taxpayers, we must be ready and well-prepared to provide answers and explanation" (The assistant to revenue collector at the TAO B, January 13, 2021).

"I always have a mini-whiteboard and markers with me especially while wandering in the neighborhoods. So that I can help a resident calculate their tax burden. Correct tax calculation helps convince them to pay tax" (The revenue collector at the TAO A, January 11, 2021).

"The good local revenue collectors provide the taxing service with fairness and have the local government's and the citizen's interests at heart. Keep in mind that the residents do have no or limited knowledge and information regarding tax system" (The local revenue collector at the TAO C, January 21, 2021).

"If we can forge a good relationship with local residents. They are likely to pay tax easily" (The revenue collector at the TAO A, January 11, 2021).

*Feedback loop*

Despite the attempts to explain tax calculation and other types of prolonged citizen-state interactions, the local residents, from time to time, negotiate tax burden with the local revenue collectors. It starts the causal process all over again because it may cause emotional dissonance as well as elicits surface acting and/or deep acting from the local revenue collectors. The local revenue collectors who are the local people themselves may face this situation more often than those who are from other districts or provinces. Some provide details of this situation as follows.

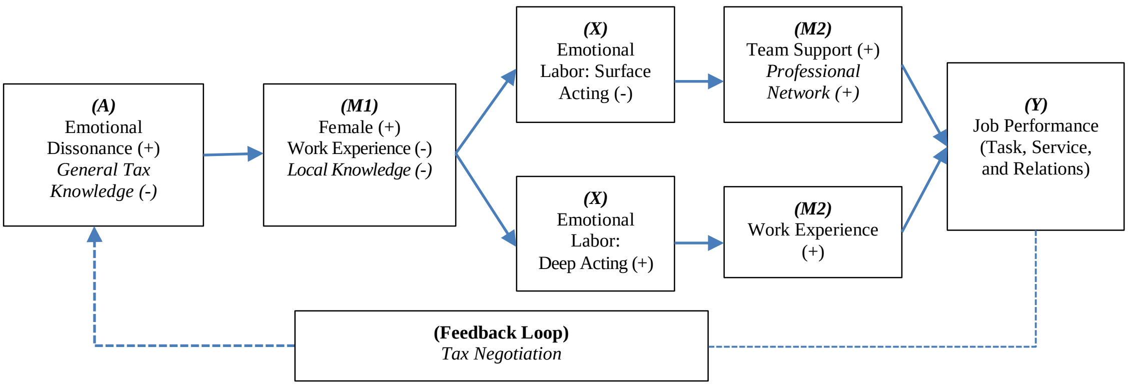
"They would ask for me to advance the garbage management fees for them. I have to respectfully explain to them that I do not have much money myself. And this may end with a penalty for them" (The assistant to revenue collector at the TAO A, January 11, 2021).

"After I measure a signboard and inform the shop owner whom I know well of his signboard tax dues. He casually complains that it does not match with what they earn from the shop and ask me how to make such tax dues lower" (The assistant to revenue collector at the TAO A, January 11, 2021).

**Research Question 2 and Proposition 2:** Regarding the second research question of "how is emotional labor associated with revenue-raising performance?", the results here suggest that surface acting may lead to relatively low levels of job performance among local revenue collectors but deep acting possibly leads to relatively high levels of all components of job performance (to forge good relationships with local residents; to add equity, transparency, and democracy into taxing service; and eventually to increase the levels of revenue generation). These findings are mostly consistent with proposition 2.

However, the mediators of job performance such as team support and support from a professional network can help the local revenue collectors who perform surface acting keep the high levels of local revenue generation. Meanwhile, work experience is the mediator of performance in the case of deep acting. The local revenue collectors with many years of work experience can make use of tax educational techniques to forge a good relationship with local taxpayers as well as to convince them to pay their tax dues. Therefore, this partially confirms proposition 2 that work experience, team support, and support from the professional network are the main mediators that can lead to preferred job performance among local revenue collectors. Additionally, local knowledge is possibly associated with a feedback loop. In other words, local residents usually negotiate tax dues with the local revenue collectors whom they know for a long period and not with someone from outside the community, resulting in another round of the emotional labor process as explained at length earlier.

Based on both answers, it can be said that there are few emergent mediators inductively from the empirical data added into the conceptual framework from the literature review section. This study, hence, can summarize the causal sequence of emotional labor and job performance through the elaborated casual graph as shown in Figure 2 (Gerring, 2012).




Note:1) A= Antecedent, M = Mechanisms, X = Causal factor, Y = Outcome.
2) Elements in italic implies emergent themes
3) → Causal relationship
4) ---> Feedback

**Figure 2** An elaborate causal graph of emotional labor and job performance among local revenue collectors in Thailand

## 5. Discussion

Overall, it can be said that there exist causal relationships between emotional labor and job performance in the case of nonprofessional employees who work for public organizations in developing countries. Deductively, the process-tracing method here underscores the significance of the theoretical mechanisms regarding causal elements of emotional dissonance, gender (female), work experience, and team support. Inductively, this study also identifies the emergent causal mechanisms—general local knowledge and local knowledge which helps frontline employees avoid emotional exhaustion and professional network which can enhance their job performance. Additionally, the deep acting and work experience altogether facilitating the tax education to residents can enhance job performance among local revenue collectors in terms of revenue generation, equitable and transparent taxing service, and good relations with the community. It also helps frontline employees circumvent tax negotiations which likely result in repeatedly engaging intense emotional labor and undesirable job performance. Based on these theoretical and emergent findings, there are causal mechanisms worth discussing.

**1) Emotional labor and performance management in revenue administration:** First and foremost, the empirical findings echo the causal relationships between these two components of the daily routine at work of every frontline public employee. Like other professional occupations (teachers, professors, policemen, correction officers, attorneys, physicians, nurses, etc.) local revenue collectors who are non-experts and do not have direct quid-pro-quo relationships with taxpayers tend to exert emotional labor in the same levels, if not higher, as other professionals during the citizen-state interactions. Therefore, in general, emotive prowess is probably as important as cognitive, technical, and political capabilities and certainly is needed for high performance or getting public services done effectively, equitably, and cordially (Guy, Mastracci, & Yang, 2019). Performance management in the public sector has started to fully embrace emotional labor into performance design, measures, compensation, and improvement to ensure and promote efficiency, effectiveness, equity, and democracy in public service delivery (Chi, & Grandey, 2019; Grandey, & Sayre, 2019).

**2) Local fiscal autonomy, administrative burden, and emotional labor:** Historically speaking, much of the developing world is characterized by highly centralized public sectors (Oates, 1985; USAID, 2000). After the promulgation of decentralization policy, the subnational governments are expected to possess autonomy in making decisions for the provision of public services, personnel administration, and finance and revenue administration. Nevertheless, many local governments in developing countries possess a limited degree of tax autonomy since their central governments still fully or partially determine local tax base, local tax rate, and local tax exemptions. Unless a tax policy and its administration are based on a bottom-up approach (being formulated by local civic engagement or by local councils and then proactively campaigned), local people tend to have limited or inadequate general tax knowledge. Often, the local revenue collectors who only implement such tax policy face angry, misunderstanding local residents and villagers, and tax negotiation or altercations. They opt for surface acting to surpass intense engagement but are likely to end with undesirable job performance (unable to collect tax or revenue and unable to cordially forge good relations with the community).

Note that residents are willing to fully understand a local tax system and local revenue administration. Occasionally, new or complex tax policies and measures can undermine the residents' and villagers' willingness to invest their time and resources in updating and reading tax laws and regulations or asking for clarification from the authorities. This signifies the association between learning cost—any costs arise from engaging in a searching process to collect information about tax measures and building understanding of whether they are required to pay tax or eligible for tax-exempts—and tax compliance (Moynihan et al., 2014; Herd, & Moynihan, 2019). The central governments possibly in incorporation with local governments should take into account this learning cost and then design appropriate or customized approaches to tax campaigns to enhance general tax knowledge as well as tax compliance among local residents and villagers in rural areas.

**3) Local knowledge and pedagogical approach to tax education:** One of several trends of Asian labor markets which have continued for decades is that many young graduates express their preferences to work close to where they grew up (Li, Fang, Song, Chen, & Wang, 2020; Woo, & Kim, 2020). In this case study, four out of five interviewees serve as the local revenue collectors or the assistants for local governments in their hometowns. Therefore, their local knowledge becomes highly beneficial in local revenue administration. Often held by community members and acquired through life experience, local knowledge or sometimes called contextual intelligence is an organized body of thoughts regarding local contexts or settings and their specific characteristics, circumstances, events, and relationships as well as an important understanding of their meanings (Corburn, 2007; 2003).

Understanding the socio-economic and demographic characteristics of each household, these local revenue collectors with local knowledge fully understands the reasons behind hostile reactions from local residents or villagers and then automatically opt for deep-acting to have them comply with tax laws and regulations. Under this context of revenue collectors in a developing country, tax education is so crucial that there should be a better pedagogical approach to understanding the rationales of new tax laws and revenue administration and calculating tax amounts, which can boost the levels of general tax knowledge among the local residents and eventually increase the overall job performance of the local revenue collectors as well as local governments' revenue levels. Even though some experienced local revenue collectors have been finding their own best approach to tax education, there exist some good practices that can be readily shared and learned without any costs. Accordingly, the capacity-building programs for the local revenue collectors should include the pedagogical approaches to local tax education to enhance overall job performance and revenue generation for local governments.

**4) Online professional network, street-level bureaucrats, and sociological institutions in local revenue administration:** Even though there is no official professional network for local public employees at the operational level, an online unofficial group of local revenue collectors plays a role in local revenue administration and performance. The local revenue collectors may seek team support from the work partners or others working in the finance department, while facing intense encounters with taxpayers, applying new tax rules and regulations, or solving technical obstacles with bookkeeping and online reporting tax revenues. However, most of the time, they wander in the neighborhoods and communities so that they largely depend on prompt consultation and suggestions from this online unofficial group via LINE application. Accordingly, like other types of street-level bureaucrats whom almost all the time interact with customers or deliver services directly to customers, the local revenue collectors are dependent on administrative discretion and work autonomy to accomplish their responsibilities despite several tax rules and regulations as well as standards of procedures stated in the new property tax and the new signboard tax (Lipsky, 2010). They create and share a sociological institution or the cognitive scripts, moral templates that provide the frame of meanings guiding their operational and managerial behaviors toward the goal accomplishment of collecting local taxes (Hall, & Taylor, 1996; Dimaggio, & Powell, 1983).

## 6. Conclusion

This study asks two main questions: "what is emotional labor the local revenue collectors perform?" and "how is emotional labor associated with revenue-raising performance?". With the process-tracing method and in-depth interviews with local revenue collectors in Thailand, the answer to the first question is that: the local revenue collectors in Thailand perform both surface acting and deep acting due to the emotional dissonance between what they feel and what they are expected to feel. Particularly, this discrepancy is partially caused by the collector's demographic characteristics (being female and limited work inexperience), the lack of general knowledge of the local tax system among the local residents, and the complex tax administration designed by the central government. Nonetheless, there are some mediators which can lessen the intensity of emotional labor, including work experience and local knowledge. For the second question, this study found that surface acting may lead to relatively low levels of job performance among the local revenue collectors but deep acting possibly leads to relatively high levels of job performance. The mediators of job performance such as team support and support from a professional network can help the local revenue collectors who perform surface acting to keep the high levels of local revenue generation. Meanwhile, work experience is the mediator of deep acting and job performance. Theoretically speaking, fulfilling the research goals through a method tracing, this study adds a few new causal mechanisms into the emotional labor studies. First, the general tax knowledge and local knowledge can lessen the intensity of emotional labor and divert a local revenue collector to exert deep acting, instead of surface acting, which leads to higher levels of job performances (to forge good relationships with local residents; to add equity, transparency, and democracy into taxing service; and eventually to increase the levels of revenue generation). Second, the online unofficial professional network of local revenue collectors is an incredibly helpful and informative source of instant consultation and advice that can complement, if not substitute, the team support. This network provides the somehow taken-for-granted predispositions, scripts, or schemas oriented to revenue generation and simultaneously promotes work autonomy which is necessary for accomplishing tasks bound to new laws and regulations. Third, this study identifies the feedback loop caused by the taxpayers' negotiations that trigger at least another round of emotional labor and management. It highlights the fact that, without deep acting and tax education with a customized pedagogical approach, the taxpayers may strongly show lower levels of tax compliance or willingness to pay local taxes and service charges.

Practically speaking, based on the theoretical and emergent findings, this study concludes that there are two main policy recommendations for policymakers in developing countries with a cash-based economy. First, the policymakers should be aware of the existence and the importance of emotional labor. Even though they cannot pay for emotive performance right away, they can start with the emotional labor training, the capacity-building programs based on emotional management, and the techniques for tax educations to promote the general tax knowledge among the local residents and villagers.

Note that there exist at least two methodological caveats or limitations that require future research on emotional labor and job performance. First, as the qualitative study with a process-tracing method, this study does not systematically take into account any confounders of emotional labor and job performance such as public service motivation, gender, burnout, and job satisfaction. Hence, the internal validity of the research results and findings is limited (Bennett, & Checkel, 2014). Second, this study applies the qualitative approach which is occasionally subject to internal consistency or intra-rater reliability by the data collector (Onwuegbuzie, 2003). Consequently, to control for confounders, future research should apply other research designs such as quantitative approach or mixed methodology with reliable instruments to increase levels of intra-rater reliability and internal validity. These types of studies especially in other countries or socio-demographic contexts can eventually (dis) confirm the causal relationships between emotional labor and job performance in the local revenue administration.

## 7. Acknowledgments

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# A Model of Factors Affecting Work Motivation of Civil Servants: An Evidence from Public Department in Vietnam

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## Abstract

In the centuries of globalization with continuous changes, all organizations especially public institutions are facing various challenges of pleasing citizens' requirements with better and efficient public services. To be able to offer the best possible services, these public institutions have to concentrate on the unique resource, fostering an institution to blossom and accomplish their missions--the human resources. The government of Vietnam has put a lot of effort into administration reform; however, the consummation and achievement of the Vietnam Public Sector are still appraised below par because of the inferior performance of public employees. This article aims to illustrate factors affecting the work motivation of public employees in Vietnam by collecting data from 187 civil servants using the non-probability sampling technique to provide evidence. Results from the PLS-SEM model using SmartPLS 3.0 program revealed the finding of the study that there is a significant effect of two factors decreasing motivation, namely work conditions and supervisor support. In this research, the authors also suggest various managerial implications for leaders and managers to uplift the work motivation in the workplace of employees.

***Keywords:*** *work motivation, public department, civil servants.*

## 1. Introduction

Motivation is one of the crucial factors for successful organizations to function properly. Without motivation, the workforce or employees will never be able to run up their best in their careers. In other words, motivation is a source of encouragement that boost the employees to perform effectively and diligently, as a result, assist organizations to develop with extremely outstanding excellence.

Motivated employees play an important role in supporting survival and growth regardless of the type of sector, organizational size, even the age of the organization, at the same time, how to motivate employees is certainly very complicated among the responsibilities of managers and leaders (Zeng et al., 2020). Necessarily, leaders should not underestimate the needs and expectations of their workforce but further recognize issues such as which factors inspire them toward increasing their productivity and capacity, the nature of work motivation, and awareness about the motivation of employees might dissimilar in different sectors or workplace environments. If employees are motivated enough, they would satisfy with their jobs then consequently, work much harder to achieve organizational goals, and the success of the organization will come along. Commonly, public organizations, public departments, and public agencies are highly functional groupings of competence and services. Given this acknowledgment, there is little wonder why public employees specifically civil servants are the main strength, and their actions with good manners are considered as substantial steers to organizational success. Work motivation becomes one of the vital elements in both provision of public services and the quality of public sector work. Robbins, and Judge (2018) previously stated that motivation is the core precursor factor influencing the magnitude of performance among public employees. Being able not only to motivate the workforce but also keep them motivated is emphasized as an urgent mission to fulfill in the majority of organizations, especially in public ones. The results of the civil servants carrying out civil services dramatically depend on their morals, behaviors, qualifications, responsibilities, and of course, their work motivation. When civil servants perform their work enthusiastically and eagerly, the effectiveness of the authority at all organizational levels in the management will be optimized. Otherwise, if they lose their work motivation, the efficiency and effectiveness of tasks will be weakened without any doubt.

According to Behn (1995) research on motivation remains a big requirement in public management and he urges the scholars to concentrate on the need to understand how "public managers [can] motivate public employees (and citizens too) to pursue important public purposes with intelligence and energy". Motivating public servants by increasing salary rates is predicted as a basic solution in the administrative reform to positive outcomes. Of course, no one works for free, nor should they, and we all understand that money is a primary incentive; however, money solely can never be enough to motive for higher work motivation and performance among intellectual people (Latham, & Locke, 1979). As the result, raising salary solely is not highly considered as a practical implication for improving work motivation for employees who work in the public sector as civil servants.

With the data collected in 2020, nearly 253.517 people are working as public employees in Vietnam Public Sector. Unfortunately, Vietnam is experiencing a serious turnover of the groups of young and talented civil servants voluntarily leaving their current work in a public organization to work in the other sectors such as private companies or start-ups. Many studies' results revealed the fact that qualified civil servants are finding new opportunities because of poor work motivation-related issues, which usually happen quite often in public organizations, such as inefficient compensation, heavy workload, and work pressure. From 2016 to 2020, the number of Vietnamese civil servants who purposely left government agencies and public organizations was nearly 12,000; mainly because of declined work motivation.

Ho Chi Minh City- Department of Home Affairs is one of the 23 core administrative departments, under the authority of Ho Chi Minh City People's Committee and supervision of The Ministry of Home Affairs; consequently, civil servants working in this department are a group of main actors in serving public services and the sustainable development of the city. As the outcome, the need for empirical researches and studies proposing to understand deeply the antecedents of work motivation among civil servants is a priority. From the findings of this study, managers and leaders in the department may have reasonable shreds of evidence to answer how to increase the degree of work motivation with appropriate strategies.

## 2. Objectives

1) To study factors that influence the work motivation of civil servants
2) To measure the level of each factor that affects the work motivation of civil servants
3) To propose suggestions, recommendations, and management applications to enhance work motivation

## 3. Materials and Methods

### 3.1 Work Motivation

Motivation is interpreted as "a decision-making process through which the individual chooses desired outcomes and sets in motion the behaviors appropriate to acquiring them" (Huczynski, and Buchanan, 1991). Moreover, Nzuve (1999) argued that motivation is the willingness of an individual to put more effort towards accomplishing organizational objectives, conditioned by their capability to fulfill their personal needs. Robbins, and Judge (2018) defined that work motivation can be applied to measure enthusiasm, willingness, and continuations in achieving the goals of the individual. Work motivation is the undeniable element for all organizations to complete achievements regardless they are private organizations or public bodies (Chintalloo, & Mahadeo, 2013).

### 3.2 Work Conditions and Work Motivation

"Working conditions are created by the interaction of employee with their organizational climate and includes psychological as well as physical working conditions" (Gerber, Nel, & Dyk, 1998). Working conditions, which include facilities, working time, safety, and a comfortable workplace (Dublin, 1994), are one of the most important cumulative factors affecting the physical and mental health of employees directly. Working in a safe environment with fully equipped, partly satisfying the needs of employees are remarked as conditions to improve work motivation of employees and increase the productivity of labor (Yazdani, Yaghoubi, & Giri, 2011). Working conditions are much needed; therefore, organizations should pay attention to constructing a pleasant working space for their workforce.

Furthermore, good working conditions are an antecedent of motivation for employees to work better with higher efficiency (Irons, & Buskist, 2008). Barzoki (2012) concluded that positive working conditions are the main factor influencing the work motivation of individuals. As the result, the hypothesis is presented as:

$H_1$: Work conditions positively affect the work motivation of civil servants.

**3.3 Job Security and Work Motivation**

Job security is the feeling of staying in a stable position in the organization, acknowledging the guarantee of a job's duration, as well as the freedom from suddenly losing work or becoming unemployed (Arabi, & Kamani, 2000). Herzberg (1968) also described job security as the construct to which an organization continuously supports durable hiring for their employees. In the workplace, employees might want to be challenged with new tasks or missions as a way to motivate themselves to use all the skills they have or even learn new ones. However, no one can completely concentrate on working when some kind of insecurity feelings are perceived such as replacement by young staff or staff cutback. Only if an employee is free from those worries during working in an organization, they can feel relief and settle into focusing on tasks and duties. In other words, job security is the vital motivator when an employee can foresee a direct correlation between their work and the bright future with the organization. The employee who feels secure in his or her position is far more productive than those who are not feeling the same. Maslow's Needs' Hierarchy included security and safety as the second level of an individuals' needs after physiological needs. The study of Muhammad (2012) about antecedents of employee motivation proved job security as one of the main motivational factors of employees. Moreover, Najmulmunir (2020) reported a similar result stating job security positively generated a high degree of work motivation among employees. From the literature review, it is hypothesized that:

$H_2$: Job security has a positive impact on the work motivation of civil servants.

**3.4 Supervisor Support and Work Motivation**

The supervisor is an administrative officer controlling the stable functioning of a business, governmental organization, school, or operational unit. The position of supervisor refers to one's immediate superior and being in charge of productivity in the workplace. Supervisor support is defined as the acknowledgment of employees that supervisors will always give them enough work-related support and assistance which enables them to perform their work quicker and more effectively or even solve problems and conflicts. Besides, supervisor support is the belief of employees concerning the extent to which supervisor appreciate their contributions and care about their well-being (Sharafinski, & Clare, 1988). Richmond, and McCroskey (2000) argued that immediate assistance from the supervisor is positively related to the work motivation of employees. For that reason, the behaviors of supervisors have a remarkable impact not only on employees but also on the organization. Support of supervisors could help employees to increase the degree of work motivation. According to Černe, Nerstad, Dysvik, and Škerlavaj (2014), an employee's work motivation is the result of an exchange process resulting in the relationship between supervisor and employees. Asegid, Belachew, and Yimam (2014) agreed that a successful organization requires the supervisor to create a productive and motivated workforce. Lee, and Kusumah (2020) concluded that supervisor support positively influences employee work motivation. Accordingly, the following hypothesis is proposed:

$H_3$: Supervisor support positively influences the work motivation of civil servants

**3.5 Coworkers Support and Work Motivation**

Co-workers are groups of people in the organization who hold the same rank as each other. Co-workers are an essential part of the working environment, and most employees expect to work and cooperate with colleagues in a friendly and harmonious environment when they start their career in an organization (Susskind, Kacmar, & Borchgrevink, 2003). According to Bagraim, and Hime (2007), coworkers in the organization should technically, emotionally, and socially support one another in all working facets. A relationship with coworkers is the combination of giving and receiving support among individuals in an organization. Harmonious relationships and cooperation between an individual, and their coworkers have a positive impact on an individual level, organizational commitment, and work motivation. Work motivation will be increased if every individual perceives a tight and bonded relationship with one another. Sajjad, Ghazanfar, and Ramzan (2013) predicted one of the antecedents of employee motivation is collaboration, more specifically teamwork. The more harmonious the team, the quicker collective goals will be achieved with the cooperation of all members. Miller, and Lee (2001) strongly believed that coworker support is a factor that creates employee motivation. Based on the foregoing review and previous researches, it is hypothesized that:

$H_4$: Coworkers have a positive influence on the work motivation of civil servants.

### 3.6 Rewards and Recognition and Work Motivation

The rewards system is policies, strategies, and practices for praising excellent employees with their advanced abilities and contributions by providing various flexible types, levels of pays, benefits, and forms in the organization or business unit (Armstrong, & Taylor, 2017). Normally, the common aim of a reward and rewards system is motivating employees to work, achieve, and complete the goals. Therefore, a rewards system refers to programs designed by an organization to reward the best performance and motivate employees at individual and/or group levels.

On the other hand, recognition is “the timely, informal acknowledgment of a person’s or team’s behavior, effort or business result that supports the organization’s goals and values and which has been beyond normal expectation” (Harrison, 2013). There are various forms to recognize deserved individuals such as thanks, praise, appreciation, respect, safe workplace. According to many researchers, recognition is the highest need while a reward including the monetary and compensative benefits is not able to be the sole motivator. Various researches suggest that rewards and recognition should not be separated (Saleem, Mahmood, & Mahmood, 2010) as cash awards are not always a truly effective way to motivate employees in the long term, and recognition itself is not sufficient either. Therefore, the phrase “rewards and recognition” would be better illustrated as “benefits as increased salary, bonuses, and promotion, which are conferred as a public acknowledgment of superior performance concerning company’s objectives” (Khan, Waqas, & Muneer, 2017).

Flynn (1998) emphasized that rewards and recognition can maintain the high spirits for employees’ morale and can establish a correlation between motivation and performance of the employees. Hence, recognition belongs to “esteem needs” in Maslow’s hierarchy of need theory (Khan et al., 2017). Ali, and Ahmed (2009) concluded that there is a statistically significant correlation between rewards & recognition and motivation. The study also proved that if rewards and recognition were given to employees fairly and transparently, then there would be a significant increase in work motivation. Based on previous empirical evidence, the hypothesis is developed as below:

$H_5$: Rewards and recognition impact the work motivation of civil servants positively.

### 3.7 Job Characteristics and Work Motivation

Job characteristics are objectives of jobs, particularly the level to which jobs are designed that increases the work motivation Hackman, and Oldham (1974). Task significance, task variety, task identity, autonomy, and feedback are five core job features, which correlate positively with work motivation (Hunter, 2006). Specifically, more challenging work will motivate employees to self-explore, learn, improve knowledge skills to get the job done effectively. Kovach (1987) agreed that an interesting job manifests diversity, creativity, challenge; hence creating more opportunities to apply and promote personal skills as well as competencies. Challenging work encourages employees to utilize all their working skills, knowledge, and intelligence to handle with complexities involved in each task they take responsibility. Kivimäki, and Koskinen (1995) proved that employees’ work motivation is closely related to the degree of diversity in jobs. Therefore, employees performing diverse jobs will be more motivated than those who just do repetitive work. Spector, and Jex (1991) support the idea that job characteristics can predict employees’ motivation. Perry, and Wise (1990) suggested the characteristics of a specific job influence motivation of the individual who is working on it. Similarly, Juhdi, and Saad (2007) figured out the fact that clearly understanding job characteristics can increase motivation, and effectiveness of employees in their workplace, especially, considered as a principal indicator influencing the degree of employees' motivation. The characteristics of work had a super-strong influence on employee motivation. Therefore, the hypothesis is suggested as:

$H_6$: Job characteristics have a positive impact on the work motivation of civil servants.

Relating to the literature review, the main key concepts: motivational factors and work motivation were reviewed carefully. The conceptualization and definitions of six motivational factors (work conditions, job security, supervisor support, coworkers support, rewards and recognition, and job characteristics) positively affect work motivation supported by numerous research studies.

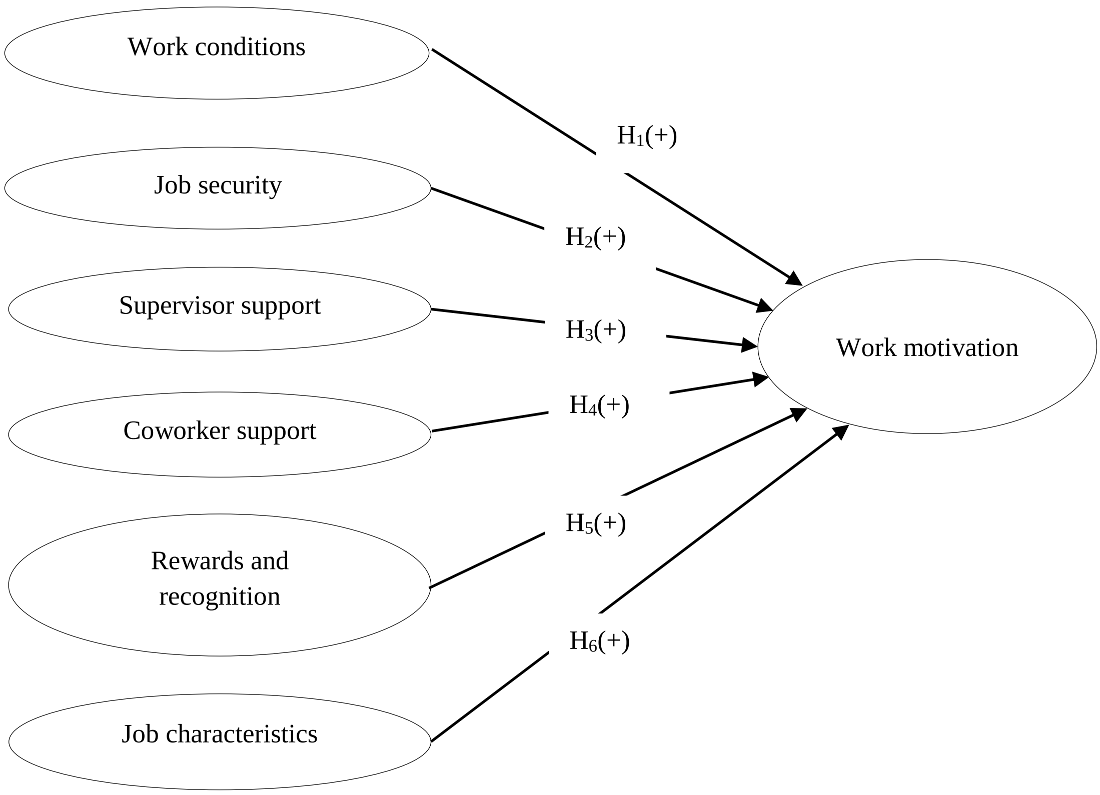


**Figure 1** Conceptual Framework

**3.8 Research Methodology**

1) Sample Size

After reviewing literature and deducing from previous research, a conceptual framework and research hypotheses were formed (Figure 1). This study was done using a quantitative approach method through two steps: a pilot test and the main survey.

The pilot test was conducted to confirm that the survey items were appropriate and fit the concepts as step one. The questionnaire was created using Google Forms and sent to public employees working in Public Organizations via email. Through this, 30 responses were obtained.

**Table 1** Results of the Quantitative Pilot Test Analysis 30 Respondents

| Factors | Number of items | Cronbach's Alpha |
|---|---|---|
| Work conditions | 5 | 0.807 |
| Job security | 5 | 0.814 |
| Supervisor support | 5 | 0.861 |
| Coworker support | 5 | 0.954 |
| Rewards and recognition | 4 | 0.904 |
| Job characteristics | 5 | 0.857 |
| Work motivation | 5 | 0.845 |

As shown in Table 1, the result of every construct's reliable test with the value of Cronbach's Alpha coefficients of all scales was higher than 0.8 (Hair, Anderson, Babin, & Black, 2010). Therefore, the reliability of the scales was pretty good and these measurement scales can be applied in the next step: The main survey.

For the main survey, the authors distributed 200 questionnaires to the HR division in the Department of Home Affairs in Ho Chi Minh City to collect data. The number of returned questionnaires was 190. After the screening process, three of them were removed because the participants missed answering some questions. Then, 187 questionnaires were used to analyze in step two (main survey) of the quantitative approach (Table 2).

**Table 2** Descriptive Statistics

| | N= 187 | Frequency | Percent |
|---|---|---|---|
| Gender | Female | 105 | 56.1 |
| | Male | 82 | 43.9 |
| Marital status | Marriage | 147 | 78.6 |
| | Single | 40 | 21.4 |
| Age | ≤ 25 years old | 30 | 16.0 |
| | 26-30 years old | 67 | 35.9 |
| | 31-40 years old | 70 | 37.4 |
| | ≥40 years old | 20 | 10.7 |
| Experience | Less than 3 years | 19 | 10.2 |
| | 3-5 years | 30 | 16.0 |
| | 5-10 years | 66 | 35.3 |
| | ≥ 10 years | 72 | 38.5 |
| Education | Below than bachelor's degree | 18 | 9.6 |
| | Bachelor's degree | 155 | 82.9 |
| | Master's degree | 14 | 7.5 |
| | PhD's degree | 0 | 0 |

2) Variable Measurements

This study divided a questionnaire into two parts to collect the data. The first part measures the observed variables of motivational factors and work motivation. The second part identified the personal information of participants (gender, age, tenure, marital status, and education). To ensure validity and reliability, all questionnaire items were adopted from previous researchers. Each item was measured using a five Likert scale. Work conditions scale with 5 items adopted from Edgar, and Geare (2005). While job security scales include 5 items from the study of Kuhnert, Sims, and Lahey (1989). A five-item scale was adopted from Hammer et al (2009) to measure supervisor support. Coworkers' support scales were measured by 5 items adopted from Ducharme, and Martin (2000) and 4 items from Vuong, and Sid (2020) were adopted to measure rewards and recognition. Job characteristics were measured by 5 items of Hackman, and Oldham (1974). Finally, 5 items adopted from Akkermans et al (2016) were used to measure work motivation.

3) Partial Least Square Regression

This study used partial least square-structural equation modeling (PLS-SEM) via the Smart PLS 3.0 to test the conceptual framework. Giao, and Vuong (2020) proved that PLS is able to support the service for causal analysis in many types of researches, especially behavioral research. Moreover, PLS is one of the useful multivariate techniques that examine complex research problems involving both unobserved variables and the multifaceted interaction of different variables. If samples are independent and data is not required to be normally distributed, PLS calculates p-values by bootstrapping technique (Hair et al., 2010). Considering all the above advantages, the authors decided to employ Smart PLS 3.0 to analyze data for this study.

## 4. Result

The constructs' reliability is determined by indicator reliability and internal consistency reliability. According to Hair et al (2010), indicator reliability is calculated by the square of the loadings for each indicator. When this value is higher than 0.5, the data of the study satisfies indicator reliability. From the analysis result, three items; SS5, JM5, and JC5, were deleted due to loading ≤ 0.5.

Next, Fornell, and Larcker (1981) posited that a score of composite reliability (CR) should be used to measure internal consistency reliability and the value of CR should be equal to or higher than 0.7. As shown in Table 3, the CR score for all constructs is higher than 0.7; thus, it illustrated good internal consistency reliability.

Fornell, and Larcker (1981) also stated that the average variance extracted (AVE) can be used to access the convergent validity of the latent variables. When the AVE for each of the constructs is not lower than 0.5, convergent validity is confirmed.

AVE of construct "coworkers support" was 0.4306; lower than 0.5, therefore, the authors omitted to delete low indicator loading items CS1 and CS4 to increase the AVE of construct "coworkers support". After omission, the AVE of the construct is 0.526 (Table 3, Figure 2). Therefore, each of the constructs in this study determined good convergent validity.

**Table 3** Reliability and Convergent Validity

| **Construct** | **Indicator** | **Indicator loading** | **Cronbach's Alpha** | **Composite reliability (CR)** | **AVE ≥ 0.5** |
|---|---|---|---|---|---|
| Coworker support | CS2 | 0.797 | 0.552 | 0.768 | 0.526 |
| | CS3 | 0.678 | | | |
| | CS5 | 0.694 | | | |
| Job characteristics | JC1 | 0.950 | 0.957 | 0.969 | 0.886 |
| | JC2 | 0.953 | | | |
| | JC3 | 0.925 | | | |
| | JC4 | 0.939 | | | |
| Work motivation | JM1 | 0.925 | 0.952 | 0.965 | 0.874 |
| | JM2 | 0.946 | | | |
| | JM3 | 0.930 | | | |
| | JM4 | 0.938 | | | |
| Job security | JS1 | 0.593 | 0.820 | 0.872 | 0.581 |
| | JS2 | 0.671 | | | |
| | JS3 | 0.843 | | | |
| | JS4 | 0.814 | | | |
| | JS5 | 0.854 | | | |
| Rewards and recognition | RR1 | 0.939 | 0.957 | 0.969 | 0.886 |
| | RR2 | 0.955 | | | |
| | RR3 | 0.939 | | | |
| | RR4 | 0.931 | | | |
| Supervisor support | SS1 | 0.952 | 0.948 | 0.963 | 0.866 |
| | SS2 | 0.943 | | | |

| Construct | Indicator | Indicator loading | Cronbach's Alpha | Composite reliability (CR) | AVE ≥ 0.5 |
|---|---|---|---|---|---|
| | SS3 | 0.880 | | | |
| | SS4 | 0.945 | | | |
| Work conditions | WC1 | 0.896 | 0.903 | 0.931 | 0.734 |
| | WC2 | 0.908 | | | |
| | WC3 | 0.941 | | | |
| | WC4 | 0.915 | | | |
| | WC5 | 0.565 | | | |

Discriminant validity signifies the difference of a construct when compared with others in the model. Henseler, Ringle, and Sarstedt (2015) suggested the Heterotrait-Monotrait criterion (HTMT) can be used to consider the discriminant validity of latent variables. Garson (2016) stated that when the HTMT ratio is lower than 1.0, the discriminant validity between two reflective variables is proved. Table 4 showed that the result of the HTMT ratio of all latent variables is lower than 1.0, thus it is satisfied for discriminant validity.

**Table 4** Heterotrait-Monotrait Criterion (HTMT)

| | CS | JC | JM | JS | RR | SS | WC |
|---|---|---|---|---|---|---|---|
| **CS** | | | | | | | |
| **JC** | 0.6104 | | | | | | |
| **JM** | 0.7125 | 0.8922 | | | | | |
| **JS** | 0.9188 | 0.8383 | 0.8231 | | | | |
| **RR** | 0.6861 | 0.9716 | 0.8903 | 0.8430 | | | |
| **SS** | 0.6834 | 0.9681 | 0.9081 | 0.8699 | 0.9459 | | |
| **WC** | 0.7824 | 0.8037 | 0.8624 | 0.8432 | 0.8051 | 0.8374 | |

In the structural model analysis, the first step is collinearity assessment. This procedure was essential to guarantee that the path coefficients that are estimated by regressing endogenous variables on the attached exogenous variables are not tendentious. The structural model assesses the collinearity among indicators using variance inflation factor (VIF). A VIF value below 10 signifies the absence of collinearity (Hair et al., 2010). As seen in Table 5, VIF values of the construct were less than 10. Therefore, the authors can conclude that no collinearity existed between the indicator variables and the latent variables.

**Table 5** Collinearity Statistics

| Construct | Maximum of outer VIF value |
|---|---|
| | **Work motivation** |
| Coworkers Support | 1.2397 |
| Job Characteristics | 6.9518 |
| Job Motivation | 5.7437 |
| Job Security | 5.1009 |
| Rewards and Recognition | 6.6082 |
| Supervisor Support | 7.0087 |
| Work Conditions | 5.9203 |

The hypotheses in this study and represented in the structure model were analyzed using the Smart PLS 3.0 software. The structural model was examined using three assessments: the significance of the path coefficients between constructs was determined, also called nomological validity, f square value, and R square value.

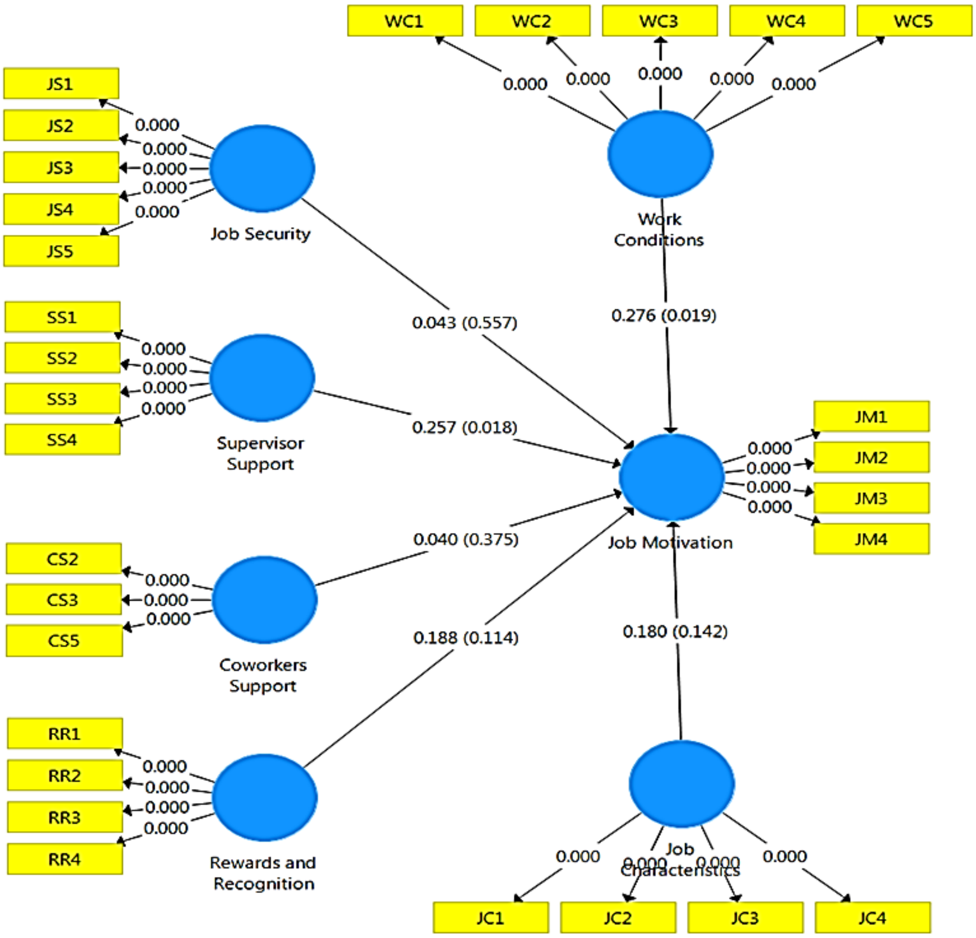


**Figure 2** Hypotheses Summary Model

The result of the study was summarized in Table 6. The columns showed the dependency, beta coefficient, Standard Deviation, *t* statistics, *p* values, and the conclusion displaying the "Support" or "Not support". To accept or reject any hypothesis, if the value in the "*p*-value" column is higher than 0.05, it is not significant, meaning that the hypothesis is "Not supported". If the value is lower than 0.05, it is significant, thus the hypothesis is "Supported". The findings illustrated that $H_2$, $H_4$, $H_5$, and $H_6$ were rejected since their *p*-values are higher than 0.05.

Work condition and supervisor support positively influence the degree of work motivation (p-value $\leq 0.05$); therefore, $H_1$ and $H_3$ are accepted.

Hypothesis $H_1$: the result showed that 'work conditions' had a significant positive relationship with the work motivation of civil servants, (*p*-value = 0.019 < 0.05 and beta coefficient = 0.276). The result indicated that the better the work conditions in the workplace, the higher the work motivation of civil servants. Thus, hypothesis $H_1$ was supported.

Hypotheses $H_3$: the finding illustrated that 'supervisor support' had a significant positive relationship with the work motivation of civil servants (p-value = 0.018 < 0.05 and beta coefficient = 0.257). The result showed that civil servants perceived higher work motivation if they received more support from their supervisor. Thus, hypothesis $H_3$ was supported.

**Table 6** Path Coefficient

| Hypothesis | Dependency | Beta coefficient | Standard Deviation | T Statistics | P-Values | Conclusion |
|---|---|---|---|---|---|---|
| $H_1$ | WC->JM | 0.276 | 0.278 | 2.351 | 0.019 | Supported |
| $H_2$ | JS -> JM | 0.043 | 0.047 | 0.588 | 0.557 | Not supported |
| $H_3$ | SS -> JM | 0.257 | 0.261 | 2.378 | 0.018 | Supported |
| $H_4$ | CS -> JM | 0.040 | 0.036 | 0.888 | 0.375 | Not supported |
| $H_5$ | RR -> JM | 0.188 | 0.189 | 1.582 | 0.114 | Not supported |
| $H_6$ | JC -> JM | 0.180 | 0.176 | 1.472 | 0.142 | Not supported |

The coefficient of determination ($R^2$) was examined to assess predictive fit. $R^2$ shows how much of the variance of the latent variables is explained by the latent variable. Hair et al (2010) suggested that the primary criterion for the assessment of a PLS path model is the coefficient of determination ($R^2$). $R^2$ ranges are always between 0 and 1, which means higher $R^2$ values indicate a better fit of the data to the model. Typically, $R^2$ values are ranked in which 0.1, 0.3, and 0.5 indicate a small effects size, medium effects size, and large effects size respectively (Hair et al., 2010). As shown in Table 7, work conditions and supervisor support indicate pretty large effects size on work motivation ($R^2$=0.812), which means work conditions and supervisor support can explain 81.2% of the variance Work motivation.

**Table 7** R Square Result

| | R Square | R Square Adjusted |
|---|---|---|
| **Job Motivation** | 0.812 | 0.806 |

## 5. Discussion and Implication

### 5.1 Discussion

In this discussion, the authors explain reasons why, among six factors affecting work motivation in the conceptual framework, only two factors (work conditions and supervisor support) turned out to be the motivational factor of the civil servants in the Department of Home Affairs- Ho Chi Minh City, Vietnam.

The results of this study are consistent with some previous studies. First of all, the prior researches' results illustrated the same conclusion that good working conditions could be a source of motivation for employees to work better with advanced efficiency. Research by Yazdani et al (2011); Irons, and Buskist (2008) and Barzoki (2012) confirmed working conditions belong to the top factors affecting work motivation.

Secondly, Richmond, and McCroskey (2000) shared the common finding that the behavior of supervisors can have a remarkable influence in not only employees' work motivation, but also the organizational performance levels altogether. Furthermore, a relationship with the supervisor would affect the psychological condition of employees during the time they work in the organization.

Surprisingly, work conditions and supervisor support are the two most influencing factors, demonstrating that Vietnamese civil servants are more concerned with intangible supports (organizational support through considering providing work conditions for the workforce or support from their supervisor) than tangible conditions such as rewards, or bonuses in salary. The findings are useful for public sector leaders and supervisors to pay more attention to considering building a good relationship with their subordinates rather than reforming the rewards system as such. The reason is that the common problem of civil servants is stress or burden. The Vietnamese government has been designing strategic plans to improve administrative activities. With positive outcomes, the reform somehow becomes the source of burden and stressor to public servants and the whole system due to the too high requirements as well of expectations for the better public services with a high rate of population. In those situations, they would prefer to contact and communicate with their supervisor or just a silent space to be calm down. It is, therefore, an important observation that, in the current context, with the adoption of a new interaction between supervisor and employees, investing in work conditions in the workplace can enhance the work motivation of Vietnamese civil servants in general.

It was interesting and surprising at the same time to see how the data and results went beyond the expectations. Nonetheless, these results reflect very well the true picture and nature of public organizations in Vietnam socially and politically.

**5.2 Implication**

1) Work Conditions

Leaders and managers should pay more attention to the workload in every single division in the department, balance the numbers of civil servants with the workload to get higher efficiency and effectiveness to achieve the sustainable development of the department. Physical conditions in the department such as a clear break room, canteen, or coffee corners are considered necessary physical conditions that should be designed for civil servants. Besides, facilities such as printers, fax machines or desktops should be kept in good quality then the civil servants can work without any disturbance, then the work motivation, as well as the level of their performance, would be surged. Based on the study results, the physical and mental health of civil servants in the organization is worth investing in. Leaders or managers should consider the special service to take care of the heath of civil servants especially mental health by constructing a small clinic room inside the department with one or two physicians and psychologists where civil servants can visit during their break time or right after working time.

2) Supervisor Support

Supervisors should communicate openly and let subordinates feel free to share their concerns, their problems at work, or even in private life sometimes. Besides, the supervisor should care for a team member who suddenly behaves strangely, that individual might be under stress or problem from their work or conflict in the family. Moreover, the supervisor should be the person that civil servants or subordinates can rely on in their hard times or when they have to deal with turbulence in work. With the work experiences, the supervisor can give civil servants suggestions, feedbacks, and comments to assist them to overcome those hard times. In case employees do not perform well, the supervisor should provide constructive feedback with practical advice and guidance on areas that need improvement as the way that employees feel safe and they do not lose face or feel embarrassed among their coworkers.

**6. Conclusion**

This article aimed to identify factors that affect the work motivation of civil servants working in the public sector, specifically the Department of Home Affairs in Ho Chi Minh City, Vietnam.

From the result of data analysis, two factors are affecting the work motivation of the civil servants. The measurement scales used in this article are estimated with validity and reliability ($CR \geq 0.7$, $AVE \geq 0.5$). The article found the factors that positively affect the work motivation of civil servants, in descending order, as work conditions (beta coefficient= 0.276) and supervisor support (beta coefficient= 0.257).

The finding provides leaders, managers, and supervisors of the department with a new and overall look at the antecedents of work motivation. Based on the research findings, the conclusion drawn is that if the advance in motivational factors is high enough, the work motivation among civil servants will be increased, thus enhancing the sustainable development of the department as well as public organizations in Vietnam generally. The article may contribute valuable information with managerial implications so that leaders and managers could apply in the department to boost the degree of work motivation among civil servants.

Some limitations existed in this article. First, the questionnaire for collecting data in this study was using only a convenience sampling method with quite a small sample size. Therefore, it may not illustrate the overall civil servants in the Department of Home Affairs in Ho Chi Minh City as well as in Vietnam public organizations in general.

Secondly, the article remained in finding factors that influenced work motivation and does not mention how work motivation can contribute to other related key concepts in organizational development such as job performance, job burnout, or job satisfaction. Further, the consequences of work motivation are one of the recommendations for future researchers who want to devote themselves to the organizational field.

Finally, for future work, the researchers should consider the characteristics of the organization while doing any works related to HR management research. Sometimes, the point of view of researchers and employees in that organization is quite dissimilar. When the researchers acknowledge the importance of this point, it will be a concrete background to understand clearly what and how they process the next steps in their research.

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# Guideline for Developing a Model of Prevention of the Problem of Elder Abuse in Communities of Thailand

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## Abstract

The research aimed at surveying information about the elder abuse situation in Nang Rong district, Buriram province, Thailand and studying ways of prevention of the elder abuse in the community of Nang Rong Municipality Buriram Province, Thailand for developing it as a model of good practice to be used in other community areas. The research was carried out by mixed methods research including both quantitative and qualitative. Sample size included 351 elders residing in communities of Nang Rong Town Municipality, Nang Rong district, Buriram province, Thailand. The quantitative research utilized Krejcie and Morgan table for determining sample size of a given population. Its research tool was questionnaires. Derived information was then analyzed by statistical method that includes percentage and mean. In addition, qualitative research was also carried out by in-depth interview and focus group discussion among related state officials and private sectors.

The research resulted ways of prevention of the elder abuse in the Nang Rong Municipality community Buriram Province could be used as a good practice to guide other community areas. These following actions should be done in the community i.e. elder abuse prevention through social development by raising public comprehension about nature of elder abuse and means of elder abuse prevention and providing neighborhood watch and citizen patrol, community or locally-based elder abuse prevention by applying concept of the neighborhood care, setting up a committee by local government organization or municipality to be in charge of monitoring or preventing recidivism and providing assistance to any abused elder as well as a use of community justice system in dispute resolution.

***Keywords:*** *Elder abuse, Model development, Crime prevention*

## 1. Introduction

According to a finding in World Health Organization report in the year 2021, around one-sixth of the population aged over 60 all over the world have encountered acts of violence in high rate. Such violent acts have engendered long-term bodily and mental injury to them. The acts of violence against the elders are anticipated to be more snowballing due to the rapidly increasing number of aged population (World Health Organization, 2021). Furthermore, the Thai Health Promotion Foundation's research work on situation of abuse and violation of rights against Thai elderly in the year 2016 found escalating problems of abuse and violation of rights against the elderly in which the most number are mentally-abused cases, followed by the 2nd, abandonment and disregard, the 3rd, abuse by exploitation of the elderly's property by family members and non-family members or swindle of financial transaction, the 4th, bodily harm by close people and the 5th, sexual harassment by close people in family or in community. These problems were regularly arisen to the elderly living solitarily (Jutrakul, 2016). In addition, a study of the elder abuse situation nowadays resulted number of the deprived elders rise, with reference to the Royal Thai Police's statistics that revealed number of the injured population aged over 60 in criminal case has increased from 344 people in 2007 to 703 people in 2015 and tended to escalate continuously. Number of the deprived elders were ranked by nature of abuse, the most is mental abuse, followed by the 2nd, abandonment of dependent elder and the 3rd, exploitation of the elderly's property. Meanwhile, the deprived elders were mostly perpetrated by their close people or family members and caused by these following significant factors i.e. (1) Factors from the caregivers e.g. being drug addicted, intoxicated, emotional, hot-tempered, easily petulant, emotionally instable and (2) Factors from the elders themselves e.g. being solitary, sick, needy, Dementia, poor and scarce of earning (Sopontammarak, 2017).

Thus, statistical information of the elder abuse in Thailand can be concluded that the elder abuse incidents has increased in every year since growing number of the elderly. The arisen abuses including mental and physical detriment, abandonment or disregard, exploitation of property and sexual harassment have usually been committed by their close people in family or in community.

In taking into consideration of this kind of incident in the provincial especially in these areas of Nang Rong district, Buriram province, a number of elder abuses have occurred as appeared in news reports published in newspaper. Most of the news are elder abuses committed by sexual harassment, bodily harm and murder by close people in family or in community as well as neglect to take care by leaving the elder solitary or otherwise to live with their child being bodily or mentally sick and unable to have self-care for example a news heading published ***A daughter was shocked! Her bedridden 84-year mother raped by neighboring lustful 89-year aged man was dead by blood steam infection*** (Kaosod Online, 2019), a matter of sexually abused elder detailing “on 2nd November 2018 a dreadful incident occurred in Nang Rong district, Buriram province when Mr. A (alias), 89-year neighbor committed rape to Mrs. B (alias), 84-year bedridden patient in a house, then Mrs. B was dead by blood steam infection “. A news heading published ***Disabled child was fasting to have mother filled, finally becoming fatigue and dead body in the toilet*** (Thairath Online, 2019), a matter of leaving the elderly to live with bodily disabled child who was unable to take his self-care, detailing “on 22nd October 2019 in Nang Rong district, Buriram province, a person’s corpse was found in a house and after questioning Ms. Chuan, his 68-year mother said that she has 2 children, the older child went to work in other province and has not been contactable for over 10 years. She has been left to live with another child who has paralyzed. Until 20th October 2018, her son hardly had food, looked fatigue. Before the incident, her son crept into toilet and did not come out. Until his head was found sank in water bin and deceased “. A news heading published ***Sad news! Psychiatric daughter being unaware of mother’s death, living with swollen corpse in her home for four days*** (Channel 7 Online, 2019), a matter of neglect by leaving the elderly to live with child being psychiatric ill or psychiatric patient and unable to take her self-care, detailing “on 2nd October 2019 in Nang Rong district, Buriram province, a 82-year woman being sick of heart disease laid overturn and passed away in her house hall. The physician expressed opinion that the death had elapsed not less than 4 days, assumed that underlying disease relapsed abruptly together with the patient being aged person. The more saddened incident was her 46-year daughter who was psychiatric ill assigned by her older brother to take care of her mother during his departing for work in other province for several days, as every once in a while, the older brother has returned home. Until the mother passed away but the daughter did not know of her mother’s death. During the time, she took care of her mother well and lived normally on daily routine in the same house.

From the aforementioned news during 2018 and 2019, dreadful incidents of elder abuses nowadays have still arisen in particular in these areas of Nang Rong district, Buriram province although certain related laws of Thailand are applicable i.e., the Penal Code and the Domestic Violence Victim Protection Act B.E. 2550 (Adulyadej, 2007) to promote family institution and punish perpetrator of the elder abuse. *(remark: analysis of this research project bases on the Domestic Violence Victim Protection Act B.E. 2550 which has still taken its effect in virtue of statutes of the Emergency Decree Amending the Family Institution Protection and Development Promotion Act B.E. 2562 B.E. 2562 (2019)).* Hence, there should be a study to explore guideline for developing a model to prevent the problem of elder abuse as an integral part of moving forward sustainably to implement policy on prevention and solution of the elder abuse in compliance with context of Thai society.

This research conducted review of several literature related to the elder abuse and prevention of the elder abuse incident. The essence of such literature review was as follows:

1. Concept of types of crime prevention: United Nations Office on Drugs and Crime (UNODC) indicated several types of crime prevention (United Nations Office on Drugs and Crime, 2010) as follows: the 1st type was crime prevention through social development comprising with social extent, education, health and training program for education that target society, community, children, youth and family at risk through process of intervening programs for augmenting knowledge and skill of crime prevention to family, school and community; the 2nd type was community or locally-based crime prevention based on attention to

areas at risk of numerous crimes instead of attention to persons by enhancing safety and security of household for dwellers in community in order to respond their needs and solve criminal acts in community and by enhancing services and social capital i.e. social network, belief, social bond through community and neighborhood approach. A concept namely "Neighborhood Care" in management which was a crime prevention by people in community cooperating one another for accomplishment by each neighbor usually kept observation at his or her proximate house. Neighborhood was a system for supporting people in the society and included social network among group of people dwelling in the same environment in benefit of mutual participation in pleasantly solving various problems (Sutheesorn, 2015).

2. Concept of community crime prevention: The US's National Institute of Justice defined "community crime prevention" concept as a strategy for making change to community infrastructure, culture, physical environment in community for diminishing crime by diversified means e.g. neighborhood watch, community policing, physical design for crime prevention, community comprehensive approach among community activities group and local government organization for solving crime problem, delinquency and disorderliness in each community (National Institute of Justice, 2020). Community activities group and Local government organization have had important role in crime prevention since it is well aware of nature of problem and statistic of crime arisen in each community, works out prevention and solution of crime through cooperation mechanism within community together with its direct duties in provision of various public services and public utilities in community and development of quality of life for well-being of people in community. Hence, these have been helpful for efficient crime prevention and solution (City of Canning, 2016).

3. Guidelines for prevention and protection of the elderly from acts of violence:

3.1 Penjan Pradubmook Sherer, Wongyai, and Charoensukployphol (2014) researched the title of Social Protection Networks: Developing social immunity for the Elderly that aimed to create knowledge on social immunity for the elderly and make recommendation and guideline for direction of the policy formulation in relation to social immunization for protection of the elderly, using mixed methods research. The sample group were 2,553 aged people in every region nationwide. The research found that any measure in policy level should include organization or specific measure of social immunization for protection of the elderly by integrating works with related stakeholders. Provisions of law should formulate duties of related professionals for instance administrative official, social worker and public health official to report awareness/eye-witnessing of or belief in occurrence of the acts of violence to relevant agencies for providing assistance. Measures in operative level should include a project of promoting value in coexisting with the elderly in family, a campaign enhancing good relationship in family, refraining from acts of violence against the elderly and encouraging community and local people to have a duty or responsibility for preventing the elderly from any hazard. In addition, a strategy and plan of actions for systematic prevention of such problem must be also provided.

3.2 Chithapo Chaimadan ( 2018) researched the title of Forms of Prevention and Solution of Violence in Communities and Local Government Organizations in Sakaeo Province that aimed to study forms and mechanism of prevention and solution of violence in communities and areas of local government organizations in Sakaeo province, using qualitative research. The key informants included executives of local government organizations, community leaders and community volunteers who experienced prevention and resolution of violence in communities and areas of local government organizations, totaling 30 people. The research found that forms and mechanism of prevention and solution of violence in communities and areas of local government organizations in Sakaeo province comprised with 4 significant elements i.e., family, community, local government organization and network and comprised with important mechanism in prevention and solution of violence i.e., participation process, creation of community harmony, creation of knowledge, coordination and co-integration of works.

## 2. Objectives

1) To survey information about the elder abuse situation in Nang Rong district, Buriram province.

2) To study ways of prevention of the elder abuse in the community of Nang Rong Municipality Buriram Province for developing it as a model of good practice to be used in other community.

## 3. Materials and Methods

This research was carried out by mixed methods research and already accredited human research ethics by the Human Research Ethics Sub-committee of Thammasat University No. 2 Social Sciences by the following methodology.

**3.1 Quantitative research:** The population of elders in Northeast region of Thailand residing in communities of Nang Rong Town Municipality, Nang Rong district, Buriram province are 3,777 people. Sampling utilized Krejcie and Morgan table for determining sample size of population by determining sample proportion at 0.5, allowable error of 5 % with a 95 % confidence interval. As a result, sample size included 351 elders. Collection of questionnaires was done from entire 351 elders in the end. This quantitative research utilized structured questionnaires as data collection tool. The quantitative information derived from the questionnaires was then analyzed by statistical method i.e. percentage and mean through SPSS (Statistical Package for the Social Science).

**3.2 Qualitative research:**

2.1 Documentary research by collecting and synthesizing knowledge from academic documents, research report concerning concept and theory used in prevention and laws relating to situation and problem of the elder abuse.

2.2 Field research in communities of Nang Rong Town Municipality, Nang Rong district, Buriram province through coordination with authorities of Nang Rong Town Municipality for field data collection about the elder abuse situation in community by visiting and inquiring families that suffer from violence against the elderly problems together with study of community measures of prevention of the elder abuse.

2.3 In-Depth Interview to key informants selected by purposive sampling that included qualified people, state officials involved in crime prevention and criminal justice process, community leaders and community members connected with prevention of domestic violence in the community totaling 10 people, using semi-structured interview form as data collection tool.

2.4 Focus group discussions among state officials and people in civil society experienced knowledge and skilled in prevention of domestic violence totaling 12 people for exchange and learning one another so as to further find conclusion of good practice of efficient prevention of the problem of elder abuse.

**3.3 Analysis and summary of the research result:** After completed collection of whole data, those data were categorized according to their content, then synthesized and analyzed through systematic interpretation. At last, the research results were summarized pursuant to the research objectives.

## 4. Results

This research had the following results.

**4.1 Information about the elder abuse situation in Nang Rong district, Buriram province**.

From survey and analysis of information by questionnaires derived entirely from 351 elders in communities of Nang Rong Town Municipality, Nang Rong district, Buriram province as of 10$^{th}$ January 2020, results were as follows:

1) General information of the elderly: the study found elderly population total 3,777 people, sample size of the elderly over 60 years old were 351 people, breakdown by gender for 124 males (35.3 %) and for 227 females (64.7 %), breakdown by nature of living for 18 elders (5.1 %) living solitarily and for 333 elders (94.9 %) coexisting with family members and other people, breakdown by education level to be below Bachelor's degree for 338 elders (96.3 %) and above Bachelor's degree for 13 elders (3.7 %), breakdown by status of employment for 270 employed elders (76.9 %) and for 81 unemployed elders (23.1 %), breakdown by debt burden for 140 indebted elders (39.9 %) and for 211 debt-free elders (60.1 %) as appeared in the Table below:

**Table 1** General information of the elderly (351 elders)

| General information of the elderly | Number (people) | Percentage |
|---|---|---|
| **Gender** | | |
| 1) Males | 124 | 35.3 |
| 2 Females | 227 | 64.7 |
| **Nature of living** | | |
| 1) Living solitarily | 18 | 5.1 |
| 2) Coexisting with family members and other people | 333 | 94.9 |
| **Education level** | | |
| 1) Below Bachelor's degree | 338 | 96.3 |
| 2) Above Bachelor's degree | 13 | 3.7 |
| **Status of employment** | | |
| 1) Employed | 270 | 76.9 |
| 2) Unemployed | 81 | 23.1 |
| **Debt burden** | | |
| 1) Indebted | 140 | 39.9 |
| 2) Debt-free | 211 | 60.1 |

2) Assessment of physical health of the elderly: the study found 191 elders (54.4 %) being well self-reliance, 150 elders (42.7 %) being moderate self-reliance (homebound) and 10 elders (2.9 %) being incapable of self-reliance (bedridden), also found 222 elders (63.2 %) being sick and 129 (36.8 %) being disease-free elders, and also the disease found the most in 115 elders (52.5 %) being diabetes, followed by 54 elders (24.7 %) being hypertension and followed by 23 elders (10.5 %) getting heart disease as appeared in the Table below:

**Table 2** Assessment of physical health of the elderly

| Physical health of the elderly | Number (people) | Percentage |
|---|---|---|
| **Capability of doing daily routine** | | |
| 1) Being well self-reliance | 191 | 54.4 |
| 2) Being moderate self-reliance (homebound) | 150 | 42.7 |
| 3) Being incapable of self-reliance (bedridden) | 10 | 2.9 |
| **Sickness** | | |
| 1) Being sick | 222 | 63.2 |
| 2) Disease-free | 129 | 36.8 |
| **Current disease (top 3 ranking)** | | |
| 1) Diabetes | 270 | 76.9 |
| 2) Hypertension | 81 | 23.1 |
| 3) Heart disease | 23 | 10.5 |

3) Assessment of mental health of the elderly: the study found 64 elders (18.2 %) having better mental health than common people, 191 elders (54.4 %) having mental health equivalent to common people and 96 elders (27.4 %) having worse mental health than common people, also found 14 elders (4.0 %) at risk or tended to be depressive disorder and 337 elders (96.0 %) being normal, not depressive disorder as appeared in the Table below:

**Table 3** Assessment of mental health of the elderly

| Mental health of the elderly | Number (people) | Percentage |
|---|---|---|
| **Level of mental health** | | |
| 1) Having better mental health than common people | 64 | 18.2 |
| 2) Having mental health equivalent to common people | 191 | 54.4 |
| 3) Having worse mental health than common people | 96 | 27.4 |
| **Risk or trend to be depressive disorder** | | |
| 1) Being at risk or tended to be depressive disorder | 14 | 4.0 |
| 2) Normal and not being depressive disorder | 337 | 96.0 |

4) Assessment of relationship in family and community of the elderly during the past one year: the study found 269 elders (76.6 %) whose family having good relationship 82 elders (23.4 %) whose family having unpleasant relationship, also found 130 elders (37 %) participating in community activity or elderly club and 221 elders (63 %) never participated in community activity or elderly club as appeared in the Table below:

**Table 4** Assessment of relationship in family and community of the elderly during the past one year

| Relationship in family and community of the elderly | Number (people) | Percentage |
|---|---|---|
| **Relationship in family** | | |
| 1) Whose family having good relationship | 269 | 76.6 |
| 2) Whose family having unpleasant relationship | 82 | 23.4 |
| **Participation in community activity or elderly club** | | |
| 1) Participating in community activity or elderly club | 130 | 37 |
| 2) Never participated community activity or elderly club | 221 | 63 |

5) Assessment of home safety of the elderly: the study found 347 elders (98.9 %) living in appropriate/safe house and merely 4 elders (1.1 %) living in inappropriate/unsafe house. Moreover, the elders had their opinion on safety of life and property in community, 325 elders (92.6 %) viewing more safety and 26 elders (7.4 %) viewing moderate safety as appeared in the Table below:

**Table 5** Assessment of home safety of the elderly

| Home safety of the elderly | Number (people) | Percentage |
|---|---|---|
| **Nature of house where the elderly living in** | | |
| 1) Living in appropriate/safe house | 347 | 98.9 |
| 2) Living in inappropriate/unsafe house | 4 | 1.1 |
| **Opinion on safety of life and property in community** | | |
| 1) Viewing more safety | 325 | 92.6 |
| 2) Viewing moderate safety | 26 | 7.4 |

6) Assessment of experience, perception or eyewitness of the elder abuse in community during the past one year: the researcher categorized assessment pursuant to nature of the elder abuse into these following 5 types:

6.1) The abuse by abandonment and neglect: the survey found the elders have experienced, perceived, eye-witnessed the elder abuse by abandonment and neglect, the most were incidents of leaving the elder solitary by 23 elders (6.6 %), the second sequence were incidents of leaving the elderly to bring up grandchild by 15 elders (4.3 %) and the least were incidents of failure to provide financial support for maintenance by 12 elders (3.4 %).

6.2) Emotion and mental abuse: the survey found the elders have experienced, perceived, eye-witnessed the emotion and mental abuse, the most were incidents of verbal abuse causing sorrow and resentment by 18 elders (5.1 %), the second sequence were incidents of disobedience/inattention by 17 elders (4.8 %) and the least were incidents of scolding and reproaching by 11 elders (3.1 %).

6.3) Physical abuse: the survey found the elders have experienced, perceived, eye-witnessed the physical abuse, the most were incidents of throwing stuff hitting body by 10 elders (2.8 %), equivalent to incidents of injury by bodily harm until going to physician/hospital by 10 elders (2.8 %), and the least were incidents of slapping, beating, kicking, pushing or crashing, striking and strangling by 9 elders (2.6 %).

6.4) The abuse by financial and property exploitation: the survey found the elders have experienced, perceived, eye-witnessed the abuse by financial and property exploitation, the most were incidents of borrowing without repayment by 14 elders (4 %), equivalent to incidents of disregard after property apportion by equal 14 elders (4 %), the second sequence were incidents of extorting money from the elderly by equal 10 elders (2.8 %), equivalent to incidents of representing to receive the elderly allowance but the elderly did not receive it or not in full amount by equal 10 elders (2.8 %).

6.5) The sexual abuse: the survey found the elders have experienced, perceived, eye-witnessed the sexual abuse, the most were incidents of sexual harassed by words, demeanor or googling by 2 elders (0.6 %), the second sequence were incidents of being harm due to denial of sexual intercourse by 1 elder (0.3 %) as appeared in the Table below:

**Table 6** Assessment of experience, perception or eye-witness of the elder abuse in community during the past one year

| Experience, perception or eye-witness of the elder abuse | Number (people) | Percentage |
|---|---|---|
| **The abuse by abandonment and neglect** | | |
| 1) Leaving the elder solitary | 23 | 6.6 |
| 2) Leaving the elderly to bring up grandchild | 15 | 4.3 |
| 3) Failure to provide financial support for maintenance | 12 | 3.4 |
| **Emotion and mental abuse** | | |
| 1) Verbal abuse causing sorrow and resentment | 18 | 5.1 |
| 2) Disobedience/inattention | 17 | 4.8 |
| 3) Scolding and reproaching | 11 | 3.1 |
| **Physical abuse** | | |
| 1) Throwing stuff hitting body | 10 | 2.8 |
| 2) Injury by bodily harm until going to physician/hospital | 10 | 2.8 |
| 3) Slapping, beating, kicking, pushing or crashing, striking and strangling | 9 | 2.6 |
| **The abuse by financial and property exploitation** | | |
| 1) Borrowing without repayment | 14 | 4 |
| 2) Disregard after property apportion | 14 | 4 |
| 3) Extorting money from the elderly | 10 | 2.8 |
| 4) Representing to receive the elderly allowance but the elderly did not receive it or not in full amount | 10 | 2.8 |
| **The sexual abuse** | | |
| 1) Sexual harassed by words, demeanor or googling | 2 | 0.6 |
| 2) Being harm due to denial of sexual intercourse | 1 | 0.3 |

7) As to opinion on request for other people's assistance when being abused and suggestion for measures of prevention of the elder abuse, the researcher categorized assessments into 2 following types.

7.1) Assessment of request for other people's help when the abuse arises and of helper: the survey found that most of all abused elders, 339 elders (96.6 %) having never requested for other people' help and merely 12 elders (3.4 %) used to request for help. The persons whom the elders requested for help include 7 police officials (58.3 %) and 5 community chairmen/community leaders (41.7 %).

7.2) Assessment of suggestions for measures of prevention of the elder abuse: the survey found that the elders had suggestions for measures of prevention of the elder abuse in top three sequences i.e. officers disseminating knowledge and advice by 22 elders (52.4 %), related agencies providing care and assistance by 8 elders (19 %) and campaign to raise conscious mind of abstaining from leaving the elder solitary and of notifying competent officers of the elder abuse by 5 elders (11.9 %) as appeared in the Table below:

**Table 7** Opinion on request for other people's assistance when being abused and on measures of prevention of the elder abuse

| Request for other people's assistance when being abused and on measures of prevention of the elder abuse | Number (people) | Percentage |
|---|---|---|
| **Request for other people's assistance when being abused** | | |
| (1) Never | 339 | 96.6 |
| (2) Ever | 12 | 3.4 |
| **The persons whom the elders requested for help** | | |
| (1) police officials | 7 | 58.3 |
| (2) community chairmen/community leaders | 5 | 41.7 |
| **suggestions for measures of prevention of the elder abuse** | | |
| (1) Officers disseminating knowledge and advice | 22 | 52.4 |
| (2) Related agencies providing care and assistance | 8 | 19 |
| (3) Campaign to raise conscious mind of abstaining from leaving theelder solitary and of notifying competent officers of the elder abuse | 5 | 11.9 |

### 4.2 Actions to prevent the problem of elder abuse of the Nang Rong Municipality Community, Buriram Province.

As regards the researcher's study of academic documents, research reports and related laws in association with field research to survey and study about actions relating to care and prevention of the elder abuse incidents in Nang Rong Town Municipality as well as in-depth interview to key informants selected by purposive sampling that included qualified people, state officials involved in crime prevention and criminal justice process for 5 people, community leaders and community members connected with prevention of domestic violence in the community for 5 people, totaling 10 people together with one session of focus group discussion among state officials i.e. two officials of Nang Rong Town Municipality, two officials of Provincial Social Development Office, Ministry of Social Development and Human Security, one official of Sub-district Health Promoting Hospital (SHPH) and people sector i.e. one village health volunteers (VHV), one elderly home care volunteer (EHCV), chairman and member of elderly club of Nang Rong Town Municipality for three persons, one folk philosopher and one abbot of Mai Rae Rai Thong Temple, total number of 12 people, accordingly, the researcher could be processing lesson leant to guide by these following actions.

Thus, for prevention of the elder abuse in area of Nang Rong district, Buriram province, a model of moving forward to this inevitably needs the local government organization i.e. Nang Rong Town Municipality acting as the lead agency for operations. In addition, Nang Rong Town Municipality will set up the elder abuse monitor committee in local level to be included in the municipality development plan for working out with every related part in community i.e. community chairman, committee members, folk philosopher, village health volunteers (VHV), elderly home care volunteers (EHCV), abbot of Mai Rae Rai Thong Temple so as to take several actions e.g. patrol and visit elders in community, create geo-social map to be included in database of the elderly' living places in community, monitor incident, provide assistance by focusing on any elder who faces this kind of problem or takes risk of abuse e.g. elder in family having drug-addicted or liquor-addicted offspring or elder having dementia or sickness requiring special monitor. As soon as any elder is abused, any Committee member usually rushes to provide basic help and makes referral to related state agency for further protection and assistance. The aforesaid operations of Nang Rong Town Municipality, several good practices can be learnt to develop a model of prevention of the elder abuse i.e. to emphasis on promoting mechanism in family and community levels to have knowledge and skill of administration and provision of various activities to enable efficient prevention and solution of the elder abuse arisen in community. There should have these following operations in community.

4.2.1 Elder abuse prevention through social development

The study resulted elder abuse prevention through social development that can be done in 2 methods i.e. first, educating the public for accurate comprehension about nature and means of elder abuse prevention and second, providing neighborhood watch and citizen patrol as appeared in the following details.

1) Educating the public for accurate comprehension about nature and means of elder abuse prevention: education in this regard should be provided to community members, mainstay of elderly club, local volunteers and family members especially nature and means of elder abuse prevention which derived from the result of survey in the areas. Education for accurate comprehension about meaning, form and nature of the elder abuse, preventing and solving problems arisen in family and community and channel for reporting of the elder abuse incident in community for raising people's awareness in community towards the elder abuse in their own community and being enthusiastic to jointly solving such problems. Thus, these materials and activities in various forms should be provided e.g.

- Campaign signages to raise realization of preventing the elder abuse in communities e.g. various Vinyl signages or brochures for dissemination of information to the public by posting in several easily noticeable areas e.g. municipality office, public road, common area of the community and temple area;
- Training session to disseminate various knowledge for preventing the elder abuse e.g. positive communication in family, stress management, practice to lessen violence or abuse in family, training relatives who will be caregiver for raising awareness and comprehension in livelihood of the elderly;
- Activities aiming to implant conscious mind of abstaining from the elder abuse e.g. activities for children and juveniles in educational institute and school in some areas of the communities by targeting to teach pupils who are offspring of the elderly in community, integrating such activities in various learning essences in lesson, activities for temple and Buddhist monks in implanting the conscious mind of people in community e.g. in Mai Rae Rai Thong temple in Nang Rong district, Buddhist monks have had role in teaching or giving a sermon, as means of prevention of the elder abuse in another way.

2) Neighborhood watch and citizen patrol: this is a measure of prevention of the elder abuse by monitor through arrangement of neighbor patrol for inspection and surveillance one another and increment of the communities' capacity to diminish risk of crime by various volunteers in each community e.g. village health volunteers (VHV), elderly home care volunteers (EHCV) or called caregiver as well as community members who were neighbors by helping keep watch abnormality in proximate area are able to report the police official or community leader or volunteer in these areas to access the incident place for help or provision of committee or various volunteer teams for keeping watch in community. In communities of Nang Rong Town Municipality, Nang Rong district, Buriram province, there was a network of community leader and various community volunteers working out together to be the monitor committee in local level in informal manner. The committee has applied community volunteers and public health volunteers to keep surveillance and monitor in connection with various state agencies e.g. Sub-district Health Promoting Hospital (SHPH), local police station, school, children and youth council, shelter for children and families and Buriram province office of social development and human security as well as participation of Buddhist monks in the areas.

4.2.2 Community or locally-based elder abuse prevention.

Operation of community or locally-based elder abuse prevention in these areas of Nang Rong Town Municipality utilized a concept namely "Neighborhood Care" in management which was a elder abuse prevention by people in community cooperating one another for accomplishment by each neighbor usually kept observation at his or her proximate house (Sutheesorn, 2015). This concept emphasized on functioning of persons and institutions in community by building up an informal care system in community together with good relationship among community members and good neighbor to help take care of the elderly within community. Neighborhood was a system for supporting people in the society and included social network among group of people dwelling in the same environment in benefit of mutual participation in pleasantly solving various problems. The concept of neighborhood care comprised with 3 objectives as follows: (Yordpetch, 2017)

1) To build mutual good relationship among people dwelling in the same community or having intimacy;

2) To engender help and support one another in normal time and emergency time in particular those who disconnect with network of family and relatives and

3) To utilize intimacy to access existing problem and situation rapidly prior to assistance from other sources

In communities of Nang Rong Town Municipality, Nang Rong district, Buriram province, there was establishment of the elderly club for performing activities of home visit to address the elders who were sick and lived alone by promoting potential elderly to become volunteer taking care of those who have faced problem (friend visits friend), aiming to help the elders who was lack of care or abandoned or leaving the elder solitary or with child in school age or pre-school age because of economic problem, more expenses than earning, the elders' offspring working out of the areas. As a part of neighborhood care, Buddhist monks have had role in monitoring people in community of Mai Rae Rai Thong temple during receiving food offerings and dharma talk in the morning by querying about livelihood of people in community. Neighbor usually let the monk know about problem or abnormality of his or her neighbor who was elderly or family members. Aside from informing community chairman or community mainstay, such neighbor would also let the monk know and consequently the monk would visit people in community who faced problem or abnormality for mental support or inform community health volunteer for taking care or follow-up.

4.2.3 Setting up the elder abuse monitor committee or prevention of recidivism.

This operation is to monitor the elder abuse incident by targeting the elders who were at risk in the areas e.g. the elder co-existed with family member having psychiatric symptom or drug addicted, alcoholic, the elder having record of being harmed or abused anyway by family member or others and having health problem as bedridden patient that might face abuse in various forms. This monitor project may set up specific organization, committee or working group to carry out active inspection and visit the elders in these areas being at risk of abuse and set up a coordination center, community common area for providing help to the domestic violence survivor by counseling, mutual exchange and learning, referral to multi-disciplinary team or related state agencies for further assistance (Rattanarat & Siripatthanakosol, 2019). At present, in communities of Nang Rong Town Municipality, Nang Rong district, Buriram province, setting up a monitor committee in local area is being on process and such committee will comprise with chairman, deputy chairman and secretary selected from community member having volunteer mind to join the operation. Nang Rong Town Municipality will act as the escort giving advice and guidance in operation. Such committee will carry out occasional home visit to elders on regular basis which is helpful not only to keep watch or observation on sickness and livelihood of such elders but also to coordinate with various volunteer, police officials, local officials or other officers of public sector in order to help restrain family member or people in nearby community committing the elder abuse, as it is prevention of the elder abuse incident in another way.

## 5. Discussion

The study found ways of prevention of the elder abuse in the community of Nang Rong Municipality Buriram Province can be learnt for developing a model of good practice to be used in other community for the elder abuse prevention i.e. to emphasis on promoting mechanism in family and community levels to have knowledge and skill of administration and provision of various activities to enable efficient prevention and solution of the elder abuse arisen in community. There should have these following operations in community.

**5.1 Elder abuse prevention through social development** as appeared in the following details.

1) Education about elder abuse and elder abuse prevention: education in this regard should be provided to community members especially nature and means of elder abuse prevention. Thus, these materials and activities in various forms should be provided e.g. Campaign signages to raise realization of preventing the elder abuse in communities., Training session to disseminate various knowledge for

preventing the elder abuse and Activities aiming to implant conscious mind of abstaining from the elder abuse.

2) Neighborhood watch and citizen patrol: this is a measure of prevention of the elder abuse by monitor through arrangement of neighbor patrol for inspection and surveillance one another and increment of the communities.

This result of the study is consistent with United Nations Office on Drugs and Crime (UNODC) indicated that concept and forms of crime prevention by crime prevention through social development that target society, community, children, youth and family at risk through process of intervening programs for augmenting knowledge and skill of crime prevention to family, school and community (United Nations Office on Drugs and Crime, 2010).

**5.2 Community or locally-based elder abuse prevention:**

The establishment of the elderly club is based on attention to areas at risk of numerous crimes instead of attention to persons by enhancing safety and security of household for dwellers in community in order to respond their needs and solve criminal acts in community and by enhancing services and social capital i.e. social network, belief, social bond through community and neighborhood approach. This result consistent with a concept namely "Neighborhood Care" in management which was a crime prevention by people in community cooperating one another for accomplishment by each neighbor usually kept observation at his or her proximate house. This concept emphasized on functioning of persons and institutions in community by building up an informal care system in community together with good relationship among community members and good neighbor to help take care of the elderly within community. Neighborhood was a system for supporting people in the society and included social network among group of people dwelling in the same environment in benefit of mutual participation in pleasantly solving various problems (Sutheesorn, 2015). This way was also in compliance with Sherer et al research title of Social Protection Networks: Developing social immunity for the Elderly that resulted measures in operative level would be able to prevent acts of violence against the elderly by encouraging community and local people to have a duty or responsibility for preventing the elderly from any hazard and by providing a strategy and plan of actions for systematic prevention of the elder abuse (Sherer, Wongyai, & Charoensukployphol, 2014).

**5.3 Setting up the elder abuse monitor committee or prevention of recidivism**

This monitor project may set up specific organization, committee or working group to carry out active inspection and visit the elders in these areas being at risk of abuse and set up a coordination center, community common area for providing help to the domestic violence survivor by counseling, mutual exchange and learning, referral to multi-disciplinary team or related state agencies for further assistance. This result was consistent with Chithapo Chaimadan's research title of Forms of Prevention and Solution of Violence in Communities and Local Government Organizations in Sakaeo Province that resulted important mechanism in prevention and solution of violence i.e., participation process, creation of community harmony, creation of knowledge, coordination and co-integration of works (Chaimadan, 2018) and was also consistent with concept of "community crime prevention" of US's National Institute of Justice as a use of strategies making change to community infrastructure, culture, physical environment in community for diminishing crime by diversified means e.g. community comprehensive approach among community activities group and local government organization for solving crime problem, delinquency and disorderliness in each community (National Institute of Justice, 2020). Furthermore, community activities group and local government organization have had important role in crime prevention since it is well aware of nature of problem and statistic of crime arisen in each community, works out prevention and solution of crime through cooperation mechanism within community together with its direct duties in provision of various public services and public utilities in community and development of quality of life for well-being of people in community. Hence, these have been helpful for efficient crime prevention and solution (City of Canning, 2016).

## 6. Conclusion

Accordingly, the research concluded that good practice of prevention the problem of elder abuse must include the following actions.

1) Elder abuse prevention through social development by educating the public for accurate comprehension about nature of elder abuse and elder abuse prevention and by providing education activities to involve participation of community members, mainstay of elderly club, volunteers in the areas and family members for their accurate comprehension as well as provision of neighborhood watch and citizen patrol by arrangement of neighbor to patrol for inspection and surveillance one another.

2) Community or locally-based elder abuse prevention by application of the concept of neighborhood care by community members helping take care of the elders in community equivalent to good neighbor and spotlight role of Buddhist monks participating in querying about livelihood and providing care of the elders in community.

3) Provision of the elder abuse monitor or prevention of recidivism project in particular group of elders at risk of abuse in the areas by possible setting up specific organization, committee or working group to carry out inspection and visit to such elders or by specific person.

4) Protection and assistance of the abused elder and use of community justice system in dispute resolution. When the elder abuse incident is seen or known anyway, it can be reported to competent officer for instant restraining of the incident. Meanwhile, community justice system can be used in mediation to prevent recidivism of the elder abuse. Accordingly, the aforementioned research result would be further a part of moving forward on prevention and solution of the problem of elder abuse in compliance with context of Thai society.

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# The Application of Public Participation to create the Cultural Tourism Map

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## Abstract

Trat's old town, located along Bang Phra Canal, has been the original town center since the reign of King Rama I to King Rama V. People in the community agree to preserve and restore many architectural heritages that have been found in this area. Other than that, there are many other interesting cultural and historical sites worth enough to visit in Trat's old town. However, there is no publicity in various forms, such as maps or brochures, to be used as a travel guide by tourists. Therefore, Trat's old town has been receiving lower attention from tourists than many other islands in the province. For this reason, this study aimed to first explore the identity of the town for a mascot's design to initiate the theme of the cultural tourism map for Trat's old town and secondly to design the cultural tourism map for old Trat's town, both through the public participation process. To collect data, a literature review and interviewing methods were used. The samplings included 12 focus groups, which comprised Thai and foreign tourists of different age ranges and genders. Finally, the finding shows that the best-representing mascot of the Trat's old town community is "the happy grandmother and grandfather." The design of the cultural tourism map thus consists of a cover that illustrates a picture of the happy grandmother and grandfather. The map is colored green, brown, and beige to create friendly hospitality along with the wood color of old buildings in Trat's old town and is in an "A3" size for ease of use and portability. The 5-fold leaflet was derived from the focus group interview of the sampling.

***Keywords:*** *Trat's Old Town, Trat identity, color scheme, Cultural Tourism Map, Community Participation*

## 1. Introduction

Rak Klong Bang Phra or Trat's old town community, so-called "Chiang Khan of the eastern land" (Paiduaykan.com, 2015) by foreign tourists, received the Outstanding Community Tourism Award in 2007. In the past, it was the main transportation route for meeting and exchanging goods for many groups At present, tourists can walk or bike for sightseeing purposes along Thon Charoen Road, Chaimongkol Road, and Lak Muang Road. This place also contains the heritage of architecture and culture. Some of the old Chinese wooden row houses (Figure 1) alongside the Rim Klong Market, the old town, have been partially abandoned, put up for rent, or adapted to be guesthouses or boutique hotels. Besides, there is a 3-story building with a sloped hip roof called "Residence Kampot" (Figure 2) that was used as the governor's house in the period when the French Troop ruled Trat.

**Figure 1** The old Chinese wooden row houses' style

**Figure 2** Residence Kampot

From the data of the Tourism Authority of Thailand (2018), Trat office, and the survey, Trat's old town has many other interesting cultural and historical sites worth enough to visit. Nonetheless, there is no publicity in various forms such as maps or brochures to be used as a travel guide by tourists. According to the researcher's actual web browsing and field trip in Trat town, information from the Tourism Authority of Thailand's Trat branch, and interviews with the locals--Rak Klong Bang Phra Community leader, hostel owners, and Trat Museum's curator-- in short, it was found that the bus route map at the bus stop provided by the Trat Provincial Transport Office was the only navigation information source provided for tourists. Thus, one of the guesthouses' owners, whose guesthouse is open to foreign elderly tourists, decided to draw a temporary tourist map and provide a copy for his guests. For this reason, the Trat's old town receives less attention from tourists than any other island in the province. The creation of the Cultural Tourism Map is necessary since the cultural map can communicate the being and identity of the community. The tourists will be able to admire and understand the places' background. In particular, this cultural tourism map can navigate the tourists directly to their destination. Thus, the public participation process will be an important tool to discover the identity of this community before the design process of the cultural tourism map for Trat's old town begins and is carried out through the end.

Trat province borders Cambodia by land and sea and is away from Bangkok by around 315 km (The Trat Provincial Office, 2012). Trat has a long history with the mixing of 5 original races: Thai, Chinese, Muslim, Vietnamese, and Chong (Museum Thailand, 2020; The Fine Arts Department, 1999). In the reign of King Prasat Thong of the Kingdom of Ayutthaya, Trat was formerly known as Muang Thung Yai. Due to its strategic location, Trat plays an important role in the country's stability and economy. The town of Trat later became a community of Chinese merchants. In 1767, Trat served as a checkpoint and buffer city and was responsible for providing provisions to King Taksin the Great before moving his navy from Chanthaburi to Ayutthaya, in which he expelled the Burmese and liberated the Kingdom from Burmese rule later on (Koh Chang Island Guide, 2019).

Rak Klong Bangpra or Trat's old town community, located along the Bang Phra Canal, is under the rule of the Muang Trat municipality. It has been the original town center since the reign of King Rama I until King Rama V. The area still has a rich architectural heritage that the community has agreed to preserve and restore. The old wooden rows of shophouses are in Chinese style. The front of the house is a folding door and roofing with kite tiles. They are linked by one of the main transportation routes in the period, which is the Bang Phra Canal. This canal is a shipping route to the sea via the Trat river. After the era of land transport, the first approach of Sukhumvit Road (Highway number 3) to the city caused the old town of Trat to reduce its importance. Apart from the Chinese wooden row houses' style, there are other architectural attractions and some important areas, which are the city's components and 3 kinds of landmarks (Lynch, 1960; Sorrows & Hirtle, 1999) such as

1) Cognitive landmarks: Cultural significance or personal significance
2) Visual landmarks: The distinguishing features of a building, such as color, shape, and so on
3) Structural landmarks: The building is located in an area that is the deciding point for tourists during a trip, such as a junction and public transport

These 3 kinds of landmarks should be included in the map to help the tourists understand the nature of the place or reflect their interests in the cognitive landmark. The tourists will use the visual and structural landmarks to navigate themselves to the destinations with additional context on the map. It is useful for tourists to travel in an unfamiliar area (Deakin, 1996; Michon & Denis, 2001). The classification of the tourist attractions within the Trat's old town area by the landmarks and city components is as follows:

**Table 1** Tourist attractions within the Trat's old town area (Tourism Authority of Thailand, 2018) classified by the landmarks and city components

| **Landmarks** | | | **City components** |
|---|---|---|---|
| **Cognitive Landmarks** | **Visual landmarks** | **Structural landmarks** | **Nodes, Edges** |
| **Cultural and Traditional Tourism** | **Historical Tourism** | **Other Tourism** | |
| - Buppharam Temple<br>- Yotha Nimit Temple<br>- Trat City Pillar Shrine<br>- Phai Lom Temple | - Residanggamport Residence<br>- Archaeological Landmark<br>- Trat Museum | - City Hall<br>- Rak Klong Bangphra Community Enterprise Center<br>- Tha Ruea Chang Community Enterprise Center | - Public Park<br>- Tha Ruea Chang Waterfront Plaza<br>- Reservoir |

The classification of the tourist attractions within the city that are unfamiliar for the first-time tourists (Grabler et al., 2008) should be presented on the map to help them travel to those places easier by using illustrations representing the places, other maps, and the city's components. Therefore, the public participation process is used in the creation of the Cultural Tourism Map.

Public participation is the process by which the interested or affected public is involved in planning decision-making. This process is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process (International Association for public participation, 2007; Creighton, 2005). The process (IGI Global, 2008) by which an organization consults with interested or affected individuals, organizations, and government entities before making a decision. Public participation is two-way communication and collaborative problem solving to achieve better and more acceptable decisions. Moreover, there are different forms of Public Participation (United States Environmental Protection Agency, 2017) that might take place depending on the potential for public influence on a decision. These forms include:

- **Informing**: the public by providing information to help them understand the issues, options, and solutions
- **Consulting** with the public to obtain their feedback on alternatives or decisions
- **Involving**: the public to ensure their concerns will be considered throughout the decision process, particularly in the development of decision criteria and options

- **Collaborating** with the public to develop decision criteria and alternatives and identify the preferred solution
- **Empowering** the public by placing final decision-making authority in their hands

## 2. Objectives

1) To find out the identity of the town for designing the mascot to initiate the theme of the cultural tourism map for Trat's old town through the public participation process

2) To design the cultural tourism map for old Trat's town through the public participation process

## 3. Materials and Methods

The methodology for exploring the identity of Trat's old town to create the cultural tourism map consists of:

1) Review literature on the following issues:
   - History of Trat's old town community
   - Tourist attractions
   - Trat's culture and identities
   - The making of leaflets and other components of the tourism map

2) Interview the community and analyze data to be presented on the map; tourist attractions, city highlights, information, or other components of the city

3) Public participation is the theory applied to improve a sense of neighborhood identity in the long run for community-based projects (Haeberle, 1987). This research uses many kinds of large public participation and mini-focus groups, which consist of fewer participants – usually four or five – to create a more intimate group. (Corporate Finance Institute, n.d.) The steps to design and finalize the community's identity through the public participation process are as follows:
   - Mascot: designed and finalized by the community through voting.
   - Color scheme: The color scheme was created and finalized during the community interview.
   - The cover of the map: The map's cover was designed and finalized by the community interview.
   - The scheme of the map's illustration: designed and finalized by the community interview
   - The maps' usability, namely size and folding method: It was designed and finalized by the focus group interview. The 12 focus group samplings are comprised of the target users of this cultural map, which are Thai and foreign tourists in different age ranges and genders, divided into 6 groups as follows:

**Table 2** The sampling classifications

| | | | |
|---|---|---|---|
| Thai | Foreigner | Youth | **Group 1:** Male aged 18 - 35 years old |
| | | | **Group 2:** Female aged 18 - 35 years old |
| | | Middle-aged | **Group 3:** Male aged 36 - 55 years old |
| | | | **Group 4:** Female aged 36 - 55 years old |
| | | Aging people | **Group 5:** Male aged 55 years old |
| | | | **Group 6:** Female aged older than 55 years old |

4. Verify the map by Rak Klong Bang Phra Community representatives, residents, and local academicians

## 4. Results

The objective is to discover the identity of the town. To design the cultural tourism map for Trat's old town, the researchers have integrated the public participation process into the creation of the cultural tourism map as follows:

### 4.1 The Mascot creation represents the identity of Trat's old town

In today's rapidly developing economy, many businesses are seeking innovative ways to connect with their customers. While some of them are still attached to traditional methods of advertising or social media advertising methods such as Twitter and YouTube, although these methods are effective in humanizing their company, there is another trend able to humanize the brand and relate to customers friendly by representing characters who serve as mascots for businesses (Gosha, 2012).

The original meaning of the word "Mascot" is a lucky item, generally, and using animals, people, or objects to represent itself. However, in the current context, the word "Mascot" is used to represent the groups such as sports teams, school teams, professional teams, and others. Besides, Mascot is also used as a brand representative. The mascot is one of the branding tools for marketing and can attract customers by helping them remember the brand faster. Therefore, the factors of the mascot's creation or design are that it must be attractive, easily recognizable, and present the business or brand (Naghdi, n.d.).

The mascot creation needs more time to explore its own business or brand perspective, both from the perspective of the designer and the organization (Maxine, 2018). In this study, the organization is Rak Klong Bang Phra Community. The final result of the study may differ from the origin of the designer's perspective because the use of the public participation process allows the community to create their mascot. In the designer's perspective, some initial ideas from the research, survey, and interviews with the stakeholders in Trat's old town community are kind-age people, coconuts, The Red Elephant Flag, Thai-Chinese relationship, Rufous-necked Hornbill, The five ancient races, ancient timber houses, Chinese junk, ancient agricultural hats, and the farmer and the fisherman. The first public hearing selected the initial ideas to be the schematic design for the part of the public participation process, which is the opportunity for the community members and stakeholders to officially consider which mascot is able to communicate as a community presenter directly. There are 3 mascots as follows:

**Table 3** The 3 representative mascots of the community and will be selected by the public hearing

| The happy grandmother and grandfather | The 5 races friend | Thai-Chinese brotherhood |
|---|---|---|
|  |  |  |
| This mascot represents the majority population in the community; the senior citizens. They are friendly, generous, and kind to welcome every tourist, including aged tourists to support the aging society in the future. | Thai, Chinese, Muslim, Vietnamese, and Chong, the 5 original races in Trat province, are welcoming tourists to have a good time and gain knowledge about Trat. | Thai and Chinese have had a close relationship since the city's establishment until the present. This mascot represents the architecture mixed between Thai and Chinese styles that can be found in many tourist attractions in this old town. |

To prepare the public participation process and to get the opinion of the community's members and stakeholders about choosing the representing mascot of the community, the researchers had cooperated with Mr. Vinit Nirunpanich, the community's leader, and Mr. Roongrote Sawangkarn, Trat Museum's curator. This public hearing comprised 4 participant groups as follows:

1) Muang Trat municipality representatives
2) Rak Klong Bang Phra, the community representative, and the residents
3) Village health volunteer representatives
4) Representatives from the Senior Society Club

100 participants are voting and giving their comments for this public hearing. The result is as follows:

1) The happy grandmother and grandfather representative got 80%.
2) The 5 races friend got 12%.

3) Thai-Chinese brotherhood got 8%.

Thus, the best-representing mascot of the community is "***The happy grandmother and grandfather***" in casual character representing the majority population in the community; the senior citizens. Once, the participants admitted that this mascot was primarily for them, the researcher will design the other components, the mood, and tone of the cultural map to fit with that mascot's character.

### 4.2 The map's color scheme

The color of the map should blend well with the wood color of old buildings in Trat's old town to create friendly hospitality. Thus, the map used green, brown, and beige (Figure 3).

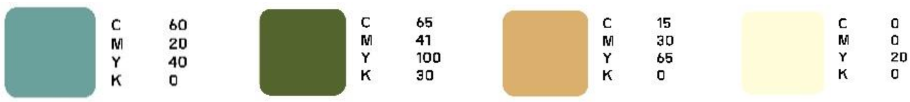


**Figure 3** The map's color scheme

### 4.3 The cover of the map

The map's cover shows the picture of the happy grandmother and grandfather welcoming and introducing tourists to each destination and delicious foods better than other mascots (Figure 4), while a frame uses a classic decorative pattern to separate or enhance the information.

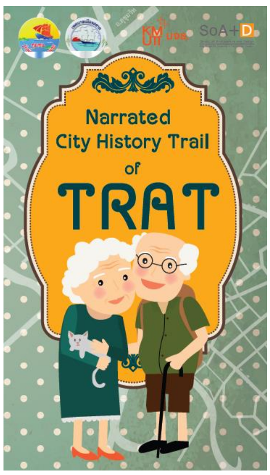


**Figure 4** The map's cover

### 4.4 The scheme of the map's illustration

The visual of the data presented is an Orthographic View and a 3D View with an Oblique projection. Because the buildings' size and shape do not depend on the distance to the point of view and it can compare the size and area of the building. Furthermore, this scheme helps the users to easily understand the street network and recognize the buildings.

There is an advantage of the size and shape of the buildings that do not depend on the distance to the point of view, which helps to compare building sizes and areas to increase understanding of road network patterns and the specific characteristics of the building (Figure 5).

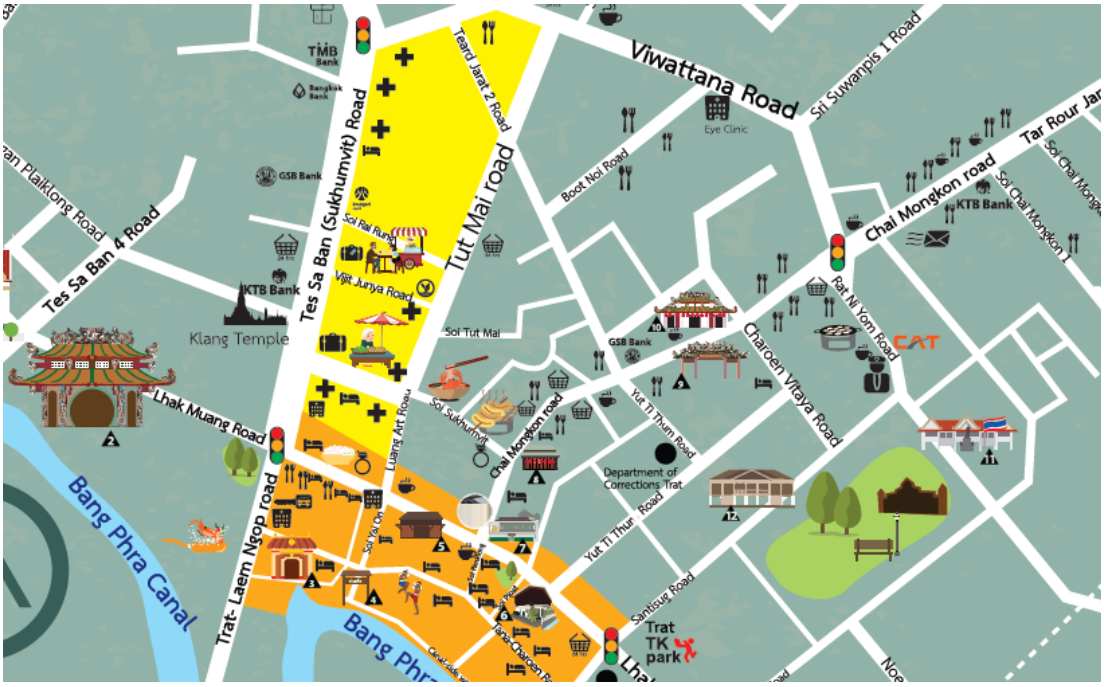

Figure 5 Orthographic View and 3-D View with Oblique Projection in the map

### 4.5 The map's size and folding

Paper size "A3" is suitable for use and is portable. Also, A3 is one of the standard paper sizes, so it is not expensive in terms of preparation and can be folded in various forms (Infinity Color Printing Co., Ltd., 2018).

The 5-fold leaflet was derived from the focus group interview of the sampling. The selected samplings regarding the target users of this cultural map are Thai and foreign tourists. They are divided into 6 groups by the age ranges of both males and females: youth (18-35 years old), middle-aged (36-55 years old), and aging people (older than 55 years old). There are 3 kinds of leaflet folding to choose from: 3-fold leaflet, 4-fold leaflet, and 5-fold leaflet. The result in Table 4 showed that 58% (7 voters) of the voters selected the 5-fold leaflet because it is the most compact and easiest to carry in a shirt pocket and the layout is suitable for the data classification and easy to read. The researcher agrees with these suggestions from the sample group since the research has attempted and obtained the same conclusion. Therefore, this research uses the 5-fold leaflet for the development of Trat's old town map (Figure 6).

**Table 4** The result of leaflet folding selection

| | | **Thai** | **foreigner** |
|---|---|---|---|
| **Youth** | **Group 1:** Male aged 18 - 35 years old | **5-fold** | **5-fold** |
| | **Group 2:** Female aged 18 - 35 years old | **5-fold** | 3-fold |
| **Middle-aged** | **Group 3:** Male aged 36 - 55 years old | 4-fold | **5-fold** |
| | **Group 4:** Female aged 36 - 55 years old | **5-fold** | 4-fold |
| **Aging people** | **Group 5:** Male aged 55 years old | 3-fold | **5-fold** |
| | **Group 6:** Female aged older than 55 years old | **5-fold** | 3-fold |

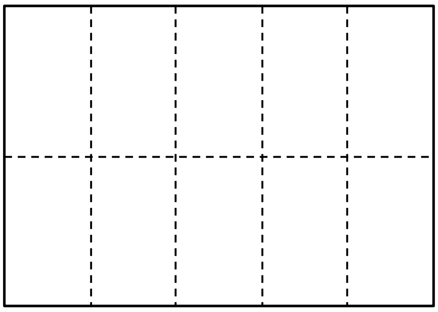

**Figure 6** the 5-fold leaflet

The fully designed map began after the researchers had completed every map's component. Then, the community representative and local academic needed to recheck information on the map before the process of the map presentations, which were participated in by Rak Klong Bang Phra community members and stakeholders.

## 5. Discussion and Conclusion

Since the community should know their areas and requirements, every public project should include a public participation process to gain opinions from the community members and stakeholders. As well as this research, the identity and the usability of the map finding process emphasizes community participation. The result shows that the public participation process is effective for sorting out the authentic identity of the Rak Klong Bang Phra Community. Furthermore, the public participation can apply to determine the usability of this cultural Trat's old town map by the target users as shown in the diagram (Figure 7).

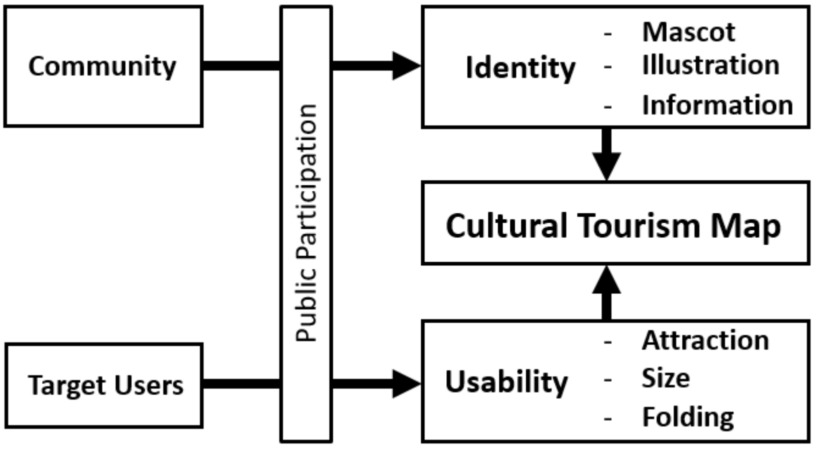


**Figure 7** The use of public participation processes from the community to determine the identity and usability of the Cultural Tourism Map

Rak Klong Bang Phra Community's identity is represented through the warmth, friendliness of the design scheme. The color of the map should blend well with the wood color of old buildings in Trat's old town to create friendly hospitality. Thus, green, brown, and beige are used in the map. The participation process results in Trat's selected mascots of "the happy grandmother and grandfather" in casual character representing the majority population in the community--the senior citizens. The mascots are welcoming and introducing tourists to each destination and delicious foods and a frame needed to separate or enhance the information used a classic decorative pattern (Figure 8).


**Figure 8** The first draft of the map's cover, and body

The conclusion of all processes in this study is as follows:

**Table 5** The creation issues, the target group of public participation processes, and the results of the study

| Content | Methodology | Target group | Output | Impact | Outcome |
|---|---|---|---|---|---|
| | | | **Map Design: Identity** | | |
| **Mascot** | Public Participation: Voting | Community | The happy grandmother and grandfather | The tourists perceive the true community's identity | The identity transmitted on the map corresponds to what the community have been |
| **Illustration** | Public Participation: Interview | Community | Oblique projection | | |
| **Information** | Public Participation: Interview | Community | Necessary information from the community to be presented | | |
| | | | **Map Use: Usability** | | |
| **Attraction** | Mill & Morrison | Tourist Groups | Necessary information for the tourists | The map is full of the necessary information for the tourists | The efficiency of the map use |
| **Size** | Public Participation: Interview | Tourist Groups | Paper Standard: A3 | - Convenient to use and portable<br>- Cheap | |
| **Folding** | Public Participation: Interview | Tourist Groups | 5-fold leaflet | - The most compact<br>- The layout is suitable for the data classification and easy to read<br>- Easy to carry on | |

The creation of the cultural tourism map is a part of attracting tourists to this Trat's old town community. The map should be available in two versions, a hardcopy and online that is uploaded to a digital platform to conveniently update information in the future. Therefore, the map can serve those who prefer digital platforms and those who are not familiar with technology and the restriction of telephone screen size. An attractive cultural tourism map can be one of the opportunities to revive the community's economy by tourism. If the community residents realize that the community's character is valuable, community preservation will be taken into account as the community's issue.

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# The Current Status and Influence of Chinese National Self-Confidence on Out-Group Trust during the Tokyo Olympics - A Survey of the Mainland Chinese Public

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## Abstract

The Tokyo Olympics was different from the motto of previous Olympics, especially incorporating the concept of "togetherness". In today's complex world, it is necessary for big countries to trust each other, eliminate barriers, and work together to unite and cooperate. During the Tokyo Olympics, China's Internet community had a large-scale discussion in the face of discordant voices. The Tokyo Olympics should have been used to improve the trust of the mainland Chinese in other countries and regions, however; it proved to be counterproductive. Hence, this article discusses the issue of national self-confidence in mainland China and out-group trust. A survey of 714 mainland Chinese was conducted by initially establishing an effective national self-confidence scale and using an established out-group trust scale. It was found that the mainland Chinese public has good national self-confidence and a middle-level of out-group trust. National self-confidence and out-group trust are affected by age, education level, and region. SEM analysis showed that the national self-confidence had a moderately positive effect on the trust of out-groups while Independent group t-tests showed that the Olympic Games had a catalyzing influence on that relationship, increasing distrust of out-groups that previously had negative perceptions and creating more trust for out-groups that previously had positive perceptions.

***Keywords:*** *Chinese national self-confidence, Out-group trust.*

## 1. Introduction

As the first major global event after the outbreak of the COVID-19 pandemic, the Tokyo Olympics brought together athletes from 205 national and regional Olympic committees and national Olympic committee refugee delegations (Business Line, 2021). This year's Olympic motto went from the original "faster, higher, and stronger" to "faster, higher, stronger, and together". "Together" shows a concept of team and even the entire cooperation of mankind. The spirit of solidarity in the Olympics has a special stimulating effect on enhancing the faith of all mankind to help each other and have the determination to overcome difficulties together (Akhir, Govindasamy, & Paidi, 2021). "Togetherness" is a key part of mankind's response to the epidemic. It is also the source of our confidence in the face of world uncertainty and is an important driving force for building a community with a shared future for mankind. Therefore, trust and cooperation between countries are now extremely important, not only to deal with the COVID-19 but also to face the future of our entire humanity. From strengthening international cooperation in the COVID-19's prevention and control to addressing global issues such as climate change and network security, the international community needs to foster a sense of a community with a shared future for mankind, expand mutually beneficial cooperation, and join hands to build a more inclusive global governance system to help each other to cope with the risks and challenges of building a more prosperous and beautiful world.

However, the world has shown an incomprehensible and unacceptable response and even ridiculed many situations during the Olympic Games to varying degrees. China, as the only positive growth economy during the COVID-19 pandemic in 2020 (Hale, & Sun, 2021), has gradually assumed responsibility for the health of the world's economy, and China's existence and every move has gradually begun to be watched much more closely by the world. The reaction of Chinese netizens during the Olympic Games can be shown to truly reflect the current situation of the Chinese public's trust in out-groups. During 14 days from July 26 to August 8, positive and negative evaluations of the related topics in the three media organizations in China's four top search lists, namely Zhihu, Weibo, and Baidu's 24-hour hot search list, were counted for each country/region outside Mainland China, and the number of times that the Olympic Games appeared on the top 5 of the three major hotlists in the mainland for that day was also recorded (The WeChat hot search list was excluded because the top ten of the WeChat's hot article list is dominated by the national official media). Among the three main sources, the Japanese Olympic Games appeared on China's hot search list 20 times, all negatively. The United States appeared on the lists five times, mostly on the last three days of the Olympic Games and with solely negative topics. Taiwan appeared on the lists three times, mostly from August 2 to August 5, and always in a negative aspect. Because of these results, the author questioned whether the Chinese public in mainland China has an issue with the out-group trust of these countries and initiate an investigation through this article.

The study of out-group trust originated from the discussion of intergroup trust. At present, researchers continue to suggest that individual cognition, behavior, and decision-making methods will also be affected by the environment. Thus, modern research on trust is no longer limited to individual trust, research on trust has risen to the inter-group level, and hierarchical trust has gradually attracted people's attention (Foddy, & Yamagishi, 2009). In the current Internet era, trust in strangers is particularly important, because, in this era, there is less face-to-face contact to determine whether an individual is worthy of trust. Under such circumstances, trust is formed based on the individual's social status, and the classification of their social information is becoming more and more important. The formation of trust in today's life is determined by the social identity of the individual, like a person's citizenship and residency in a country, people having in common the same household registration, and so on (Kramer, 1999; Güth, Levati, & Ploner, 2008). People usually trust groups with a similar identity and tend to trust individuals with the same or similar identity. To out-groups that people do not belong to, the trust of groups composed of others will typically be low (Xin et al., 2013). At the same time, Kramer (2018) stated that out-group trust focuses on whether a person trusts strangers or people who are different from them in terms of nationality or religion. Therefore, this study divided the in-groups and out-groups according to nationality. The in-group is composed of people from mainland China while the out-groups are people from countries and regions outside mainland China. The trust of the out-group comes from the willingness of individuals to believe in others, depending upon their own judgment and according to the research, while the self-confident person is more likely to place trust in others (Stolle, 2002; Wang, 2014). The trust of highly confident individuals in strangers is significantly higher than the trust of less-confident individuals in strangers, and it can be inferred that an increase in national self-confidence will increase the trust in strangers (Wang, 2014). Therefore, this article will examine the degree to which Chinese national self-confidence can affect the trust of out-groups.

The core of national self-confidence in China today lies in the "Four Self-confidences", namely path self-confidence, theoretical self-confidence, system self-confidence, and cultural self-confidence, as proposed by Xi Jinping, President of the People's Republic of China in 2016 (Yan, 2021). The Four Confidences correspond to a high degree of recognition of the path of socialism with Chinese characteristics, the theoretical system of socialism with Chinese characteristics, the system of socialism with Chinese characteristics, and the culture of socialism with Chinese characteristics. It represents a high degree of recognition, perseverance, and confidence in achieving a better blueprint for the future (Jin, 2019). The path of socialism with Chinese characteristics is projected to be a road to truth, formed by integrating China's social and economic structure, production relations, politics, culture, and ecological civilization. Therefore, to be confident in the path of socialism with Chinese characteristics means to be confident in the theory of socialism with Chinese characteristics, the system of socialism with Chinese characteristics, cultural identity, and self-confidence (Jin, 2019). Theoretical confidence comes from the scientific, practical, and popular nature of Marxist theory, which is the theoretical basis of the system of socialism with Chinese characteristics and the key to the culture of socialism with Chinese characteristics (Jin, 2019). The system of socialism with Chinese characteristics, including China's political, legislative, and judicial systems, is the practice of Chinese scientific theory. It advances together with the construction of the Chinese path and also provides system guarantees for the inheritance of the culture of socialism with Chinese characteristics (Jin, 2019). The mainstream ideology of the culture of socialism with Chinese characteristics, as a superstructure of ideas, plays an important guiding role in the political superstructure such as institutions, state power institutions, and political parties (Jin, 2019).

At present, China, from the top leadership to the grassroots, is working hard in the direction of the "Four Self-confidences" described by Xi Jinping and enhances national confidence by enhancing "the Four

Self-confidences" (Yan, 2021). Therefore, this article analyzes and discusses the "Four Self-confidences" as the essence of national self-confidence.

## 2. Objectives

1) To evaluate the level of Chinese national self-confidence and out-group trust
2) To evaluate the differences in Chinese national self-confidence and out-group trust by gender, age, education, and region
3) To research the relationship between Chinese national self-confidence and out-group trust
4) To evaluate the impact of the Tokyo Olympics on Chinese national self-confidence and out-group trust

## 3. Materials and Methods

**Sample**: In this article, a cluster random sample survey was conducted among citizens in the Eastern, Central, and Western parts of mainland China through an online questionnaire survey platform--with Xi'an province was the representative of China Western economic area, Henan Province was the representative of China Central economic area, and Zhejiang Province was the representative of China Eastern coastal economic area--for a total of 750 people. After deleting inconsistent or redundant samples due to the regularity of the answers or answering from the same IP address, the remaining 714 questionnaires were used as the final sample of this study, with a response rate of 95.2%. The final sample included 269 males and 445 females in total, mostly aged between 18 and 40 years old. While 33.61% of them had the education level in the undergraduate degrees, 48.04% had less than a college education. If categorized after the Chinese economic area, 303 responses were from the Eastern coastal area, 266 responses from the Central area, and 145 responses from the Western area.

**Chinese national self-confidence scale**: The survey employed the "Four Self-confidences" self-assessment scale of Chinese college students developed by Huang (2020), which contains 25 items and a total of four dimensions. There are 1) six items in the dimension of the path self-confidence, 2) five items in the dimension of the theoretical self-confidence, 3) eight items in the dimension of the system self-confidence, and 4) six items in the dimension of the cultural self-confidence. The original test reliability (Cronbach's alpha) was 0.890. This research conducted an exploratory factor analysis (EFA) of the original scale, and the results are shown in Table 1, which reveals a two-factor solution.

**Table 1** Rotated factor loadings and commonalities of Chinese national self-confidence

| Items (Chinese translated into English) | Path & Theory self-confidence | System & Culture self-confidence | Communalities |
|---|---|---|---|
| Strengthening the path self-confidence is related to the stability of the country and the success or failure of the cause of socialism. | .953 | | .816 |
| The path of socialism with Chinese characteristics is the only correct path to realize the great rejuvenation of the Chinese nation. | .879 | | .727 |
| The path of socialism with Chinese characteristics is the only way to achieve socialist modernization and create a better life for the people. | .877 | | .828 |
| Believing in Marxism and having firm theoretical self-confidence is very important to me. | .875 | | .656 |
| The development prospects of the path of socialism with Chinese characteristics are bright. | .870 | | .843 |
| The path of socialism with Chinese characteristics is the inevitable result of the development of modern Chinese society. | .818 | | .730 |
| The theory of socialism with Chinese characteristics can guide China's scientific development. | .787 | | .756 |

| **Items (Chinese translated into English)** | **Path & Theory self-confidence** | **System & Culture self-confidence** | **Communalities** |
|---|---|---|---|
| I am proud of the path of socialism with Chinese characteristics. | .732 | | .674 |
| Only by affirming ideals and faith can we better shoulder the mission era and realize the great “Chinese Dream” | .730 | | .772 |
| I always pay attention to the country’s principles and policies. | .598 | | .712 |
| Cultural soft power is the core content of China’s comprehensive strength. | | .910 | .753 |
| The culture of socialism with Chinese characteristics is a powerful spiritual force that inspires the entire Chinese people to march forward courageously. | | .869 | .827 |
| The Chinese culture has enhanced my cultural self-confidence and pride. | | .852 | .771 |
| China’s excellent traditional culture is a valuable asset of Chinese culture. | | .847 | .807 |
| Culture is the cohesion and accumulation of a national spirit. | | .833 | .820 |
| The system of regional national autonomy and the principle “one country, two systems” are conducive to maintaining national stability and unity. | | .820 | .812 |
| The National People’s Congress represents the interests and demands of the people. | | .775 | .792 |
| China should actively learn from the beneficial achievements of human political civilization, but cannot copy the Western political system model. | | .600 | .759 |
| Adhering to the public ownership economic system as the mainstay is conductive to the development of our country. | | .537 | .715 |
| All rights in China belong to the people. | | .520 | .647 |
| % of Variance | 70.021% | 75.375% | |

It can be seen from Table 1 that the factor loadings for each dimension are greater than the required 0.33 (Ho, 2006), the commonalities are all greater than the required 0.30 (Ho, 2006), and the cumulative percent of variance explained is quite high at 75.375%. This scale is suitable for two-factor structure analysis. The resulting Chinese national self-confidence self-assessment scale consists of two factors with a total of 20 items, including 1) a total of 10 items of the path and theory self-confidence and 2) 10 items of the system and cultural self-confidence. Using AMOS for two-factor confirmatory factor analysis, the revised results are $X^2$ / df = 12.176, CFI = 0.919, NFI = 0.909, TLI = 0.906, RMSEA = 0.081, these indicators are all within the recommended levels (Lai, 2018), indicating that the two-factor structure of this scale is valid and has an acceptable degree of goodness of fit. After testing for the reliability, the internal consistency of the 20-item Chinese national self-confidence self-assessment scale has a Cronbach $\alpha$ = 0.978, indicating that the Chinese national confidence self-assessment scale has excellent reliability and consistency.

**Classification of out-groups**: This study divided the in-group and out-group according to national identity (Welzel, & Delhey, 2015; Kramer, 2018). The in-group is mainland Chinese, and the out-group is the population of countries and regions outside mainland China. The designated outside group choices were the United States, Japan, and Taiwan, which were the three countries that were frequently discussed by Chinese netizens on the hot list of social platforms during the Tokyo Olympics. After discussions with several Chinese international relations experts, Russia, South Korea, Hong Kong, and Macau were selected as the reference group. None of the above-listed countries and regions appeared on the hot search lists of China’s three major social platforms during the Tokyo Olympics. Russia contrasts with the United States since both of them are the world's leading powers. South Korea is to compare with Japan as a core Asian country. Hong Kong and Macau are to compare with Taiwan—especially Hong Kong, which is similar to Taiwan because it has also been controversial and full of various challenges to mainland China. Consequently, this research divided the out-groups into three groups for research. The first group is Out-group (Total). The second group is "on the list", and consists of the United States, Japan, and Taiwan. This group is abbreviated as OTL (USA, JPN, and TWN). The third group is the "not in list" group, consisting of Russia, South Korea, and Hong Kong. This group is abbreviated as NIL (RUS, KOR, and HKG).

**Out-groups trust scale**: Voci (2006) used a scale to measure the trust of southerners and northerners in Italy in each other's outgroups. Wang, Zhao, and Ming (2009) used a questionnaire to measure the trust level of residents' out-group members and the migrant population. Gries and Crownson (2010) used questionnaires to measure Americans' out-group trust in the Chinese people and the Chinese government. This article used the outgroup trust scale adopted by Noor, James Brown, and Prentice (2008), which is used to measure the outgroup trust of the Northern Irish. The outgroup trust scale (Noor et al., 2008) contains six items, including four forward scored items and two reverse-scored items. This article surveyed the United States, Japan, South Korea, Russia, Taiwan, Hong Kong, and Macau. Taking South Korea as an example, the questions were: 'I think Koreans are trying to be fair', 'I think Koreans are trustworthy', 'I think Koreans will not mislead us', 'I think Koreans will honor their promises', 'I think Koreans will catch up with our shortcomings', 'I think Koreans only see their own good'. After reliability testing, the reliability of the comprehensive out-group trust scale in this paper is Cronbach $\alpha = 0.864$, representing good internal consistency.

## 4. Results

**The current status of national self-confidence:** To clearly understand the current status of Chinese national self-confidence and the variables that may affect China's national self-confidence, this research conducted a descriptive analysis on the Chinese national self-confidence and related variables. It then conducted independent sample t-tests on gender, and One-way ANOVA tests were performed on age, education level, and region. The results of the national self-confidence group statistics with means and standard deviations and significance test results are shown in Table 2.

**Table 2** Chinese national self-confidence group statistics and descriptive statistics

| Variable | National Self-Confidence | | |
|---|---|---|---|
| | ***N*** | ***M ± SD*** | |
| Descriptive (Total) | 714 | 73.41±24.56 | |
| Male | 269 | 71.36±23.72 | *NS* |
| Female | 445 | 74.64±24.99 | |
| Age lower than 18 | 54 | 78.22±23.39 | $F=11.14$*** |
| Age 18-25 | 157 | 76.06±23.18 | |
| Age 26-40 | 352 | 76.38±22.69 | |
| Age 41-56 | 81 | 63.26±29.20 | |
| Age over 56 | 70 | 60.53±24.89 | |
| Below Undergraduate | 343 | 63.32±26.44 | $F=65.81$*** |
| Undergraduate | 240 | 83.02±18.62 | |
| Post undergraduate | 131 | 82.20±17.70 | |
| Eastern coastal areas | 303 | 77.21±24.04 | $F=27.75$*** |
| Central areas | 266 | 65.02±23.91 | |
| Western area | 145 | 80.84±22.44 | |

***$p$<0.001

The results in Table 2 show that the overall Chinese national self-confidence is at the upper-middle level ($Mean$ = 73.41, $SD$ = 24.56). Chinese national self-confidence was affected by age ($p < 0.001$), educational background ($p < 0.001$), and geographic location ($p < 0.001$), while gender had no significant difference. From the results, it can be seen that males and females each have maintained a high level of national self-confidence; those under 40 years of age have a high degree of national self-confidence, including those having 18 years of age (*Mean* = 76.06*, SD* = 23.18), 18-25 years of age (*Mean* = 78.22*, SD* = 23.39) and 26-40 years of age (*Mean* = 76.38*, SD* = 22.69). Those having below 18 years of age had a national self-confidence that was significantly higher than the other age groups ($p<0.001$) while those with 41-56 years of age (*Mean* = 63.26*, SD* = 22.69) and those over 56 years old (*Mean* = 60.53*, SD* = 24.89) were two age groups at a medium level of national self-confidence. Those with below undergraduate education level (*Mean*=63.32*, SD*=26.44) were significantly lower in national self-confidence than those with undergraduate degrees (*Mean* = 83.02*, SD* = 18.62) and postgraduates (*Mean* = 82.20*, SD* = 17.70). The national self-confidence of the western responders (*Mean* = 80.84*, SD* = 22.44) was significantly higher than that of those in the central region (*Mean* = 65.02*, SD* = 23.91) and those in the eastern part (*Mean* = 77.21*, SD* = 24.04) while the central region had the lowest level of national self-confidence.

**The current status of out-group trust:** To clearly understand the current status of out-group trust and the variables that may affect out-group trust, this research conducted descriptive analysis and significant difference analysis on the Out-Group Trust (Total), OTL Group Trust (USA, JPN, TWN) and NIL Group Trust (RUS, KOR, HKG), respectively. The results of an independent sample t-test for gender and One-Way ANOVA tests of age, education level, and region are shown in Table 3, showing means and standard deviations and significant differences.

**Table 3** Group statistics and descriptive statistics of out-group trust, OTL group trust, and NIL group trust

| Variable | | Out-Group Trust (Total) | | OTL Group Trust (USA, JPN, TWN) | | NIL Group Trust (RUS, KOR, HKG) | |
|---|---|---|---|---|---|---|---|
| | N | $M \pm SD$ | | $M \pm SD$ | | $M \pm SD$ | |
| Descriptive (Total) | 714 | 15.83±2.32 | | 11.14±2.32 | | 17.26±2.41 | |
| Male | 269 | 15.57±2.00 | *t=2.33** | 11.19±3.10 | *NS* | 16.84±1.81 | *t=3.62* *** |
| Female | 445 | 15.98±2.48 | | 11.12±3.40 | | 17.51±2.67 | |
| Age < 18 | 54 | 15.28±1.92 | *NS* | 8.59±3.48 | *F=11.93* *** | 18.60±2.07 | *F=11.23* *** |
| Age 18-25 | 157 | 15.84±2.22 | | 10.85±2.76 | | 17.40±2.36 | |
| Age 26-40 | 352 | 15.94±2.61 | | 11.64±3.48 | | 17.18±2.46 | |
| Age 41-56 | 81 | 15.61±2.06 | | 11.65±2.64 | | 16.02±2.21 | |
| Age over 56 | 70 | 15.90±1.24 | | 10.69±2.99 | | 17.75±1.99 | |
| < Undergraduate | 343 | 16.10±1.95 | *F=4.95* ** | 11.39±3.13 | *NS* | 17.26±2.48 | *NS* |
| Undergraduate | 240 | 15.52±2.55 | | 10.75±3.22 | | 17.12±2.44 | |
| Postgraduate | 131 | 15.65±2.67 | | 11.21±3.75 | | 17.51±2.13 | |
| Eastern areas | 303 | 16.09±2.39 | *F=10.22* *** | 11.82±3.23 | *F=37.49* *** | 17.20±2.42 | *F=5.09* ** |
| Central areas | 266 | 15.93±2.19 | | 11.46±2.74 | | 17.03±2.32 | |
| Western area | 145 | 15.07±2.25 | | 9.16±3.58 | | 17.81±2.47 | |

* $p<0.05$; ** $p<0.01$; ***$p<0.001$

The results in Table 3 show that the overall out-group trust (*Mean*=15.83, *SD*=2.32) reached a moderate level, while the OTL Group Trust (*Mean* = 11.14, *SD* = 2.32) was lower and the NIL Group Trust (*Mean* = 17.26, *SD* = 2.41) was higher. The overall out-group trust was affected by age ($p < 0.001$), education level ($p < 0.001$), and region ($p < 0.001$). Females (*Mean* = 15.98, *SD* = 2.48) had significantly higher out-group trust than males (*Mean* = 15.57, *SD* = 2.00). Age had no significant effect on overall out-group trust. Undergraduate (*Mean* = 16.10, *SD* = 1.95) out-group trust was significantly higher than those with less than college training (*Mean* = 15.52, *SD* = 2.55) and postgraduate (*Mean* = 15.65, *SD* = 2.67). Eastern responders' out-group trusts in overall out-group (*Mean* = 16.09, *SD* = 2.39), OTL Group (*Mean* = 11.82, *SD* = 3.23) and NIL Group (*Mean* = 17.20, *SD* = 2.42) were significantly higher than those from the central and western regions. To more intuitively analyze the trust difference of the respondents to the countries and regions studied in this article, the national trust group variable was used as a grouping variable that was divided into seven groups; United States, Japan, South Korea, Russia, Taiwan, Hong Kong, and Macau. One-way ANOVA was performed, and the results are shown in Table 4.

**Table 4** Out-group trust descriptive and one-way ANOVA test

| Variable | Out-Group Trust | | |
|---|---|---|---|
| | **N** | ***M* ± *SD*** | ***F*** |
| USA | 714 | 13.53±4.22 | |
| JPN | 714 | 13.51±4.45 | |
| KOR | 714 | 14.94±3.62 | |
| RUS | 714 | 17.93±4.25 | 207.27*** |
| TWN | 714 | 14.70±4.72 | |
| HKG | 714 | 16.32±4.12 | |
| MAC | 714 | 19.83±5.14 | |

****p*<0.001

The results showed that nations were significantly different in Chinese out-group trust ($p < 0.001$). After using the Scheffe posthoc multiple comparison tests, the results showed that Japan (*Mean* = 13.51, *SD* = 4.45) and the USA (*Mean* = 13.53, *SD* = 4.22) were significantly lower in Chinese out-group trust than the other nations, while Macau (*Mean* = 19.83, *SD* = 5.14) was significantly higher in Chinese out-group trust than the other nations.

**The relationship between Chinese national self-confidence and foreign group state trust**: At present, national self-confidence and out-group trust remain theoretical constructs, especially the trust relationship between countries. There are only a few relevant studies. This article used SPSS to test the correlations of out-group trust on samples. The results are shown in Table 5.

**Table 5** Correlations of out-group trust, OTL group trust and NIL group trust

| Variables | National Self-confidence |
|---|---|
| Out-group Trust | r = 0.169*** |
| OTL Group Trust (USA, JPN, TWN) | r = -0.207** |
| NIL Group Trust (RUS, KOR, HKG) | r = 0.226** |

** *p*<0.01; ****p*<0.001

Table 5 shows that the correlation between national self-confidence and out-group trust is positive and statistically significant (r = 0.169, $p < 0.001$). However, the correlation between the national self-confidence and the OTL Group Trust represents a negative (r = -0.207) relationship, and there is a positive (r = 0.226) correlation with the NIL Group Trust. National self-confidence did not have a strong influence on the external group trust. After using AMOS to establish the structural relationship model between the national self-confidence and the out-group trust, after modification, the results of the suitability of the role of national self-confidence in the out-group trust showed that $X^2$/df = 15.25, Goodness of fit (GFI) = 0.912, Adjusted goodness of fit (AGFI) = 0.903, The Comparative Fit Index (CFI) = 0.919, The Normed Fit Index (NFI) =0.916, Tucker Lewis index (TLI) =0.909, and The Root Mean Square Error of Approximation (RMSEA) =0.086. Each fitting index reached a good level of fit (Lai, 2018), indicating that the model is well constructed. The parameters are shown in Figure 1.

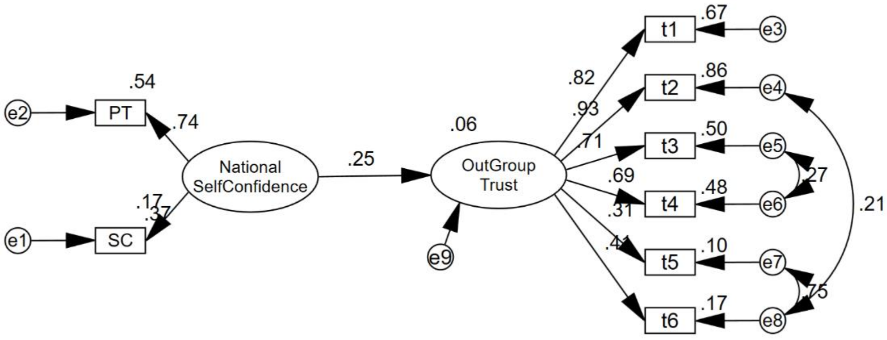


**Figure 1** Effect model of Chinese national self-confidence on out-group trust parameter estimation.

According to Figure 1, the results show that national self-confidence has a significant direct effect on out-group trust, but the degree of the effect is modest, with a path coefficient of Beta = .25.

**The impact of the Olympics on Chinese national self-confidence and out-group trust**: A t-test was performed to compare the national self-confidence between the respondents who were concerned about the Olympics and those who were not concerned about the Olympics. The author also conducted independent sample t-tests for the Out-group Trust, the OTL group Trust, and the NIL Group Trust on whether they paid attention to the Olympic Games. The results are shown in Table 6.

**Table 6** The impact of the Olympics on Chinese national self-confidence and out-group trust

| **Variables** | **Concerned about the Olympics** | **Not Concerned about the Olympics** | **t** |
|---|---|---|---|
| | ***N=603*** | ***N=111*** | |
| | ***M ± SD*** | ***M ± SD*** | |
| National self-confidence | 74.97±24.36 | 64.91±23.94 | 4.01*** |
| Out-group (Total) | 15.62±2.34 | 16.95±1.85 | 5.70*** |
| OTL group (USA, JPN, TWN) | 13.13±4.68 | 15.76±3.39 | 12.79*** |
| NIL Group (RUS, KOR, HKG) | 17.32±3.60 | 17.23±5.08 | *NS* |

****p*<0.001

It was found that there was a significant difference in Chinese national self-confidence between those respondents who were concerned about the Olympic Games ($p$ <0.001) and those who were not. Those concerned about the Olympic GamTablees (*Mean* = 74.97, *SD* = 24.36) had significantly higher national self-confidence than those who paid no attention to the Olympic Games (*Mean* = 64.9, *SD* = 23.94). Table 6 also shows that there were significant differences in the out-group trust; the respondents who were concerned about the Olympic Games had lower out-group trust (*Mean* = 15.62, *SD* = 2.34, $p$ < 0.001) than those who paid no attention to the Olympic Games (*Mean* = 16.95, *SD* = 1.85). Specifically, the respondents who followed the Olympics (*Mean* = 13.13, *SD* = 4.68) had significantly lower trust in the OTL group than those who did not follow the Olympics (*Mean* = 15.76, *SD* = 3.39), while those who did or did not follow the Olympic Games did not have significant differences on trust in the NIL Group.

## 5. Discussion

**The current status of national self-confidence identity**: After data analysis, it was found that in the sample surveyed, the overall Chinese national self-confidence is at the upper level, which is consistent with the results of the *Annual Report on Social Mentality of China* (Wang, 2021). At the same time, Chinese national self-confidence is affected by age, educational background, and region, while gender has no significant difference in Chinese national self-confidence. From the results, men and women each have maintained a high national self-confidence level.

Concerning age group, national self-confidence is highest for those under the age of 25, indicating that China's political education is still in place, and it can also be seen indirectly that China's current development makes the new generation of young people feel more satisfied and confident about China's future. Especially for those of 18 years of age, Chinese national self-confidence was significantly higher than the other age groups, which is understandable given that current compulsory education students are happy about the environment for the country. Upon entering university and after entering into the community, there appears to be some deviation from the social reality of life, however, a very high degree of national self-confidence still exists. As for those between 41 to 56 years old and those more than 56 years old, this research suggests that the founding of new China has still been over a relatively short time, with rapid development. Since this age range has experienced many ups and downs of social development, although compared to those below 40 years old age, national self-confidence has been significantly reduced, but overall, is still in the upper level.

For the educational background, from the research results, the national self-confidence level among the below undergraduate level is significantly lower than that of undergraduates and postgraduates. This study suggests that it is more difficult to obtain resources in real society for those with an education level below the undergraduate level, and hence there would be a greater level of pessimism. Today China's involution phenomenon, namely the shrinking of resources, is a very serious problem (Meng-ying, 2021). Under the conditions of scarce social resources, the unfair distribution of social resources and the resulting unsatisfactory real lifestyle have affected the national self-confidence of this group of people.

There are significant regional differences as well. The research results have shown that there are significant differences between the Eastern, Central, and Western responders' national self-confidence. Among them, the Western group has the highest level of self-confidence, while the Central group has the lowest self-confidence. The researcher believes that the economic development of the East has been the best for mainland China, and consequently its quality of life is also the highest (Han et al., 2008). However, high quality also means high competition, and the pressure on the people living in the East is the greatest (Han et al., 2008). However, the Eastern region is relatively close to the Central region in the standard of living, while the economic levels of the Central and Eastern regions are far apart. Taking Henan province for example, as the most populous province in central China (National Bureau of Statistics of China, 2021), it has only one university in the China 211 Project (a project that has been successfully managing 100 universities in preparation for the 21st century). Despite being such a big province, Henan has no first-tier (developed) city and only one new first-tier (more developed) city, no second-tier (better development) cities and the rest are third-tier (general development) or below third-tier (poor development) cities (Yicai Global, 2021). It can be seen that there is a huge gap between cities. The huge pressure is borne by only having one new first-tier city and the subsequent impact has caused a huge difference in peoples' living standards, which may have caused their social dissatisfaction and also may have had an impact on their national self-confidence.

**The current status of the out-group trust**: First of all, this study suggests that, because of China's unique culture, it should have its own trust evaluation system. However, China's various aspects of strength have become more and more important internationally, and it is even more inseparable from the influence of globalization. Therefore, this research adopted the international scale of out-group trust that has been used to allow for better comparative studies in the international arena. Through the out-group trust scale used in this article, it can be seen that the overall out-group trust has reached a medium level, with the OTL Group Trust lower and the NIL Group Trust higher than the medium level. The overall trust of the out-group is affected by age, education level, and region. Female out-group confidence was significantly higher than the male group. Huang, and Deng (2012) conducted a statistical analysis of the social trust level of 1,429 Chinese samples and 4,866 British samples that showed that social trust was influenced by education and age, and female social trust in the UK sample was significantly higher than for males, so these results are similar to this study. Huang, and Deng (2012) believes that the group with experience of going to work in the countryside or mountain areas in China, those aged 56 and above corresponding to this article, have significantly lower social trust than the group without such experience. However, the results from this research show no significant effect on the overall trust of the outside group. At the same time, the survey by Huang, and Deng (2012) showed that the social trust of females in the Chinese sample was significantly lower than that of men.

Education level seems to have a positive effect on social trust. Wang (2014), Wu and Shi (2020) found the same result, and social trust was not affected by region. These conclusions are inconsistent with this article's findings. According to the findings of this article, the trust of out-groups among those with an undergraduate education level is significantly higher than that of those with less than undergraduate education and postgraduates, and those with undergraduate education have the lowest trust of out-groups, that is, the education level has no positive impact on the trust of out-groups. In Huang, and Deng's study (2012), the growth area had no significant impact on social trust, while the respondents from the Eastern region in this study had the highest level in overall out-group trust, OTL Group Trust, and NIL Group Trust and is significantly higher than the other two regions.

This research suggests that intergroup contact can enhance out-group trust (Wei, 2017), and due to the high level of economic development of the Eastern coastal areas, foreigners are more concentrated in the Eastern region. According to the Beike Research Institute (China Development, 2021) on investigations of foreigners living in Chinese cities, among the top ten residence lists, eight are located in the Eastern coastal area, whereas only two are located in the Central Region and none are found on the list in the Western region.

Therefore, more inter-group contacts, as well as the high national self-confidence brought about by developed cities and superior life, have enabled the public in Eastern China to have higher external group trust.

From the more detailed survey results, it was found that the Chinese people's trust in the United States, Japan, and Taiwan is significantly lower than that of Russia, South Korea, and Hong Kong. Han's survey (2012) found similar results as this article. Chinese people have the lowest out-group trust in Japan among the countries listed and regions surveyed, followed by the United States. According to the Japan-China Public Opinion Survey (The Genron NPO, 2020), from 2014 to 2020, after four public opinion surveys, although Chinese respondents' preference for Japan has rebounded, the rate of recovery has been slow and the effect is limited (Xu, 2020). The Chinese public opinion of the United States continues to deteriorate (The Genron NPO, 2020), and nearly half of the people express a pessimistic attitude towards China-US relations. As seen from the Han (2012) survey from 2006 to the present, the Chinese people's attitudes toward Japan, the United States, and Taiwan and trust of these out-groups has not effectively been improved.

This research suggests that due to historical, political, economic, and other conflicts, as well as China's rapid development, there may be external evaluations of China that do not match the speed of development (Silver et al., 2020). In the face of negative reviews, the trust of the Chinese people in out-groups has gradually been wiped out. The conflict between mainland China and the United States, Japan, and Taiwan has been escalating, and these problems have penetrated the cognition of the Chinese people, especially the conflict between China, the United States, and Japan. As a controversial event, Taiwan has continued to ferment in China, the United States, and Japan. As a result, China's trust in Taiwan has gradually decreased. In recent years, the relationship between Russia (Brain, 2021), South Korea (Chey, 2021), Hong Kong (Xie, 2015), Macau (Xie, 2015), and mainland China has maintained sustained good conditions. While on the other hand, for Russia and the United States, as well as South Korea and Japan, there are also been conflicts of interest that, in turn, promote the development of the relationship between China and Russia (Brain, 2021), as well as China and South Korea (Chey, 2021). Although the respondents' trust in Hong Kong is significantly lower than that of Macau in this article, the overall level of trust in Hong Kong is still at the upper-middle level. Hong Kong and Macau are regions that have returned to China for many years, and mainland China's sense of identity with both is at a high level (Xie, 2015).

**The relationship of national self-confidence to out-group trust**: The research in this study finds that national self-confidence directly affects the trust of out-groups, but the relationship is a general one. Sung and Son (2020) found in a study of 2,314 Taiwanese respondents that out-group trust is associated with self-rated health. Diotaiuti, Marco-Zona, and Rea (2015) found that people who feel that the in-group is more reliable had lower self-confidence and are more likely to trust the out-group. By comparing national self-confidence with OTL group trust and NIL group trust, it was found that national self-confidence is negatively correlated with OTL group trust, and positively correlated with NIL group trust. Therefore, the findings of this study suggest that the current Chinese national self-confidence is like a catalyst that will deepen the original levels of trust and distrust. That is to say, there is more distrust of the original negative cognition group, and more trust in the original positive cognition group.

The author believes that the Chinese people once had a serious case of reverse nationalism (Ye, 2015). Nationalism has a strong identity with one's own nation. Reverse nationalism is the opposite. It has a strong aversion to one's own nation and feels that it is inferior to other nations (Ye, 2015). This article also sees many related phenomena. For example, in the past, foreigners were usually able to enjoy a better treatment, such as international students in China, which can often be seen from arrogant news (Xue, 2021). Not only do foreign students have poor grades, but they are also domineering and the Chinese have always been too tolerant of them. Even several criminal cases were made to disappear (Xue, 2021). Do Chinese people really lack self-confidence? It can be seen from these survey results that the national self-confidence of the respondents is at a relatively high level. Therefore, this research suggests that the building of self-confidence is a long process. New China has been established in a short time and the development speed is fast so that the development of self-confidence of the people is in a U-shaped development curve. Today, China, as a big country that cannot be ignored in the world, has accelerated the development of its citizens' self-confidence. Therefore, over-confidence or pseudo-confidence may also appear. The author believes that Chinese senior officials attach great importance to the building of self-confidence at the grassroots level. They are deeply aware of the lack of quality among Chinese citizens and thus have given great resources to education and society to improve. It can also be seen from related academic articles and these findings. Indeed, effective results have been achieved. At the same time, this study suggests that the building of true self-confidence requires the improvement of generations of people, rather than raising it in a few years. Of course, we cannot expect a country with the largest population in the world to reach a reasonable stage of development everywhere at once. China's national self-confidence has already had a good start and can be expected to improve in the future. The development of trust of out-groups also improves with the changes in national self-confidence. Therefore, the author believes that as China gradually accelerates international participation, such as at the 2022 Winter Olympics and Asian Games, along with the building of national self-confidence, it is bound to be in the future that the trust of outside groups will reach new heights.

**The impact of the Olympic Games on national self-confidence and out-trust groups**: This research found that the Olympic Games have had a positive impact on national self-confidence. The national self-confidence of the respondents who followed the Olympics was significantly higher than that of the respondents who did not follow the Olympics. The Chinese in this article is a kind of in-group. The Olympic Games have had a negative impact on the out-group trust. Specifically, there was no significant difference between the several variables in the NIL Group, that is, whether following the Olympic Games or not, it had no impact on the NIL Group. The surveyed respondents' trust in NIL Group's countries and regions is close to the same level, however, there were significant differences in the trust of countries and regions on the OTL group.

This study suggests that paying attention to the Olympics deepened the negative perceptions of those countries and regions that originally had negative perceptions. It can be seen that the Tokyo Olympics had enhanced the confidence of the Chinese national in-group and reduced the trust of the out-group, which obviously violates the spirit and slogan advocated by the Tokyo Olympics. The intention of the Olympic Games is to eliminate global barriers; in fact, this Tokyo Olympic Games placed special emphasis on unity and cooperation, including the addition of the theme of the opening ceremony of this Olympics: "Moving Forward and United by Emotion" (Tokyo, 2020, 2021). Just as IOC President Bach previously announced the change in the Olympic slogan, from the familiar "faster, higher, and stronger" to "faster, higher, stronger, and together" (Tokyo, 2020, 2021), emphasizing the need for human society to unite in difficult times.

On a more practical level, if the Olympics had been canceled, it would have destroyed the dreams of 11,000 Olympic athletes. The Olympic Games in Tokyo had to meet the challenges to overcome extreme difficulties to be held, while on the economic and political level, the Japanese also had their own self-interests. Regardless of the reasons, this was a high-profile event. Because of its hard-won and extraordinary significance, the Tokyo Olympics should have emphasized the concept of "togetherness", such as the implementation of the concept of being "together", the media's positive reports, respect for the principle of fairness and justice, the official response to issues in a timely and positive manner, and attention to the voices of the people in various countries. On the contrary, during the Tokyo Olympics, the performance of Japan, the United States, and Taiwan in the Olympics deepened the Chinese people's negative understanding of them. For example, some controversial judgments of gymnastics in the Tokyo Olympics (Orlowitz, 2021), some arrogant performances of Japanese athletes (MINNEWS, 2021a), the speech of victory of Taiwanese athletes against the Chinese public, and some exaggerated facts and controversial reports in the Western media such as made by BBC New (2021) all received large-scale condemnation on the Chinese Internet. This also made this much-watched event inspire the national self-confidence of the Chinese and reduce the trust of the out-group. Therefore, this author believes that this is far from enough to respond to "Togetherness". In this situation, full of misunderstandings and a crisis of trust, how we collectively try to eliminate the barriers and let the big countries directly help each other is the core meaning of the Olympic Games. Furthermore, the author believes that the next Tokyo Olympic Games can be a reminder of the important events, such as the 2022 Winter Olympics and Asian Games, in which the host country of China may pass on how to make being "together" a better upgrade, such as by enhancing the media's consciousness, paying attention to the recommendations and requirements of each country, proactively providing an official positive response, and so on.

Media has an important impact on trust (Lu et al., 2020). Hardin (2008) was also concerned with the causal link between watching TV and the fall in trust in the government. Therefore, in addition to commercial advertisements, public service advertisements can also be used to convey "being together;" social media should also directly “be together” to promote the development of national quality. In addition to paying attention to the athletes of your own country, you can also report on the kind deeds of the athletes from other countries. The athletes themselves are the best film stars. Compared with the common people, athletes have increased inter-group contacts. They can also visually show that athletes from various countries stand together because of sports and convey the concept of true tolerance, understanding, and togetherness. For example, Sunisa Lee, the American all-around gymnastics champion, gave encouragement and support to the balance beam champion Guan Chenchen of China (Global Times, 2021); the Chinese swimming champion Zhang Yufei waited and embraced Rikako, a Japanese swimmer who fell ill before the Olympic (MINNEWS, 2021b); Mutaz Barshim and Gianmarco Tamberi together won the gold medal in the high jump (Jeffery, 2021). These moments were the best manifestations of togetherness, but the media rarely reported them. They seemed to prefer controversial topics to increase media attention. Therefore, the China 2022 Winter Olympic Games and the Asian Games should be held with the same emphasis on solidarity between the media and athletes. They should be hopeful, not afraid of gossip, and bravely should come out to show self-confidence in building out-group trust, as an important way to eliminate the prejudice against the out-group.

## 6. Conclusion

After establishing an effective Chinese national self-confidence scale and adopting the previously developed and researched out-group trust scale, this research found that the mainland Chinese respondents have good Chinese national self-confidence and a medium level of out-group trust. The national self-confidence and out-group trust are affected by age, education level, and region. Chinese national self-confidence has a direct and general effect on the trust of out-groups, and the Olympic Games helped catalyze the influence of relationships, made out-groups with originally negative perceptions more distrusted, and created more trust of those out-groups with originally positive perceptions.

Although China has always discussed national self-confidence, in fact, until recently, the Chinese nation was not really confident enough. China is eager to prove itself to the outside world, so it sometimes falls into utilitarianism. For example, in global events like the Olympics, the whole country used to pay attention to every gold medal. The gold medal had become a symbol, carrying too much value and meaning beyond sports. As a result, the athletes who received the gold and reveled in the whole country became a hero while the losers received national condemnation and were drowned in scolding saliva. For the out-groups, when there are different interests in China, the whole country will condemn it. None of this should happen to a citizen of a country with high national self-confidence. China in 2022 will usher in the Olympic Winter Games, and the Asian Games, with understanding, solidarity, friendship, and fair play; the spirit of sports lies in mutual exchanges and discussions, seeking a better self-presentation for mankind.

At a time when the COVID-19 is raging the world, it is especially necessary for human beings to let go of their prejudices, transcend differences in race, belief, and ideology, and join hands to overcome difficulties for a better future. This article also hopes that, while China will successfully host the Winter Olympics and the Asian Games, it will increase the sense of trust among nations and at the same time, pay attention to the level of national self-confidence in society, correctly guide and develop national self-confidence, and not excessively develop national self-confidence and eliminate false self-confidence. In the face of various rumors, the Chinese public should be willing to help without arrogance or rashness, and with a tolerant heart, shoulder the quality and responsibility of a big country, which is also a true manifestation of national self-confidence. This article hopes that this “Together” spiritual wealth can continue from the arena to the outside, and become a powerful force for mankind to overcome various crises and challenges.

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# Thailand's Approach to Accessing Cashless Society for Baby Boom Generation

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**Abstract**

This research applied the qualitative methods in which data were collected through a review of related documents and interviews with key informants. The objectives of this research were to study the process to access a cashless society of the baby boom generation in Thailand, (2) the factors that affect the access, and (3) the policies for accessing the cashless society.

The results showed that the process to access the cashless society of the baby boom generation in Thailand required support from the government, private sector, and people. The government of Thailand must initiate a strategic plan to develop a cashless society then the private sectors and banks will develop their own electronics systems that lead to changes in people's behavior. Factors of the changes in people's behavior are 8 factors of the unified theory of acceptance and use of technology (UTAUT2). This study recommends that the infrastructure and electronic payment systems continue to be developed. Cashless society must be supported by the government through various government campaigns along with continuously improved by private sectors for a more user-friendly, especially to baby boom generation. To achieve a cashless society, lawmakers ought to establish and promote policy bipartisanly, and most importantly provide education and clear guideline on the electronic payments process to the baby boom generation. With such social support, all baby boom generations in Thailand regardless of education level, social position, income level can enjoy the privileges of a cashless society, which will lead to a smooth transition to a completely cashless society.

***Keywords****: Cashless Society, Baby Boom Generation, Technology Acceptance, Electronic Payment*

## 1. Introduction

A cashless society is a description of the economic conditions in which various financial transactions are done through digital information transfer, which is an electronic representation of money in various forms such as QR Code, e-Wallet, debit card, credit card, money transfer via mobile banking applications, or Prompt Pay transfer, instead of the coin format (Bank of Thailand, 2020).

The idea of a cashless society was created by an American businessman John Diebold, a founder of The Diebold Group. Diebold built several networked computing systems for commercial banks in the early 1960s and began researching the general effects of automation in the banking industry in 1966. Diebold has written articles in class business journals led by warning "Transaction Overload" that will occur and indicate that "Cashless society is no longer an option. but it is necessary".

Diebold's idea was supported by George Mitchell, a member of the Federal Reserve's Board of Governors, who began warning banks in 1966 of the rising cost of paper used for making checks. He encouraged the banking industry to consider "Computers can drastically change money and how it's used," said Mitchell, who said electronic payments would reduce both management and floating costs because transfers can be made almost instantaneously. He predicted that the use of checks would disappear in the near future. Soon after, banknotes and coins will be reduced in use. Along with the commercial banking industry rapid growth of the economy, caused the processing of the banks' financial transaction documents to exceed the system limit, incurring rapidly rising costs. Commercial banks, therefore, encouraged the development of a new cashless financial system to replace it to reduce the volume of document transactions (Therdthaveedech, 2016). The policy supports and benefits the transition from a cash society to the use of credit and debit card systems as well as an electronic payment system (E-Payment) to pay for services in daily life (Thoetthaweedej, 2016).

The evolution of a cashless society in other countries, with the rapid change in financial technology innovations, changed the banking industry in many ways. Financial technology has greatly contributed to the rise of mobile payments. According to a Statista.com report, the total transaction value in the Digital Payment (Mobile POS Payments and Digital Commerce) segment was $3,168.18 million in 2017 and increased to $4,137,523 million in 2019. At present, "Cashless Society" is becoming very popular abroad, especially in Europe (Boonmeesuwan, 2018).

Norway is regarded as the first country to become a cashless society and plan to start not using cash by the year 2030. It was noticed in early 2016 that Norway's largest commercial bank, DNB, proposed halting the domestic cash payment method. This proposal was made because more than half of all cash transfers in Norway are not regulated by banks, creating a higher risk of money laundering and other illegal activities. Most commercial banks in Norway are now refused to accept cash. Norwegians are considered to be very keen on not using cash because the percentage of the usage of cash is less than 5%. However, some opponents think Norway should still have a cash system due to the worry of privacy and security. Digital technology could be a data breach and many banks could be affected. Representatives who oppose cashlessness believe cash will remain the only reliable payment tool in the event of a system failure. Besides, eliminating cash will make it more difficult for the elderly who do not use electronic transactions. They also see cash as an effective tool for teaching children to know the value of money (Digital Ventures, 2017).

Sweden is considered a model of a cashless society (Boonmeesuwan, 2018). In Sweden, cash use accounts for only 2% of all transactions. Domestic spending in Sweden, whether large or small, can use debit or credit cards instead of cash. Sweden's entry into a cashless society has resulted in more than half of the country's bank branches canceling their cash deposit and withdrawal services. The number of ATMs in the country has dropped dramatically as there is no need to withdraw cash anymore. Banks in Sweden have switched to digital branches or electronic banking. Small amounts of cash come from illegal residents or undocumented immigrants, tourists, and the elderly who are still skeptical of electronic systems. Sweden's development towards a cashless society was driven by many factors, firstly the technological readiness from the support of government making Sweden's banking sector move toward digital with confidence in the electronic payment system. Secondly, the support from the public sector, the support comes from the belief that the use of cashless technology is safer than using cash. Thirdly, banks support the reduction of cash uses to reduce bank robberies to the public bus drivers' union that reducing the use of cash will increase driver safety. As a result, public buses and train stations in Sweden are no longer accept cash payments. Lastly, Swedish law allows merchants to refuse to accept cash from customers, which is different from the Payment Law in most countries that protect the rights of cash holders (Export-Import Bank of Thailand, 2019).

The cashless society in Asia itself has been keen on shifting to a cashless society as well. Various preparations have been made to lay the groundwork for eliminating the use of cash, for example, China and South Korea are two countries that have stepped into a cashless society (Global Data, 2020).

In China, it is extremely common to leave the house with nothing but your mobile phone. Many Chinese cities have rapidly developed into a cashless society in the past 5-6 years. Mobile financial applications, especially Alipay and WeChat, have become part of the daily lives of Chinese people, from the payment of goods and services to tipping the waiter and to donating money to beggars (CGTN, 2020). These financial applications will link to a bank account and make payments for goods or services with a QR Code system. The total amount of mobile payment applications in China rose from 8 trillion yuan in 2014 to 109 trillion yuan or about 16 trillion USD in 2017. China is regarded as the world's number one leader in mobile payment applications, thanks to the decreased price of mobile phones, the number of mobile phone users that continues to increase, the internet network availability throughout China, and the e-commerce trend of using applications on mobile phones in daily life. However, China's tendency to become a cashless society continues only in some of the most economically prosperous cities. In rural areas where people are still poor and do not use banking services, including the elderly with no technological abilities, most still have to rely on the use of cash as before (Export-Import Bank of Thailand, 2019).

Although countries that are about to move towards a cashless society are all developed countries where people are accessible to technology such as mobile phones. However, developing countries like Kenya are also pushing towards a cashless society. Kenya successfully introduced a smartphone digital money transfer service through M-Pesa that was launched in 2007. Now, 69% of Kenyan households have switched to M-Pesa prior to the service, and M-Pesa comprises only 27% of Kenyans out of the 38 million population with bank accounts. Now Kenya's population has grown to 51 million, and 83 percent have deposit accounts (Kauflin, 2020). Before M-Pesa, when Kenyans who work in cities wanted to send money back to rural families, they have to deposit money with the bus driver or carry the sum of money back by themselves since there is no bank branch located in the village, leading to risks of losing money, being cheated or hijacked. Even if the village has a bank, it will charge high money transfer fees. Kenyans who are inaccessible to banks tend to keep their money under their beds, sacrificing their chances of earning interest and risking their money loss. When a loan is needed, there is no access to funding (Yarburgh, 2017). M-Pesa is therefore a financial technology that fills a huge gap in this market and turns problems into business opportunities. It has enabled the Kenyan population to deposit, transfer money, withdraw money, purchase goods, receive wages, pay tuition, pay off debts and, according to studies, has helped many Kenyans out of poverty and helped them access financial services (Yarburgh, 2017).

Likewise in India, the beginning of India's rise to become a cashless society started in 2009 when the Indian government introduced an information system called "Aadhaar" to store population databases with bio-identified information such as fingerprints or iris scans. Previously before 2009, over half of India's population was not enrolled in the official demographic register. In 2016, the Aadhaar Information System provided 95% of the Indian population with identifiable evidence. In 2016, India developed the India Stack database linking system that links Aadhaar identity data, bank account information, work information, and tax information, making it possible to develop and drive the use of financial applications in India. Currently, the most popular financial application in India is PayTM, which is developed and supported by Alibaba. PayTM has more than 300 million user accounts in 2019 (Export-Import Bank of Thailand, 2019).

Obviously, during the past period, although many countries are just starting to get acquainted with a cashless society, other countries have developed to the stage of issuing policies and laws that are conducive to the country's development into a cashless society as well.

The evolution of a cashless society in Thailand, the process to access the cashless society of the baby boom generation in Thailand required the support of the government, private sector, and people.

1) The government of Thailand has a strategic plan to develop the National e-Payment infrastructure, which is a strategic plan to modernize the electronic payment system according to international standards. The strategic plan started from the Prompt Pay system as it is one of the most important payment infrastructures as well as the turning point that make electronic transfers and payments easy to gain popularity. The government's strategic plan then extended to a QR code scanning system.

2) As the government supported the cashless society, the private sectors and banks also responded by developing their own electronics system such as mobile applications to meet the needs of users. The growth of Finance Technology or Fintech has led to new financial developments continuously enabling advances in technology to support a cashless society in Thailand and led to the change of people's behavior.

3) People's behavior changes towards an online system in Thailand. According to a survey of the Electronic Transactions Development Agency (ETDA) (2021), Thailand has a population of 69.88 million, with 48.59 million internet users or 69.5 percent in 2021; an increase of 3.4 million from 2020 or 7.4 percent (ETDA, 2021). The average time that Thai people aged 16-64 years use the internet per day is 8 hours 44 minutes, which is the 9$^{th}$ highest in the world. The most used applications for Thai people are Facebook, LINE, Facebook Messenger, Lazada, Shopee, Instagram, K Plus, Twitter, SCB Easy, and My AIS. From the top 10, it can be seen that more than half of Thai people use electronic payment systems. As a result, entrepreneurs in Thailand have started to adapt and adopt more electronic payment systems (Kemp, 2021).

In Thailand, as well as many countries around the world, a cashless society has been widely discussed over the years. The main reason is that the payment system has been developed to make it easier for the user to spend money and reduce financial transaction fees, causing people to carry less and less cash. Although Thai people prefer to use E-Payment for payment, cash is still the main medium of payment in Thailand. According to the Bank of Thailand (2020), the ratio of cash in circulation (CIC) to GDP has not been adjusted. However, it remained stable from 8.7 percent of GDP in 2010 to 9.1 percent of GDP in 2019, while the proportion of E-Payment use to GDP of Thai people increased from 15.9 percent of GDP in 2010 to 24.2 percent in 2019 (Bank of Thailand, 2020).

In terms of increasing or accelerating between the use of cash and E-Payment, it can be said that Thailand is entering a "Cashless Society" in a more concrete way. It is reflected from the growth rate of cash flow in the economy during 2014-2019, with an average growth rate of 5.1 percent. The growth is half slower compared with those during 2004-2013 when there was cash flow in the system with an average cash flow in the economy growing by 8.6 percent (Bank of Thailand, 2020). On the other hand, the consumption of E-Payment among Thai people accelerated exponentially in the form of exponential growth, which is evident from the Popularity of E-Payment via Internet-Mobile Banking.

The Thai government also fully supports a transition into a cashless society from the development of the National E-Payment Master Plan in response to the Thailand 4.0 policy to drive a cashless society in Thailand (Ingsisawang, & Ekkakittiwong, 2019). The National E-Payment Master Plan started from an online wallet application called "Pao Tang". Through this online wallet application, various subsidy schemes from the government will be transferred to people's electronic wallets. The "Chim-Shop-Chai" project, the "We Travel Together" project, and the "*Khon La Khrueng* (Half-Half)" project are part of the economic stimulus measures by distributing subsidies into the population's pockets for them to purchase household goods or foods, similar to when many governments in the past handed out coupons during economic downturns. Since we are entering the digital age, the government has strongly supported the entry into a cashless society by changing from giving out coupons to transferring money into the online application "Pao Tang" or G-Wallet (We Travel Together, 2020), allowing people to make transactions through electronic systems instead of using cash.

From the above information, it can indicate that Thailand has developed into cashless payment and the population is continuously accepting cashless payments, making a cashless society in Thailand possible in the future.

Regardless of how bright the future of a cashless society is, there is one thing to be considered, Generation Gap. Department of Provincial Administration, Ministry of Interior, has announced the number of inhabitants throughout the kingdom of Thailand. According to the civil registration principle as of December 31, 2019, Thailand has 66,558,935 inhabitants (Government Gazette, online). The number of elderly people (Baby Boom Generation) is 10,670,000 people or equal to 18% of the total population in Thailand. The province with the highest number of elderly people was Bangkok, with more than 1 million elderly people or 17.98% of the total elderly population in Thailand. In 2021, Thailand will have more than 13 million elderly people, making Thailand a complete aging society.

While entering an aging society, Thailand is also experiencing rapid economic and technological changes. As a result, some of the elderly, who are disadvantaged, have to fight and adjust greatly for their livelihoods. A portion of the elderly is more likely to become disadvantaged if they are not well prepared and will be highly affected by social inequality. There is a clear distinction between wealthy and well-prepared elderly and those who are not prepared or unable to prepare for life after retirement.

According to a survey from Matichon newspaper (2017), it can be inferred that the inequality that occurs with the disadvantaged elderly has both 1) service inaccessibility/providing service does not meet demand, 2) injustice, 3) inequality, and 4) inaccessibility of services/services that do not meet the needs result in unfair and unequal (Durongritthichai, Klangsamai, & Champates, 2017).

The dimensions of inequality found include economic, social, human dignity, culture, political participation, environmental participation in a community or society, participation in spatial activities, and participation in the use of knowledge. If analyzed through the relevant policies, laws, and plans of Thailand, it is evident that the disadvantaged elderly are not yet accessible to social welfare effectively according to the policies provided by the government, especially medical and public health services. The pension is not enough for subsistence, the lack of income collateral, policies implemented by government agencies lack continuous, and lack of performance monitoring. Some government benefits are redundant, making the elderly less privileged to receive social benefits either more than necessary or less than necessary (Durongritthichai et al., 2017). This inequality can describe in Karl Marx's theory as well. According to Karl Marx's theory, before entering the capitalist society, the former society was a slave society where the landowners could only keep all the produce for themselves. As society evolved into the capitalist era, the liberated slaves changed their status to laborers without their means of production. Therefore, it can only sell its labor force to the owner of wealth (capitalists) in the capitalist system. The capitalists in the capitalist system are all the aristocrats who have changed their status from the previous society to the capitalists. Marxist capitalist society is called a society without equality. This inequality has led to “Exploitation and the dehumanization process”. In human relations, it is a relationship of co-producing and exchanging products for the same value, but in capitalism, the process of exploitation, which is driven by an attempt to scramble for the difference, is a problematic mechanism of collecting surplus value from laborers to capitalize on re-production causing injustice within the human-human relationship (Marx, 1976).

At the same time, besides the disparity between the elderly who are ready and not ready, there is still a disparity between the old generation (Baby Boom Generation) and the new generation (Generation X, Y, Z), which is one of the challenges of the aging society.

Baby Boom Generation is a term used to describe a person who was born between 1946 and 1964. The Baby Boom Generation emerged after the end of World War II when birth rates across the world spiked. The explosion of new infants became known as the baby boom. The Baby Boom Generation lives for work. They have high endurance dedicated to working and are taught to be economical, careful when spending. The Baby Boom Generation has been called the “conservative” group of people. This generation is currently the largest group in society (MoneyHub, 2017), representing 18% of the population of Thailand.

Even though the new generation (Generation X, Y, Z) may have an advantage over the old generation (Baby Boom Generation) in accessing modern skills and technology, which, therefore, creates a disparity between the new generation that adapt and learn new things faster with the old generation who may adjust and learn new skills more difficult. Nonetheless, on the other side of the aging society, injustice and socioeconomic injustice may be more difficult to fix because the old generation held most of the capital and economic power, social power, and political power. The longer the old generation lives, the harder it is for structural changes. At the same time, the assets held by the old generation are not transferred to the wider generations. Part of the socioeconomic turnover depends on the life expectancy of people, but when people grow older such changes also have a slower and longer cycle. Thus, when people’s life expectancy is longer, socioeconomic change may become even more difficult (Apiwat Ratanawara et al., 2020).

The fact that Thailand is moving towards a cashless society along with an aging society is very challenging. Most previous studies focused on a cashless society with younger generation people. For this reason, this research aims to study Thailand’s Approach to Accessing Cashless Society for Baby Boom Generation. What is the process? What are the factors? And what are the policies for accessing the cashless society of the baby boom generation in Thailand? The research results are expected to provide insights for government agencies and the private sectors that are effectively adjusting to prepare for a cashless society.

## 2. Objectives

This research aims to study as follows:

1. The process to access a cashless society of the baby boom generation in Thailand
2. The factors that affect the access to the cashless society of the baby boom generation in Thailand
3. The policies for accessing the cashless society of the baby boom generation in Thailand

## 3. Materials and Methods

This research applied qualitative methods in which data were collected through a review of related documents and an interview with key informants.

The key informants in this research were divided into 2 groups as follows:

1) Baby Boomers who were born between 1946-1964 from all over Thailand. The interviews will be divided by region and income criteria. Income criteria can indicate a person’s background level of education while region criteria can indicate the level of technology accessibility. Currently, Thailand’s income criteria are divided into 4 groups according to the income criteria of the National Statistical Office. First is the Upper-Income group comprising 7 people who earn more than 85,001 baht per month. The second group is the Middle-Income group which consists of 10 people who earn around 18,001 - 85,000 baht per month. The third group is the Low-Income group consisting of 6 people who earn 7,501-18,000 baht per month. Lastly, the Marginal people group includes 2 people who earn less than 7,500 baht per month.

2) Employees of companies and government agencies that concern electronic payment systems; Digital Economy Promotion Agency, Krungthai Bank, Bangkok Bank and Ascend Money Group (True Money).

The research instrument used in this research was an interview for the baby boomers, companies, and government agencies that concern electronic payment systems in Thailand. The questionnaires are open-ended questions about the transition to a cashless society among the baby boom generation. Each interview was held for approximately 30-45 minutes. Data analysis in this study was the approach to access a cashless society for the baby boom generation in Thailand. The content of the interviews was analyzed and the data were presented in an essay. The conceptual framework of this study was shown in Figure 1.

**Conceptual Framework**

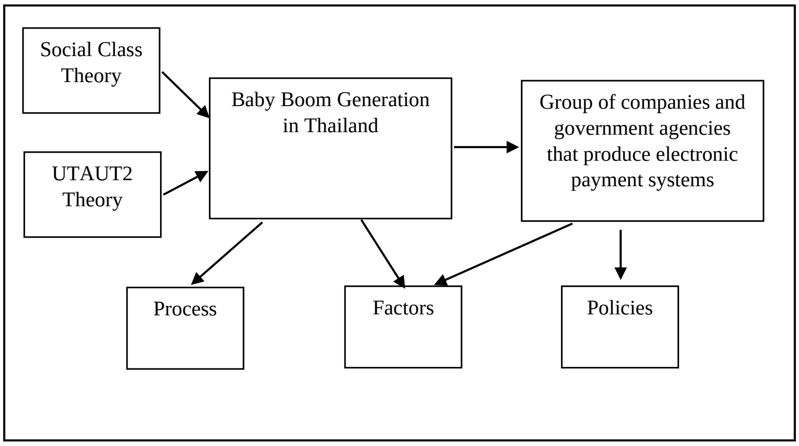


**Figure 1** Conceptual framework of the study

## 4. Results and Discussion

### 4.1 The process to access a cashless society of the baby boom generation in Thailand

The research results showed that the process to access the cashless society of the baby boom generation in Thailand required the support of the government, the private sector, and people. Starting from the an executive vice president of Bangkok Bank, stated in the interview that “Cashless society is already happening in Thailand and the speed of a cashless society will increase. If you look at Thailand in the past 1-2 years, it can be seen that the cashless society started with the government’s support for the use of PromptPay. At first, Thai people were very worried about whether it was safe or not, will there be a retroactive tax? until the Bank of Thailand decided to support PromptPay and decide not to charge interbank fees. For that reason, all banks began to enter the PromptPay market”.

“Government Intervention is a must in the early stages of a cashless society. When the government has already taken measures then they should gradually come out for the private sector to continue. It is like the government builds an expressway then small and large companies will come to expand the city” (In-depth Interview, 5 July 2021).

The government of Thailand has a strategic plan to develop the National e-Payment infrastructure, which is a strategic plan to modernize the electronic payment system according to international standards. The strategic plan began with the Prompt Pay system since it is one of the most important payment infrastructures as well as the turning point that make electronic transfers and payments easy to gain popularity. The strategic plan then extended to the QR code scanning system as well as the Electronic Card Expansion Project, the Tax System and Electronic Transaction Documents Project, and the most important, the government’s E-Payment project called Pao Tang--an online wallet that the government uses as a distributing channel for subsidies from the government’s welfare projects, such as the “Chim-Shop-Chai” project, the “We Travel Together” project, and the “Khon La Khrueng (Half-Half)” project.

As the government supports the cashless society, the private sectors and banks also respond by developing their electronics system causing the growth in Finance Technology or Fintech. The continuity in the development of new finances enables advances in technology to support a cashless society.

The support from the government agencies and private sectors in electronic payment systems led to the change in people's behavior. Although most of the population in Thailand is the elderly (Baby Boom Generation) and the provincial areas of Thailand still have unfavorable factors for the expansion of electronic payment systems as they lack knowledge about spending via the Internet or Mobile Banking, in 2020, the behavior of Thai consumers has changed dramatically due to the growth of the private sectors and the result of the Covid-19 outbreak causing a cashless society to occur in Thailand.

**4.2 The factors that affect the access to the cashless society of the baby boom generation in Thailand**

From the qualitative research, 8 factors were found to affect the access to the cashless society of the baby boom generation in Thailand, namely Social Influence, Effort Expectation, Facilitating Conditions, Performance Expectation, Price Value, Habit, Hedonic Motivation, and Perceived Risk.

The results of the qualitative research through in-depth interviews with twenty-five Baby Boomers born between 1946-1964 from all over Thailand were divided according to the region and income criteria. The Social Influence Factor and Effort Expectation Factor directly affect the baby boom generation in Thailand regardless of their income level, habitat, gender, or education, while the Social Influence factor and Effort Expectations factor affect every baby boomer equally.

In terms of the Facilitating Conditions Factor, Performance Expectation Factors Price Value Factor, Habit Factor, Hedonic Motivation Factor, and Perceived Risk, the results can be explained as follows.

1) The Social Influence Factor is a factor most related to the intention to use the electronic payment system. To change from cash to electronic payment systems, the baby boomers need a recommendation from banks, family members, and the government. Whether the use of an electronic payment system is easy or difficult, if the baby boomers have been taught or guided, they can use it. On the other hand, if the baby boomers did not get any recommendation or advice or learn how to use the electronic payment system, they will not change from cash to the electronic payment system.

2) The Effort Expectation Factor is a factor that is consistent with the social influence factor. It shows that the baby boomers in Thailand are needed to be educated before adapting to any new things. Regarding the electronic payment system, the ease of use of the system affects the baby boomers' willingness to use it. To say, the harder it is, the lower the willingness.

3) For the Facilitating Conditions Factor, even though the baby boomers in Thailand have been socially influenced by the use of the electronic payment system, if the facilitating conditions for using are still not conducive, a change will be impossible. Despite being equipped with the resources needed to operate an electronic payment system, if the province the baby boomers are staying in is inaccessible to the system, their access to the cashless society will be affected.

4) Concerning the Performance Expectation Factor, when the baby boomers are already aware of the use of the electronic payment system, their behavior will change from using cash to electronic payment and they will expect the system's efficiency; it must be convenient to use and help them to make payment for goods and services faster as well as reduce problems arising from the use of cash, resulting in a positive impact on the access to the cashless society of the baby boom generation in Thailand.

5) Considering the Price Value Factor, before the COVID-19 pandemic emerged, the baby boomers needed to be given benefits or value-added to change them from cash to cashless. However, those rewards are often only possible for high and middle incomers in the central districts. During the pandemic, regardless of region and income criteria, all baby boomers are forced to use the electronic payment system because of fear of being infected with the COVID-19 through cash. The COVID-19 forced people to avoid contact with both people and objects, especially banknotes and coins. This pandemic was also linked to the social influence factor, as the government used the electronic payment system as a channel to distribute subsidies to Thai citizens. Regardless of income and habitat, all baby boomers in Thailand had to change their spending behavior.

6) The Habit Factor is a factor that greatly hinders access to the cashless society of the baby boom generation in Thailand. From the interviews, despite personal factors, they have been used to using cash all

their lives, which was the reason why the baby boomers did not interest in using the electronic payment system. Once the baby boomers start to use the electronic payment system, it will become their habit and the habit factor will enable the baby boomers in Thailand to access a cashless society.

7) The Hedonic Motivation Factor is another factor that greatly hinders access to the cashless society of the baby boom generation in Thailand. Most interviewees do not prefer an electronic payment system but they have to change because they are forced to in order to be able to receive subsidies from the government.

8) The Perceived Risk Factor is one of the factors that influence the baby boomers' behavioral intention to use the electronic payment system. The interviews showed that the intention to use online banking is adversely affected mainly by the security or privacy risk. Trust and perceived risk were shown to be direct precursors of intent to use, and trust acted as an indirect precursor.

**4.3 The policies for accessing the cashless society of the baby boom generation in Thailand**

For the baby boom generation in Thailand to access a cashless society, support from the government, private sector, and people are needed. Social Influence factors also have a significant impact on the behavioral intention of baby boomers in Thailand. To create such a social influence factor, the government and private sector need to have a policy that supports a cashless society.

Pao Tang, the government's E-Payment project, has approximately 40 million users; most of them are using this Pao Tang because they want to receive welfare benefits from the government. 14.6 million users are in the government's welfare-card holder program, 7.3 million users joined the "We Travel Together" project, 10 million users joined the "Chim-Shop-Chai" project, and 15 million users are in the "Khon La Khrueng (Half-Half)" project, with 7 million transactions per day resulting in 1 billion baht for public spending (Bangkok Biz News, 2021).

However, a lot of baby boomers in Thailand still do not have access to smartphones or the internet, making them inaccessible to the government's cashless welfare support during the COVID-19 outbreak. It also shows that Thailand still cannot achieve a hundred percent cashless society. However, what is important is to change slowly but sustainably, therefore, the Thai government has attempted to increase more approaches to access the cashless subsidy, one of which is to set up several offline registration sites. The baby boomers or other citizens who do not have access to smartphones or the internet can use their smart identification card to sign up through the electronic data capture (EDC) system at branches and service points of Krungthai Bank. The subsidy can also be spent through their identification card at stores and restaurants participating in the government's campaign. This approach can fix Facilitating Conditions factor and help the baby boomers to get used to a cashless behavior, creating a habit factor that will be beneficial to the transition to a completely cashless society.

Besides the direct plan to help the nation be accessible to a cashless society, the Thai government also issues the indirect plan, which was developed through Digital Economy Promotion Agency, or depa, by focusing on making a public relation to educate the baby boom generation with the belief that anyone can learn if they have someone to teach and guide. Public relations and education are some of the social influence factors that have a huge impact on the baby boom generation in Thailand.

"The basis of the economy is a community and most of the people in the community are the baby boom generation. And that baby boom group is a group of Thai people who do not have access to a cashless society. Digital Economy Promotion Agency sees that what needs to be done is to upskill the baby boom generation in Thailand". Those are the opinions from the vice president of the Digital Economy Promotion Agency (Director of Digital Investment and Industry Promotion Department) (In-depth Interview, 11 June 2021)

It can be seen that the government of Thailand has made a huge contribution to the cashless society since almost every government agency pays attention to the electronic payment system. Nonetheless, the government alone cannot accomplish this, the government also needs to rely on the private sector to develop an electronic payment system that all Thai citizens, regardless of age, can use it. The government must promote social influence factors that have a huge impact on the baby boom generation and at the same time, the private sector should support the facilitating conditions factor and performance expectation factor that will lead the baby boom generation in Thailand to get effort expectation factor. The price value factor will affect the change in spending methods, resulting in the habit factor.

## 5. Conclusion and Suggestion for Further Work

The findings of this study showed that for the baby boom generation in Thailand to be able to access a cashless society, it is imperative that the infrastructure and electronic payment systems continue to be developed through the cooperation between government and private sectors. The cashless society must be supported by the government through its various campaigns, along with continuously improved by the private sectors for a more user-friendly and recognizable experience, especially to the baby boom generation. To achieve a completely cashless society without digitally excluded generation, lawmakers ought to establish and promote policy bipartisanly, and most importantly provide education and clear guideline on the electronic payments process to the baby boom generation. With such social support, all the baby boomers in Thailand, regardless of education level, social position, or income level, can enjoy the privileges of the cashless society, which will ultimately lead to a smooth transition to a completely cashless society of the nation.

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# Electronic Payment System: Types, Trends, and its Impacts on Thai Economy

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**Abstract**

Electronic Payment helps enhancing economic growth, promoting online trading, decreasing cash holding, and reducing friction in trade transactions, resulting in an increase in private consumption expenditure (PCE) and real gross domestic product (RGDP) in the country. There are various forms of E-payments; however, the examination of each type of E-payments regarding its trends and impacts on the emerging economy is still limited. The present study fills this gap by exploring types, trends, and relationships between E-payments and the impacts on Thai economy. Literature review was employed to explore the characteristics of each type of E-payments. Descriptive statistics was applied to explore the trends of E-payments during 2010-2020. Pearson correlations and regression analysis using Newey-West standard errors were employed to analyze the effects of E-payments growth on PCE growth and RGDP growth in Thailand. The results indicated that E-payments were significantly and positively related to PCE growth and RGDP growth. Payment transactions via Internet/Mobile banking and E-Money increased remarkably, while transactions via ATM cards decreased over time. Transactions via debit cards remained stable, whereas transactions via credit cards showed a slightly increasing trend. Credit cards, Internet/Mobile banking, and E-Money positively and significantly related to PCE growth and RGDP growth, while there were no relationships between ATM cards relating to PCE growth and RGDP growth in Thailand. Overall, a 1% growth in E-payments results in 0.13% growth in PCE and 0.12% growth in RGDP.

***Keywords:*** *E-payments, Internet banking, Mobile banking, E-Money, private consumption expenditure growth, economic growth*

## 1. Introduction

Technological development has contributed to the development of online trading and E-commerce around the world. To enable the growth of online trading, there must be an effective payment system to underpin an increase in online transactions. Electronic payment system (or E-payments), defined as a payment service or the transfer of the right to hold money by utilizing electronic means or information and communications technology (ICT) such as Integrated Circuit card (IC), cryptography, and communication network (Raja, & Seetharaman, 1970), is a mechanism to spur the growth of trade and the economy. Previous studies (Aldaas, 2021; Zandi, Singh, & Irving, 2013; Zandi, Koropeckyi, Singh, & Matsiras, 2016) have indicated that E-payments can promote trade by providing a convenient method for consumers to transfer money as well as reducing transaction costs and cash holding for both consumers and merchants. For the overall economy, E-payments lessen friction in trade transactions, resulting in an increase in private consumption expenditure, production, employment, and economic growth.

Currently, there are various forms of E-payments. Most popular ones include (1) ATM cards, (2) Internet/Mobile banking, (3) debit cards, (4), credit cards, and (5) electronic money (E-Money) (Selfira, Abdillah, Harahap, & Muda, 2019; Yu, Hsi, & Kuo, 2002). Different types of E-payments have distinctive characteristics and advantages. For example, credit cards are easy to use allowing consumers to purchase before and pay later; however, transaction costs are high which is not suitable for small value purchases. E-Money, thus, is a more popular when making small value purchases (Selfira et al., 2019; Yu et al., 2002).

The trends of using different types of E-payments have changed over time. Credit cards have been popular mode of E-payments since the 1990s. However, there is an increasing trend of using Internet/Mobile payments to replace debit or credit card payments in Sweden (Aldaas, 2021). In advanced economies, credit cards are more likely to use for oversea transactions. With the growth of internet and mobile phone users, it is expected that payments through Internet/Mobile payment and E-Money will significantly increase, while the use of debit cards will significantly decrease in the future. Particularly, with the widespread of the COVID-19, consumers are encouraged or compelled to purchase by making cashless payments. Besides, other alternative E-payments such as E-Money and E-wallet are available and being used by consumers.

The nature of trading and payments have been evolved over time from barter system to coin, paper currency, cheque, plastic money, and E-payments. With innovations and advanced technologies, E-payments allow remote transactions to become possible and traders can transact without actual money (Asokan, Janson, Steiner, & Waidner, 2000). According to VISA (2003), E-payments broaden network of trading, facilitate transactions between buyers and sellers as well as increase economic activities, stimulating economic growth and benefiting people around the world.

E-payments are convenient method enabling consumers to transfer money anytime and anywhere at lower transaction costs (VISA, 2003). Without E-payments, transfers of money must be performed at the counters with higher fees charged by banks and other institutions (Humphrey, Willesson, Lindblom, & Bergendahl, 2003). Further, with advanced technologies, E-commerce and E-payments provide consumers timely access to information (VISA, 2003) and increase consumer choices, granting them to buy goods and services at a lower price while enjoying higher satisfaction (Deloitte LLP, 2013).

To businesses, E-payments lead to incremental sales since they broaden customer coverage allowing them to make transactions anytime and anywhere. E-payments result in higher efficiency, inventory reduction, and better management of cost and cash flows (VISA, 2003). Besides, E-commerce and E-payments open opportunities for new business and enhance the growth of small and medium enterprises (SMEs) due to lower cost of setting up business online, leading to a greater competition and economic efficiency (Deloitte LLP, 2013).

For financial institutions, E-payment system results in lower cost and higher efficiency. Humphrey et al (2003) revealed that the banks' transaction costs of E-payments are only one-third to one-half of the paper-based payment. For example, transaction cost of E-payment (debit cards) accounts for 33% of a traditional paper-based transaction cost in Norway and 28% of check payment cost in Spain (Humphrey et al., 2003). E-payment system increases speed of transactions, security to clients, and customers' satisfaction, resulting in higher revenue and efficiency (Gupta, Yadav, & Bhardwaj, 2020; Sakanko, & David, 2019). Siddik et al (2016) discovered that E-banking positively contributes to the banks' return on equity from the analysis of 13 banks in Bangladesh during 2003-2013. The study of the financial sector's performance in Islamic countries indicated that all types of E-payments (i.e. Internet banking, Mobile banking, bank cards, point of sales (POS) machine, and ATM) positively affect net profit margin (Torki, Rezaei, & Razmi, 2020).

The impacts of E-payment system on the economy have been investigated for decades. E-payment system plays an important role in accelerating the economic growth (Slozko, & Pelo, 2014). All types of E-payment instruments allow consumers to conveniently make purchases and transfer funds. They stimulate consumption resulting in lower inventory, higher demand for goods and services, higher production, lower unemployment, and higher economic growth (Slozko, & Pelo, 2014). Moody's Analytics (2016) studied 70 countries/regions during 2011-2015, the results disclosed that payment cards (i.e. debit and credit cards) significantly promoted economic growth, creating 2.6 million jobs over the year 2011-2015, increasing GDP of 70 countries/regions by $296 billion, and contributing to 0.11% increase in GDP for emerging countries and 0.08% for developed countries (Zandi et al., 2016).

However, less of previous literature has examined the characteristics and effects of E-payments in Thailand. Previous research has studied the impacts of E-payments on the economic growth; however, very few studies have classified and examined the trends of different types of E-payments. The relationships between different types of E-payments and economic variables such as trade, consumption, and growth are less investigated. Most previous studies have focused on the U.S. and European countries only. Few studies of E-payments have conducted in emerging economies, particularly in Thailand. Therefore, the present research will fill this gap by exploring the types, trends, and the relationships between E-payments and important economic variables such as private consumption expenditure growth and economic growth in Thailand.

Electronic payment system is a payment service that utilizes electronic means or information and communications technology (ICT) such as Integrated Circuit card (IC), cryptography, and communication network (Raja, & Seetharaman, 1970). Electronic payments (or E-payments) facilitate the transfer of the right to hold money or withdraw money from the users' accounts with the service providers by electronic mean (BOT, 2008). E-payments encompass a variety of instruments such as ATM cards, Internet/Mobile banking, debit cards, credit cards, and E-Money.

There are four major parties involved in E-payments system including payer (consumer or buyer), payee (merchant or seller), issuer, and acquirer (see Figure 1). Payer and payee are considered as the demand side of the payment system, while issuer and acquirer are the supply side of the system (World Economic Forum, 2018). Issuer serves the payer in facilitating payment transactions, while acquirer facilitates the payee in collecting or clearing money. In some payment transactions, the issuer and the acquirer can be the same institution, mostly are commercial banks and financial institutions. However, recently, other powerful corporations (e.g. telecommunication corporations) can facilitate the settlement of E-payment transactions. Figure 1 shows the flow of money from the payer to the payee (Asokan et al., 2000; Harper, Simes, & Malam, 2006). When the consumer makes a payment, a certain amount of money is withdrawn from the consumer's bank account (issuer) and transferred to the seller's or the merchant's bank account. Then, the actual money flows from the issuer to the acquirer.

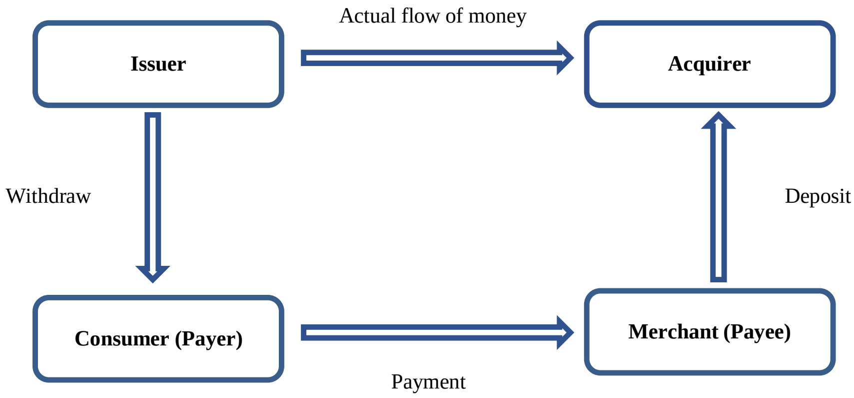


**Figure 1** The transaction flow of E-payment system
Source: Adapted from Harper et al. (2006).

The benefits of E-payments can be explained by various plausible explanations. For the payer, E-payments provide convenience for customers to spend anywhere and anytime. Moreover, E-payments allow customers to assess all available funds including their line of credit; thus, purchasing are not limited to the amount of cash that customers hold on hand (Zandi et al., 2016). For the merchants, E-payments provide opportunities for E-commerce to grow by reducing the costs and complicated process associated with traditional cash payment. With E-payments, merchants can broaden their customer based and expand into online retail business with a guaranteed payment (World Economic Forum, 2018). Payments with Internet/Mobile banking, E-Money, and credit cards facilitate online purchasing-selling transactions and enhance trust between customers and the merchants (Zandi et al., 2016). Without E-payments, merchants may refuse to sell because of high risk in collecting cash on delivery. Merchants may be reluctant to accept checks for high-valued purchases due to high risk of nonpayment (World Economic Forum, 2018).

E-payments benefit customers, merchants, and policy makers, i.e. the Central Bank and the government. E-payments decrease the costs of issuing notes and coins as well as overhead costs on printing money (Zandi et al., 2016). Besides, E-payments can enhance transparency in business transactions (Zandi et al., 2016). With E-payments, data of all transactions are recorded; thus, it is difficult for the merchants to avoid tax payment. Without E-payments, the merchants can avoid paying tax by using cash payment and do not declare real revenues to the Revenue Department. Davit (2017) indicated that E-payments enable the government to effectively fight for illegal activities and fraud with the trace of all transactions.

For the overall economy, E-payments promote financial inclusion, economic efficiency, and growth, allowing low-income and remote consumers to have easy access to financial services. E-payments are efficient methods for the government to transfer funds and welfare to specific groups of people with less corruption (World Economic Forum, 2018). In addition, E-payments increase economic efficiency since they open opportunities for new firms to enter the market, increasing competitions, and thus resulting in lower price for consumers (Deloitte LLP, 2013). E-payments also increase demand for goods and services and consumption spending, resulting in lower inventory, higher production, lower unemployment, and stronger economic growth (Slozko, & Pelo, 2014).

Previous empirically studies have confirmed the positive influences of E-payments on the world economies. VISA (2003) indicated that the adoption of E-payments results in an increase in domestic and global economic activities, cost saving, and capital accumulation. According to the cross-sectional analysis of 50 countries in developed and developing economies, the results revealed that an increase in the existing share of E-payments in a country by a margin of 10% generates an increase in consumption spending by 0.5%. Comparing with a paper-based system, E-payments provide a cost saving of at least 1% annually. This reduction in costs results from an increase in velocity and lower frictions in economic activities. Additionally, E-payments are gateways drawing cash into the banking system. VISA (2003) indicated that there is a 10 percent shift of currency into deposits and other reserves that can be used to provide loans which can increase GDP by 1% annually.

Deloitte LLP (2013) studied online payments of 17 countries in Europe during 2005-2010. The results indicated that E-payments enable retail E-commerce, provide opportunities for new business, enhance SME growth, facilitate broader trade, and promote competition, resulting in lower price and greater choices for customers. Retail E-commerce enabled by E-payments contributed €125 billion in EU's GDP in 2012. A 1% change in online retail sales is associated with a 0.01% change in RGDP of a country (Deloitte LLP, 2013). In addition, the study on retail prices revealed that online selling prices were approximately 21% lower than that of offline in 15 product categories. Without online trades and payments, sales could have been reduced by €23 billion in 2012 (Deloitte LLP, 2013).

Zandi et al (2013) studied the effects of the payment cards usage (i.e. credit and debit cards) on the global economic growth in 56 countries (considered as 93% of the world's GDP) during 2008-2012. The results indicated that the usage of payment cards contributed $983 billion to global GDP and created 1.8 million more jobs. Overall, a 1% increase in payment card usage contributed to an increase in consumption by 0.056% and GDP by 0.032% (Zandi et al., 2013). This analysis was extended by Zandi et al. (2016) using macroeconomic data from 70 countries during 2011-2015 with the result revealing that the usage of payment cards (i.e. credit, debit, and prepaid cards) constituted to higher RGDP in 70 countries by $296 billion. Countries with the largest increase in card usage (i.e. Hungary) experienced the highest growth (0.25%) in RGDP. For emerging markets, a 1% increase in card usage contributed to 0.11% increase in RGDP. For developed countries, a 1% increase in card usage resulted in 0.08% increase in RGDP. However, the study of Zandi et al (2013) and Zandi et al. (2016) emphasized on the effects of payment cards only, Internet/Mobile banking and E-Money were excluded from the analysis.

J. P. Morgan (2019) studied E-commerce payment trends in Thailand and found that the value of online shopping sector in Thailand grew significantly at 48.7% growth in 2016 and 26.8% growth in 2017, implying that the growth in E-commerce drives the need for E-payments. In 2019, cards (debit and credit), which were the dominant E-payments method, accounted for 30% of the total E-commerce payment in 2019, while digital wallet, bank transfer, and cash accounted for 23%, 23%, and 15% of the value of E-commerce payment, respectively. With the growth in mobile phone penetration rate and the government's investment on digital infrastructure in Thailand, it was expected that digital wallet and mobile banking would significantly grow in the future (J. P. Morgan, 2019).

## 2. Objectives

The present research primarily aims at three objectives. The first objective is to explore the characteristics of five types of E-payments, including ATM cards, Internet/Mobile banking, debit cards, credit cards, and E-Money in Thailand. The second is to discover the trends of each type of E-payment usage in Thailand. The third objective is to examine the relationships between the growth of E-payments with respect to consumption growth, measured by the growth of private consumption expenditure (PCE), and the economic growth, measured by the growth of real gross domestic product (RGDP), in Thailand.

## 3. Methodology

Previous literature on E-payments was reviewed to explain the distinct characteristics of five types of E-payments, i.e. ATM cards, Internet/Mobile banking, debit cards, credit cards, and E-Money. Data of five E-payments were obtained from secondary sources, while data of E-payment transactions and value were obtained from the Bank of Thailand (Bank of Thailand, 2021). Data of private consumption expenditure (PCE) and real gross domestic products (RGDP) during 2010-2020 were gathered from National Economics and Social Development Board (Office of the National Economic and Social Development Council, 2021) to investigate the last two objectives. Descriptive statistics was employed to explore the trends of E-payments in Thailand. Pearson correlations were utilized to analyze the relationships between the growth in value of each type of E-payments with respect to PCE growth and RGDP growth in Thailand. To eliminate the problem of autocorrelation and heteroscedasticity, regression analysis with Newey-West standard errors was employed to investigate the relationships between the growth of E-payments with regard to PCE growth and RGDP growth in Thailand.

## 4. Results

### 4.1. Characteristics of Each Types of E-Payments

Presently, with the development of ICTs, various E-payment instruments and methods including ATM cards, Internet/Mobile banking, debit cards, credit cards, and E-Money are commonly utilized in Thailand. The followings provide insights to each type of E-payment methods.

**Automated Teller Machine (ATM) Cards**

ATM cards have been widely adopted by consumers throughout the world for decades granting them to deposit money, withdraw cash, pay bills, and transfer money without the aid of tellers or counters' representatives. Account-based system users, consumers or users must establish or register their accounts with service providers (usually commercial banks). After registered for their accounts, users must maintain a minimum balance in their accounts. Once the transactions are made (i.e., withdrawals, transfers, or payments), the money is subtracted immediately from the users' accounts. In case that the users' balance is insufficient, the transactions cannot be successfully completed (Selfira et al., 2019).

While other types of E-payment transactions (i.e., Internet/Mobile banking, debit cards, credit cards, and E-Money) can be accomplished via online network anywhere, consumers who want to withdraw or transfer money via ATMs must travel to POS machine. POS machine is a combination of computer terminal and cash vault in which consumers can insert their ATM cards into the computer terminal using Personal Identification Number (PIN) (Nzaro, & Magidi, 2014). As such, ATM cards are not as convenient as other types of E-payments as transactions must be rendered at POS only, causing lower volume of ATM transactions in several countries over time including in Thailand.

**Internet/Mobile Banking**

Currently, payments or transfers of money via Internet and mobile phone have been extensively embraced in numerous countries. With remarkable growth in the Internet adoption and mobile phone penetration rate, Internet/Mobile banking is considered the most convenient payment methods. It supports online or E-commerce as well as offline purchase transactions (VISA, 2003). Though the purchases are made at the physical counters, consumers can still make payments or transfer money via Internet/Mobile banking using QR codes or other technologies. Thus, Internet/Mobile banking decreases cash holding by consumers, decreases transaction costs with each payment, stimulates consumption, provides opportunities for startups and SMEs, promotes financial inclusion, and stimulates economic growth. It is considered as a high security payment with a low transaction cost, making it suitable for small purchases or micro-payments. Merchants can record information about customers and purchase history data for making business strategies and marketing plan in the future (VISA, 2003).

**Debit Cards**

The Bank of Thailand Notification (2018) defines a debit card as "an electronic card issued by the service provider to its user for the payment of goods, services, or other payments in lieu of cash, or for withdrawing, debiting, transferring, or other transactions related to money in accordance with the value of money that user has deposited with the service provider". Similar to ATM cards, debit cards' users must establish accounts with the service providers with a required minimum balance. Debit cards work as hybrid instruments between ATM cards and credit cards which can be used to withdraw cash like ATM cards as well as purchase goods and services at POS without carrying cash like credit cards. Once the purchases are made, debit cards are swiped, money is deducted immediately and directly from the users' personal accounts (Selfira et al., 2019; VISA, 2003; Abrazhevich, 2001).

The advantages of using debit cards are convenience, low cost, and scalability. Consumers can present only an account number (without a physical card) to the sellers (Selfira et al., 2019; VISA, 2003) to purchase goods and services. Consumers and merchants are not required to create more infrastructure to support such transactions. The fees charged for consumers and merchants are lower than that of credit cards, resulting in a lower transaction cost and thus making debit cards more suitable for small purchase transactions (or micro payments) than credit cards. Scalability is the ability of payment system to handle additional users and merchants without degrading the performance of the system (Abrazhevich, 2001). When a new consumer establishes a new account, the system simply records the information and increases the number of accounts. Unlike a token-based system or E-Money, it needs systems to support a large database to track all tokens and transactions made (Abrazhevich, 2001).

**Credit Cards**

Credit cards allow consumers to purchase with credit. They allow consumers to borrow with an approved line of credit to purchase goods and services and obtain cash in advance with an agreement to payback later (Selfira et al., 2019). The amount of credit limit differs among credit cardholders depending on their creditworthiness. The transaction is rejected if the payment is beyond the credit limit. Once the transaction is made, consumers will receive a bill to pay later (usually within one month). If a consumer is unable to pay the total balance when due, the consumer is subjected to fees and interest charged by the credit card service provider (Selfira et al., 2019; VISA, 2003).

The major advantage of credit cards is also convenience. Purchasing is easy; consumers can swipe or insert physical cards at POS or provide the credit card numbers to merchants for online payments. There is no need for consumers to install new hardware or software using the payment cards (Abrazhevich, 2001). Credit cards allow consumers to purchase without having bank accounts and cash on hand. Consumers can also cash out from credit cards in advance. Credit cards' scalability and acceptability are high. The ability of the system to support more users is high; as a result, there is a large scale of consumers using credit cards. With a massive customer base, many merchants are willing to join the system and accept credit cards as an effective mean of payment (Abrazhevich, 2001). While using credit cards encourages consumers to spend more, increases consumption expenditure, and enhances economic growth, overspending or misuse of credit cards can result in over-indebtedness and harmful to the economy. Thus, regulations and education on using credit cards must be properly addressed.

Security and transaction costs are two major issues in previous studies. Initially, credit cards received less attention because of the security concern. However, with the development of security in payment system technologies, such as Secure Electronic Transaction (SET) used by Visa and Mastercard, credit card transactions become more secure from hackers and fraud (Abrazhevich, 2001). With SET protocol, the entire credit card number is not permitted to travel across the system, only part of the number is visualized by human. Furthermore, SET operates on the mutual authentication with a payment gateway and certified authority to authorize the card usage. As such, the authorization request is transmitted by the merchant to the acquirer when a payment is made (see Figure 1).

Then, the purchase instruction of the consumer is dispatched to the issuer and the acquirer to mutually verify all purchase information. With the secure payment procedure and mutual authentication, yet time consuming, using credit cards gain more attention and trust from consumers around the world. However, the transaction costs are high as merchants or consumers are exposed to fees charged per transaction (about

2%-3% of the value purchase). As such, credit cards are not suitable for consumers making small value purchases, small businesses (Selfira et al., 2019; VISA, 2003; Abrazhevich, 2001), or micro-payments (Koponen, 2006).

**E-Money**

Bank of Thailand (2008) defines E-Money as "an electronic card issued by the service provider for its user, whether it is specified the name or not. The user shall pay money in advance to the service provider in order to use such electronic money for the payment of goods, services, or other payments in lieu of cash and the value or amount of the prepaid money has been recorded". E-Money is a prepaid card which the amount of money is recorded and stored in an electronic instrument (i.e., electronic card) to pay for goods and services (Selfira et al., 2019). E-Money provides consumers more convenient to shop without holding cash with timely transactions through plastic cards or mobile phone.

Characteristics of E-Money are differed from debit and credit cards. Regarding the payment period, users of E-Money must pay or top up money with the service providers into cards before purchasing (prepaid). Debit cards' users pay at the time of the purchase, while credit cards' users pay later after the purchase with no record of funds in the cards ((Selfira et al., 2019). Regarding the authorization, users of E-Money have a full control over their funds. Payments via E-Money can be completed without the need to contact the central control system (Abrazhevich, 2001); however, the service providers must authorize the funds transferred when making payment transactions with debit and credit cards ((Selfira et al., 2019). Payments via E-Money can be performed offline, whereas payments via debit and credit cards must be completed online only (Selfira et al., 2019). Offline transaction means transaction that can be performed without being connected to the network and having the third party (issuer) as a mediator (Abrazhevich, 2001). Hence, funds can be transferred from consumers to merchants offline when making payments via E-Money where verification is attained at the POS or at the merchant level without online authorization from the issuer. However, making payments via debit and credit cards, online access to the issuer is obliged to obtain authorization from the issuer before money is debited from a consumer's account. Thus, credit and debit cards cannot be utilized if there are network problems (Selfira et al., 2019).

E-Money is a roadmap to less-cash and cashless society providing several advantages to consumers, merchants, and the economy comparing to traditional cash payment method. E-Money provides convenience to consumers as they can make purchases without holding cash and can make exact payment without receiving changes. Reduction in cash (paper or coin) holding can help lessen the risk of the COVID-19 infection. Payments via E-Money can be accomplished more efficiently, without central authorization process, and faster at lower costs than debit and credit cards. Therefore, E-Money is more suitable for micro payments than other payment cards (Abrazhevich, 2001). Besides, E-payments provide anonymity, referring to a transaction that the customer's identity is not revealed (Bezovski, 2016). Consumers' names and identity are not disclosed; thus, purchasing information is kept privacy. Table 1 summarizes the characteristics of each type of E-payments being explored in this study.

**Table 1** Characteristics of each type of E-payments

| Characteristics | ATM Cards | Internet/ Mobile Banking | Debit Cards | Credit Cards | E-Money |
|---|---|---|---|---|---|
| Acceptability | Yes | Yes | Yes | Yes | Yes |
| Authorization | Yes | No | Yes | Yes | No |
| Required bank account | Yes | Yes | Yes | No | No |
| Payment period | Cash withdrawn automatically at the time of<br>Transactions | Transactions | Purchase | Purchase before and pay later | Prepaid |
| Transaction record in the card/instrument | No | Yes | No | No | Yes |
| Transaction cost | High | Low | Low | High | Low |
| Suitable for micro-payments | Yes | Yes | Yes | No | Yes |

| Characteristics | ATM Cards | Internet/ Mobile Banking | Debit Cards | Credit Cards | E-Money |
|---|---|---|---|---|---|
| Additional hardware, software or application installation needed | No | Yes | No | No | Yes |
| Anonymity | No | No | No | No | Yes |

### 4.2. Trend of E-payments in Thailand

Total E-payment transactions in Thailand have grown remarkably over a decade, constituted a major part of payments, accounted for 91.19% of the total payment in 2020 compared to 76.88% in 2010. Total number of E-payment transactions in Thailand has been increasing tremendously, from 1,125.88 million transactions in 2010 to 13,339.765 million transactions in 2020, representing 1,085% growth in E-payment transactions (see Figure 2).

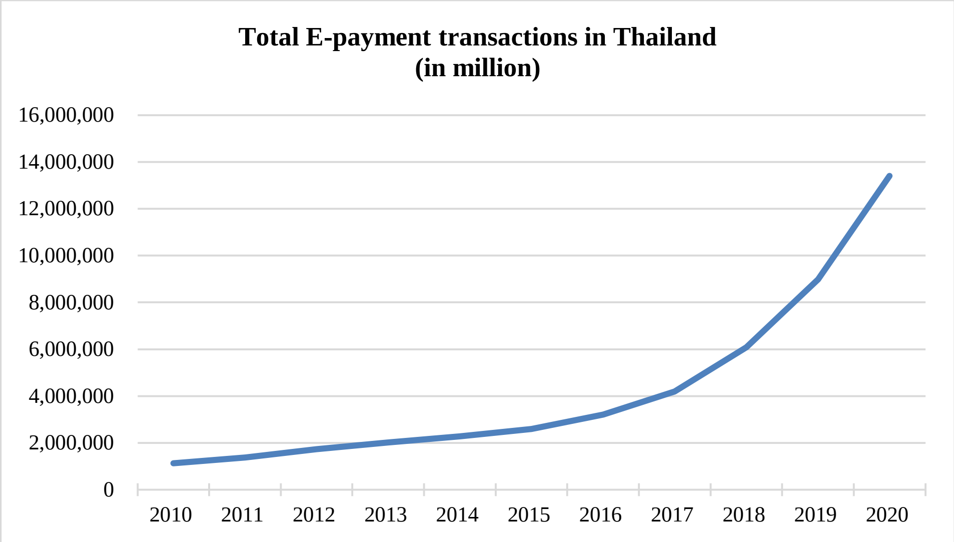


**Figure 2** Total E-payment transactions in Thailand (in million)

The total value of E-payments in Thailand also shows an upward trend, from171,948 billion baht in 2010 to 443,650 billion baht in 2020, demonstrating 158% increase over a decade (see Figure 3). The higher growth in the number of transactions than the growth in value may partly result from an increasing number of small purchases or micro payments due to the development of communication network and new technologies which help reducing transaction costs associated with each payment, making small purchases become possible, accessible, cheaper, and easier.

The significant increase of E-payment transactions in Thailand has commenced since 2016, partly resulted from the National E-payment Master Plan initiated by the Bank of Thailand attempting to create and integrate E-payment infrastructure to facilitate the transfer of funds for consumers, businesses, and government with the objective to develop infrastructure, E-tax system, E-social welfare, and financial inclusion, moving Thailand to the cashless society, with four projects including (1) PromptPay (Any ID payment), (2) Card Acceptance Expansion, (3) E-Tax, and (4) Government E-payment (National E-payment, 2016). PromptPay, initiated in 2016, has increased the number of E-payment transactions significantly, allowing consumers to transfer funds across banks or pay bills using their citizen identification (ID) number or mobile phone numbers instead of using traditional bank account numbers.

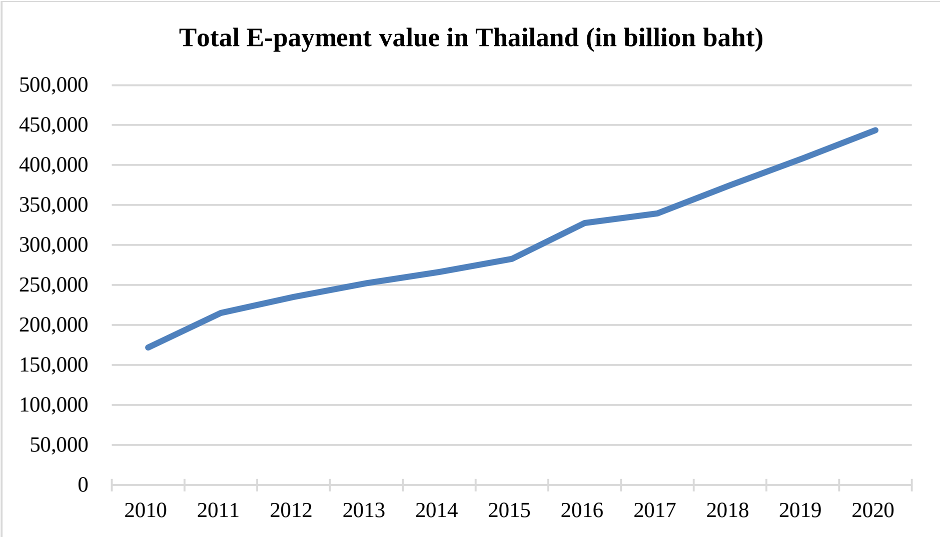


**Figure 3** Total E-payment value in Thailand (in billion baht)

PromptPay also connects to E-Tax and government E-payment as a channel to transfer tax refund and social welfare payments. In 2017, there were about 880.4 million transactions completed via PromptPay comparing to 1,037.6 million transactions in 2018, 2,567.9 million transactions in 2019, and 5,306.1 million transactions in 2020. The value of transfer of funds via PromptPay has also increased remarkably from 327.09 billion baht in 2017 to 20,806.54 billion baht in 2020 (BOT, 2021).

In 2020, with the COVID-19 pandemic, consumers' behavior and lifestyles have changed tremendously, turning themselves to shop online and make payments via mobile phones. Besides, government E-payments have been implemented since late 2020 to transfer funds and welfare to relieve the impacts of the COVID-19, such as Rao Chana (means we win), Kon La Krung (means co-pay), and RaoRukKun (means we love one another), where funds from relief package are transferred to G-wallet (named Paotang). Users must install mobile application, G-wallet, to receive funds transferred from the government and use funds via G-Wallet to make payments; therefore, the number of payment transactions and funds transferred via mobile phones has increased dramatically. A substantial increase in Mobile banking plays an important role to promote financial inclusion, driving Thailand towards less-cash society and cashless society in the future.

Figure 4 illustrates the number of E-payment transactions by different types of E-payments in Thailand; ATM card transactions have shown a downward trend since 2016. Debit card and credit card transactions have slightly increased during 2010-2020, while the payments through Internet/Mobile banking and E-Money have displayed significantly upward trends over a decade.

The number of ATM cards decreased from about 18.56 million cards in 2010 to about 10.69 million cards in 2020 (see Table 2). While the number of ATM payments decreased, the number of transactions made via Internet/Mobile banking remarkable increased (see Figure 4). The number of mobile phones subscriptions increased dramatically over a decade from 71.73 million subscribers in 2010 to 129.61 million subscribers in 2019. Mobile phone penetration rate increased significantly from 112.28% in 2010 to 194.73% in 2019 (see Table 3). As such, the number of E-payment transactions via Internet/Mobile banking substantially increased.

E-Money is another type of E-payments showing a significantly upward trend in Thailand. The value of E-Money increased from 18 billion baht in 2010 to 310 billion baht in 2020 (see Figure 5). The number of E-Money transactions also rose from about 221.46 thousand transactions in 2010 to 2,136.15 thousand transactions in 2020 (see Figure 4). In 2018, there were 30 E-Money service providers in Thailand including banks and non-banks such as PTT blue card, mPay, Airpay, Rabbit, rabbit Line Pay, Smart Purse, LAZADA Pay, K-plus, and True money wallet.

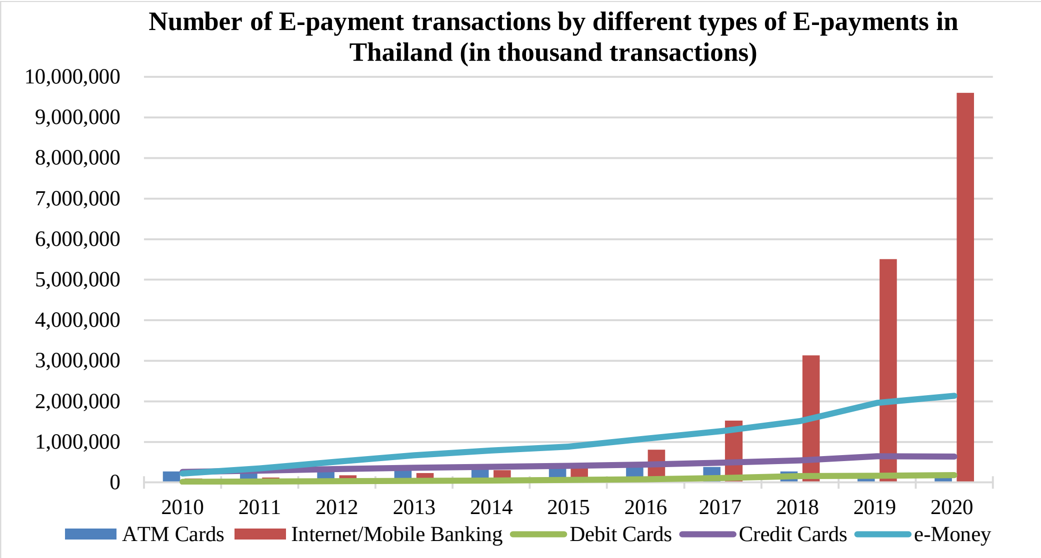


**Figure 4** Number of E-payment transactions by different types of E-payments in Thailand (in thousand transactions)

**Table 2** Number of E-payment users in Thailand

| Year | Number of Population (in million persons) | Number of ATMs (cards) | Number of Debit Cards (cards) | Number of Credit Cards (cards) | Number of Mobile Phone Subscribers (in million persons) |
|---|---|---|---|---|---|
| 2010 | 63.88 | 18,562,689 | 33,367,315 | 14,187,815 | 71.73 |
| 2011 | 64.08 | 16,201,587 | 37,363,365 | 15,328,291 | 77.45 |
| 2012 | 64.46 | 15,171,998 | 40,678,603 | 16,870,025 | 85.01 |
| 2013 | 64.79 | 14,699,210 | 42,343,959 | 18,548,754 | 92.94 |
| 2014 | 65.12 | 14,215,370 | 44,823,517 | 20,303,751 | 97.10 |
| 2015 | 65.73 | 13,397,755 | 46,989,719 | 18,974,195 | 102.94 |
| 2016 | 65.93 | 10,791,481 | 50,199,427 | 20,136,341 | 119.67 |
| 2017 | 66.19 | 8,758,043 | 54,329,727 | 20,334,780 | 121.53 |
| 2018 | 66.41 | 7,070,699 | 57,408,209 | 22,105,472 | 125.10 |
| 2019 | 66.56 | 15,318,234 | 64,772,849 | 23,998,653 | 129.61 |
| 2020 | 69.79 | 10,688,019 | 64,051,972 | 24,603,787 | n/a |

**Table 3** E-payment penetration rate in Thailand

| Year | ATM Penetration Rate (%) | Debit Card Penetration Rate (%) | Credit Card Penetration Rate (%) | Mobile Phone Penetration Rate (%) |
|---|---|---|---|---|
| 2010 | 29.06 | 52.23 | 22.21 | 112.28 |
| 2011 | 25.28 | 58.31 | 23.92 | 120.86 |
| 2012 | 23.54 | 63.11 | 26.17 | 131.88 |
| 2013 | 22.69 | 65.36 | 28.63 | 143.44 |
| 2014 | 21.83 | 68.83 | 31.18 | 149.10 |
| 2015 | 20.38 | 71.49 | 28.87 | 156.61 |
| 2016 | 16.37 | 76.14 | 30.54 | 181.51 |
| 2017 | 13.23 | 82.08 | 30.72 | 183.61 |
| 2018 | 10.65 | 86.45 | 33.29 | 188.37 |
| 2019 | 23.01 | 97.31 | 36.06 | 194.73 |
| 2020 | 15.31 | 91.78 | 35.25 | n/a |

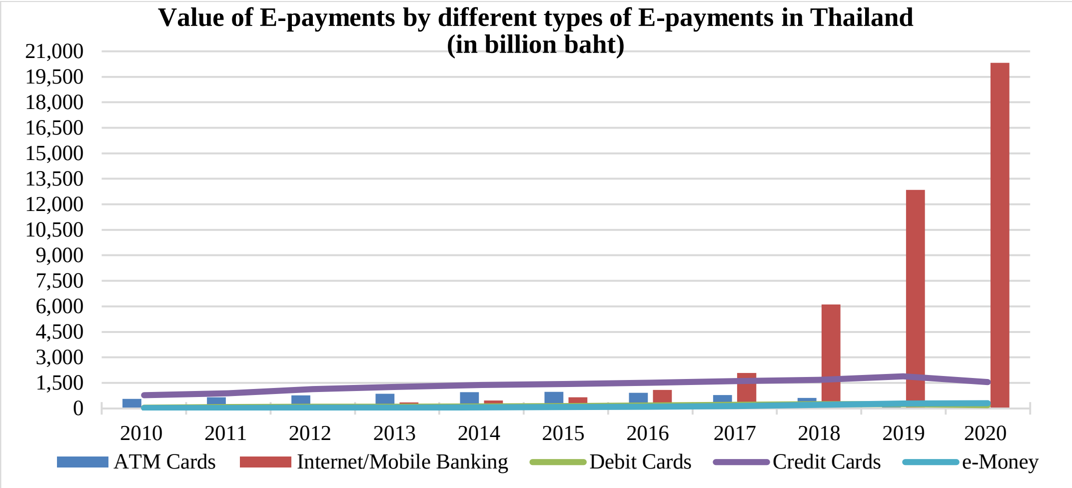


**Figure 5** Value of E-payments by different types of E-payments in Thailand (in billion baht)

During the COVID-19, people prefer contactless payments such as mobile banking or E-Money to cash payment to reduce the infection risk since funds can be transferred hygienically without physical contacts. Less-cash society also reduces congestion or queues at banks, resulting in faster transactions. It also lowers transaction costs to the Central Bank by reducing the cost of printing banknotes, coin production, and transportation as well as to commercial banks by reducing the costs of operating branches.

### 4.3 Relationship between E-payments with respect to Private Consumption Expenditure and Economic Growth

To examine relationships between the E-payments growth with respect to private consumption expenditure (PCE) growth and economic growth in Thailand, quarterly data during 2010-2020 were analyzed. Table 4 revealed the relationships between the growth of each type of E-payments with respect to PCE growth and RGDP growth in Thailand. The results from Pearson correlation indicated that the correlations between the growth of Internet/Mobile banking ($r = 0.481$, $p < 0.01$), credit cards ($r = 0.606$, $p < 0.01$), and E-Money ($r = 0.616$, $p < 0.01$) were positively and significantly correlated with PCE growth at 0.01 significance level. As the growth in value of Internet/Mobile banking, credit cards, and E-Money expands, PCE also grows. However, the correlations between the growth in value of ATM cards and debit cards were not significantly related to PCE growth.

**Table 4** Correlations between the growth of each type of E-payments with respect to private consumption expenditure growth and economic growth in Thailand

| | | ATM Cards | Internet/Mobile Banking | Debit Cards | Credit Cards | E-Money |
|---|---|---|---|---|---|---|
| **PCE** | Pearson Correlation | .170 | .481** | .041 | .606** | .616** |
| | Sig. (2-tailed) | .295 | .002 | .802 | .000 | .000 |
| | N | 40 | 40 | 40 | 40 | 40 |
| **RGDP** | Pearson Correlation | .385* | .351* | .124 | .758** | .561** |
| | Sig. (2-tailed) | .014 | .027 | .445 | .000 | .000 |
| | N | 40 | 40 | 40 | 40 | 40 |

**Correlation is significant at the 0.05 level (2-tailed).*
***Correlation is significant at the 0.01 level (2-tailed).*

Regarding the economic growth, the results indicated that the correlations between the growth of ATM cards ($r = 0.385$, $p < 0.05$), Internet/Mobile banking ($r = 0.351$, $p < 0.05$) with respect to RGDP growth were positively related at 0.05 significance level, while the correlations between credit cards ($r = 0.758$, $p <$

0.01), E-Money ($r = 0.561$, $p < 0.01$) with regard to RGDP growth were positively related at 0.01 significance level. Payments via ATM cards, Internet/Mobile banking, credit cards, and E-Money positively correlated to RGDP growth, implying that as payments via ATM cards, Internet/Mobile banking, credit cards, and E-Money increase, the economic growth in Thailand enhances. In addition, the strong relationship between the growth in value of credit cards and RGDP growth is discovered with a correlation coefficient of 0.758, indicating that the use of credit card payments can significantly stimulate private consumption expenditure, vice versa. However, the growth in value of debit cards was not significantly correlated to RGDP growth, suggesting that there was no significant relationship between the use of debit cards and economic growth in Thailand.

In addition, the present study examined the influence of E-payments growth on PCE growth and RGDP growth using regression analysis with Newey-West standard errors. Running time series data with a regression often exhibits problems of autocorrelation and heteroscedasticity in the model's error terms, using Newey-West regression technique can help overcome these problems. To test the effects of the E-payments growth on PCE growth and RGDP growth, the growth of total E-payments was calculated based on the percentage change year on year (%Δyoy). Due to the limited number of observations, separating each type of E-payments into five independent variables may not be appropriate. As the data were collected during the COVID-19 period, which may pose significant influences on PCE growth and economic growth, a dummy variable was added to incorporate the effect of the COVID-19 on PCE growth and RGDP growth. The following model was applied to test the effects of E-payments growth on private consumption expenditure growth.

$$C = b_0 + b_1 EPAYMENT + b_2 D$$

Where: C = The growth in private consumption expenditure (%Δyoy)
EPAYMENT = The growth in E-payments (%Δyoy)
D = The dummy variable (D = 0 in the period with no COVID-19
D = 1 in the period of COVID-19)

Table 5 shows the influence of the E-payments growth on private consumption expenditure in Thailand. The results indicated that the growth of E-payments significantly influenced PCE growth at 0.001 level ($b = 0.1275$, $t = 2.7183$, $p < 0.01$), owing to their convenience and lower transaction costs in trades. The 1% increase in E-payments growth resulted in approximately 0.13% increase in private consumption expenditure in Thailand. The dummy variable ($b = -0.0437$, $t = -11.8401$, $p < 0.01$), was negative and significant as expected revealing that the COVID-19 pandemic resulted in a significant decrease in PCE growth.

**Table 5** The effect of E-payments growth on private consumption expenditure growth in Thailand

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.011102 | 0.009163 | 1.211501 | 0.2334 |
| EPAYMENT | 0.127494 | 0.046902 | 2.718334 | 0.0099 |
| DUMMY | -0.043732 | 0.003694 | -11.84010 | 0.0000 |
| R-squared | 0.379700 | Mean dependent var | | 0.027000 |
| Adjusted R-squared | 0.346170 | S.D. dependent var | | 0.033832 |
| S.E. of regression | 0.027357 | Akaike info criterion | | -4.287679 |
| Sum. Squared resid | 0.027690 | Schwarz criterion | | -4.161013 |
| Log likelihood | 88.75358 | Hannan-Quinn criter | | -4.241881 |
| F-statistic | 11.32427 | Durbin-Watson stat | | 0.935913 |
| Prob (F-statistic) | 0.000146 | Wald F-statistic | | 76.80795 |
| Prob (Wald F-statistic) | 0.000000 | | | |

*Dependent Variable: CONSUMPTION*
*Method: Least Squares*
*Sample (adjusted): 5 44*
*Included observations: 40 after adjustments*
*HAC standard errors & covariance (Prewhitening with lags = 3 from AIC*
*maxlags = 3, Bartlett kernel, Newey-West fixed bandwidth = 4.0000*

In addition, the present study examined the effect of E-payments growth on RGDP growth using the following model.

$$Y = b_0 + b_1 EPAYMENT + b_2 D$$

Where: Y = The growth in real gross domestic product (%Δyoy)
EPAYMENT = The growth in E-payments (%Δyoy)
D = The dummy variable (D = 0 in the period with no COVID-19
D = 1 in the period of COVID-19)

Table 6 displays the significant influence of E-payments growth on RGDP growth in Thailand. The results revealed that the growth in E-payments positively and significantly associated with the growth in the Thai economy ($b = 0.1178$, $t = 2.2072$, $p < 0.05$). A 1% increase in E-payments resulted in approximately 0.12% increase in RGDP in Thailand. The dummy variable ($b = -0.0938$, $t = -19.4863$, $p < 0.01$) was significant and negative as expected implying that the COVID-19 pandemic significant decreased RGDP growth.

**Table 6** The effect of E-payments growth on real gross domestic product growth in Thailand

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 0.012898 | 0.011521 | 1.119565 | 0.2701 |
| EPAYMENT | 0.117816 | 0.053377 | 2.207231 | 0.0336 |
| DUMMY | -0.093811 | 0.004814 | -19.48629 | 0.0000 |
| R-squared | 0.639787 | Mean dependent var | | 0.022250 |
| Adjusted R-squared | 0.620316 | S.D. dependent var | | 0.039710 |
| S.E. of regression | 0.024469 | Akaike info criterion | | -4.510820 |
| Sum. Squared resid | 0.022152 | Schwarz criterion | | -4.384154 |
| Log likelihood | 93.21640 | Hannan-Quinn criter | | -4.465022 |
| F-statistic | 32.85845 | Durbin-Watson stat | | 1.378955 |
| Prob (F-statistic) | 0.000000 | Wald F-statistic | | 227.1175 |
| Prob (Wald F-statistic) | 0.000000 | | | |

*Dependent Variable: GDP*
*Method: Least Squares*
*Sample (adjusted): 5 44*
*Included observations: 40 after adjustments*
*HAC standard errors & covariance (Prewhitening with lags = 3 from AIC maxlags = 3, Bartlett kernel, Newey-West fixed bandwidth = 4.0000*

In summary, the results of correlation and Newey-West regression confirmed the positive and significant impacts of E-payments growth on PCE growth and RGDP growth in Thailand. A 1% growth in E-payments results in 0.13% growth in PCE and 0.12% growth in RGDP.

## 5. Discussions and Conclusions

The present paper explores the characteristics of various types of E-payments (i.e., ATM cards, Internet/Mobile banking, debit cards, credit cards, and E-Money), trends, and their relationships with private consumption expenditure (PCE) growth and economic growth (RGDP) in Thailand. Various types of E-payments have different attributes and benefits. First, ATM cards are not as convenient as other modes of E-payments, resulting in a lower number of ATM cards and transactions as well as the value of funds transferred in Thailand since 2010. Correlation also showed no relationship between ATM cards and PCE growth.

Second, Internet/Mobile banking is the most popular E-payment method in Thailand since 2017. With ICTs and National E-payment Master Plan, Thai consumers are urged or compelled to use mobile phones as a channel to receive benefits. These factors constitute an upward trend of using Internet/Mobile banking in Thailand over time, with about 195% mobile phone penetration rate in 2019 (see Table 3). Internet/Mobile banking has positive correlations with PCE growth and RGDP growth, indicating that more payments via Internet/Mobile banking stimulate higher private consumption and economic growth in Thailand.

Third, the use of debit cards in Thailand has been stable over a decade; however, with the ICT development, Thai consumers prefer using Internet/Mobile banking to debit cards. However, the result shows no relationship between the growth in value of debit cards with respect to private consumption growth and economic growth in Thailand.

Fourth, with borrowing characteristics, credit cards stimulate households' consumption and economic growth. The positive relationship between credit cards and private consumption is stipulated, suggesting that higher use of credit cards promotes private consumption expenditure. The strong and positive relationship between credit cards and RGDP growth also implies that higher use of credit cards accelerates the economic growth in Thailand.

Fifth, the number of transactions and values of payment via E-Money and Internet/Mobile banking in Thailand have shown an upward trend resulted from an increase in the number of E-Money service providers and changes in consumers' lifestyles. To avoid the COVID-19 infection, consumers use more E-payments such as E-Money and Internet/Mobile banking. Thus, E-Money indicates the positive and significant relationship with private consumption growth and economic growth in Thailand.

Finally, the positive impacts of E-payments on private consumption expenditure and RGDP confirm that E-payments reduce friction in economic activities, decrease transaction cost, and enhance economic activities and trades.

The accelerate growth in the use of E-payments under the COVID-19 pandemic has driven Thailand to move faster towards less-cash and cashless society. Contactless payments such as Internet/Mobile banking and E-Money have paved the ways people transfer funds and make payments in the future. According to VISA Consumer Payment Attitudes Study 2020, National E-payment Master Plan and changes in consumers' lifestyles may prompt Thailand to become cashless society before the projection of 2030 (The Nation Thailand, 2021).

## 6. Limitations and Suggestions for Future Research

Due to the limitation in the number of observations, the regression analysis on each type of E-payments (i.e. ATM cards, Internet/Mobile banking, credit cards, debit cards, and E-Money) in regard to PCE and RGDP may not be highly appropriate. The present paper explored only the relationships between the growth of overall E-payments (in aggregate value) with respect to growth in PCE and RGDP using Newey-West regression method. Future research may incorporate more data and establish model to investigate and compare the influences of each type of E-payments on economic activities. In addition, current studies of E-payments in several countries particularly in emerging economies are still limited. Future research may extend the study in other emerging countries to discover whether the trends and effects of E-payments are evident across nations.

The present study hypothesized that E-payments enhance private consumption and economic growth. However, the relationships between E-payments and economic growth can be in different ways: E-payments may lead to the economic growth, or the economic growth may lead to more usage of E-payments, or both. Future research may investigate this issue by developing models to empirically test the causation from E-payments to the economic growth. Moreover, most of the current studies have emphasized the positive influences of E-payments. Future research may investigate the negative influences of E-payments on economy, for example, since E-payments allow customers to assess all funds available and line of credit (i.e. credit card), it may result in a significant increase in consumer debts and household debts. Current consumption may increase at the expenses of future consumption, resulting in lower consumption and economic growth in the future. Future research may examine this issue to raise concern and suggest appropriate policies to enhance the usage of E-payments.

The securities of using E-payments are another concern. To enhance the use of E-payments, technological development in terms of infrastructure and software must be available to increase the trust of users. Future research may investigate how technology can help increase securities, how securities can enhance trust and consumptions, and how regulations and policies should be implemented to increase securities of the E-payment systems. The effects of E-payments on money supply can be further explored. E-payments may influence velocity of money and the amount of money supply circulated in the economy. Future research may examine these issues to investigate how E-payments influences money supply and the implementation of the Central Bank's monetary policies. Finally, with the COVID-19 pandemic, consumers' lifestyles and behavior change enormously. This could have significant impacts on the use of E-payments and economic activities. Future research may investigate the change in E-payments behavior under the COVID-19 and predict the trends of E-payments after the COVID-19.

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# An Ideological Multifunctional Baby Naptime Device for Safe and Eco-friendly Modern Living

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## Abstract

Studies have shown that many baby devices contain toxic chemicals that are harmful to the environment and can cause infant death. This research aims to propose a multi-functional, eco-friendly product with an auspicious theme following Malaysian parents' ideology. Literature was reviewed; parents' views on newborns and the negative impact of baby devices with toxic ingredients on the babies and the environment were collected and investigated.

The results of the survey found that Malaysian parents have a high degree of safety awareness, design preferences, and requirements on the functions and materials used in baby devices. A multi-functional baby resting device was made with a corrugated board with a rotated "C" shape and an outer contour of a dove. It was designed with changeable accessories, which easily convert the rocking configuration to non-rocking. This baby device promotes the concept of safety, non-toxicity, lightness and ease of reassembly, ease of movement, and improved ventilation through the flutes of the eco-friendly material furnished with a customized dove design that symbolizes longevity, peace, maternity, harmony, and maternal love.

***Keywords:*** *Baby Device; Baby Box; Ideology; Eco-Friendly Materials; Corrugated Board.*

## 1. Introduction

Bassinets, baby rockers, baby bouncers, and strollers are various baby resting devices commonly seen in Malaysia. Baby devices have evolved with varying levels of complexity and diversity. Multi-functional baby chairs with music and toy accessories are now available with varying prices and qualities. Most of these devices are made of metal pipes or hard polymer plastics that might contain hidden dangers to babies and toxic materials that damage the environment. Unsafe design and structures are also valid concerns when it comes to product-related hazards in commercial baby bouncer seats (Federal Register, 2017). Parents are committed to looking for good baby products that can help them to take care of their babies. Without understanding the quality of a baby product, young parents may choose unsustainable products that cannot be recycled and may harm their baby.

The main objective of this research is to integrate non-toxic substances and biodegradable materials to create a baby device with a favorable shape and structure according to the ideologies of Malaysian parents, thus providing them with an easily disassembled and assembled, durable, multi-functional, eco-friendly product that can comfortably and securely support a baby up to twelve months of age. At the same time, it can also help to improve awareness of environmental issues, reduce landfill problems, and allow the recycling of baby devices that are not in use.

### 1.1 Demographic Statistics for Newborn Babies, Malaysia

According to Malaysia's demographic report (www.dosm.gov.my), there were only 124,240 live births at the end of 2019 (Mahidin, 2019). However, the birth rate of newborns in Malaysia has been decreasing at a rate of about 1.46% per year for the past 10 years.

The term "ideology" was coined by Count Destutt de Tracy (1754-1836) (Georges Cabanis, 2010). The French philosopher Loius Althusser (1918-1990) once stated that ideology permeates every corner of life, thus involving every single person. Malays, also known as Bumiputera (which includes aboriginal people such as the Orang Asli, Dayaks, Kadazan, and such), make up the largest percentage of Malaysia's population with 69.3%. Ethnic Chinese citizens make up a total of 22.8%, while Indians make up 6.9% (Mahidin, 2020). Malaysia practices freedom of religious belief. The Islamic faith has the most believers, with 63.7% of the population, followed by Buddhism with 17.7% and Hinduism at 6%. About 12.6% of the population engages in Christianity or other religions (Countrymeters, 2019). Islam is defined as the official religion in Malaysia; all Malays must be Muslims (Religion in malaysia, 2015). Their lifestyle, behavior, and educational methods are all based on Islam as a lifelong faith since their birth. On the other hand, Malaysian Chinese and Indians are still influenced by their chosen religion when it comes to traditional rituals and/or certain attitudes towards life.

a) Malay ideology regarding newborns

The Qur'an clearly states that all life is sacred. Once a mother conceives, the child has the right to life (Stacey, 2017). Muslims believe that babies are a gift from God and the birth of a baby will bring blessings and livelihood to the family (Tanuri, 2018). Muslim parents believe that they are responsible for their child's moral and religious upbringing. Parents who fulfill their responsibility are said to be free from adverse consequences on the Day of Judgment (Al-Uthaymeen, n. d.).

b) Chinese ideology regarding newborns

In traditional Chinese culture, not having children is considered unfilial. Giving birth to children is a type of filial piety, borne out of one's responsibility in continuing the family bloodline (Custer, 2019). When a Chinese wife is pregnant or "YouXi" (transliterated as "has happiness"), both she and the child will receive care from the whole family. Pregnancies are often surrounded by many superstitions such as disallowing house renovations and saying words that are considered taboo or offensive to gods. Otherwise, bad consequences will befall both mother and child (Yeo, 2013). At present, Chinese people still adhere to and abide by these traditional concepts, gradually contributing to the ideology of Chinese people during the pregnancy period.

c) Indian ideology regarding newborns

Hindus believe that having children and becoming a parent is a lifetime obligation for Indian couples soon after marriage (BBC, 2009). Children are very precious in Hinduism (IOL, 2001). The arrival of newborns is a happy event and cause for a joyful celebration (Soundararajan, 2018). Traditional celebrations and rituals are often carried out before and after the baby is born to bless the newborn baby, thus becoming part of the modern Indian ideology regarding newborns.

**1.2 Baby Sleeping Devices**

In the first six months, babies generally need fourteen to eighteen hours of sleep per day. They require rest or sleep every two hours (Lack, 2018). As they grow older, they will sleep less during the day, and more during the night (Raisingchildren.net.au, 2019). Today, there are two categories of baby sleeping/resting devices. The first aims to provide a nighttime bed for the baby, such as a baby bassinet. The second aims for the baby to rest and play during the day, such as baby bouncers and baby rockers.

a) Baby bouncer/bouncer seat

Baby bouncers are popular products used to support babies in a seated position. The design consists of a metal or hard plastic tube bent in the shape of an inverted "U" to achieve a spring system. When a baby sits in the bouncer, their weight can be used to initiate up and down movements. The seating pads are made of cotton fabric for comfort or mesh fabrics for better ventilation. They are ergonomic and designed to support and protect the baby's spine, neck, and head (Jenkins, 2019).

Compared to ordinary cribs, baby bouncers are relatively simple in configuration and convenient for easy carrying, thus making them a popular choice for baby's play and naptime amongst ordinary families. Some baby bouncers even come with music devices, and toys to entertain and lull the baby to sleep.

b) Baby rocker

Manufacturers sometimes combine the concepts of bouncers and rockers to meet the demands of different markets. Instead of a base that is flat or parallel to the ground, a parallel elongated curved rocking base is attached, allowing the device to swing back and forth, thus providing two functions in one device. It can soothe crying babies by swaying in the upright configuration or rocking back to forth. It also can provide stable support during feeding time. The rocker's base comes with adjustable "stopper" supports to be converted into a flat or upright position by flipping over the foldable supports on the lower base.

c) Baby box

During World War 2 from 1939 to 1944, poor families in Finland did not have a proper place for babies to sleep and could not afford proper and appropriate healthcare for their children. As a result, 6.5% of newborn babies died within the first twelve months of their lives (Kit, 2018).

To reduce the infant mortality rate, the Finnish government provided maternity benefits, including the provision of cash grants or "baby boxes". The boxes contained quality baby care products and could then be converted into a sleeping device for the child. The Finnish government continued to provide baby boxes after the war ended and actively encouraged pregnant women to undergo health checks. Currently, Finland has the world's lowest maternal and child mortality rate since 1949 (JamesBBox, 2017). The concept of Finnish baby boxes has been emulated and implemented in many countries, such as Scotland, the United States of America, Great Britain, Canada, India, and South African governments (Matchar, 2017). About 3,500 babies die from sudden infant death syndrome (SIDS) in the USA each year without a certifiable cause (Norton, 2016). The USA has started to actively promote its baby box campaign to reduce the number of infant deaths.

1.2.1 Present Circumstance on Baby Devices

The probability of infant fatality due to unsafe baby devices is higher than other causes, such as improper care under nannies or childcare providers (Liaw, Moon, Han, & Colvin, 2019). Baby rockers and bouncers are designed to ensure that the baby is in a semi-recumbent position when sitting inside; it is liable to be harmful if not used properly. Studies have shown that baby devices, especially baby bouncers, have caused numerous infant deaths (Batra, Midgett, & Moon, 2015).

a) Exceeding the weight limit

Ordinary economical baby bouncers and rockers can only bear a maximum of 9 - 13 kg (Figure 1). Parents should adhere to the weight limit when using the products (Consumer Reports, 2008). Healthy babies can reach 8 - 10 kg by eight months of age (American Academy of Pediatrics, 2009). As such, ordinary baby bouncers and baby rockers are not suitable for infants older than nine months. According to the ASTM (International/American Society for Testing and Materials) F2167-17, ordinary baby bouncers are only suitable for infants who have not been able to sit up properly, which usually happens around the six-month mark (Federal Register, 2017). Continuous usage may cause one end of the bouncers or rockers to tilt towards the ground, lowering the baby's head; it may cause abnormal blood circulation, thus causing breathing difficulties and pose as a hazard for suffocation.

b) Soft cushions can cause baby positional plagiocephaly

Most sit-in bouncers and baby rockers are made of fabric that will soften after prolonged use. This can cause the baby to sink into the seat with a wrong posture, where the baby's chin is tucked too close to the chest, thus creating breathing problems. To avoid SIDS, many healthcare professionals advised parents to ensure their babies sleep on their backs.

A seat that can conform to a baby's spine, providing safe and comfortable support should be given precedence to help the baby grow up safely (Sehat, & Nirmal 2017). The baby's sleep setting should not be too soft, nor have loose bedclothes or soft pillows as these may cause SIDS (Norton, 2016). Sleeping or resting in baby bouncers or baby rockers for too long can cause positional plagiocephaly, or flattened head syndrome (Jenkins, 2019).


**Figure 1** Maximum weight allowable for ordinary bouncer and rocker

1.2.2 Materials Used on Baby device

In addition to the structure of baby devices that may cause harm to babies, the materials used are also an issue as it is one of the causes of infant death.

a) Toxic flame retardants materials

To increase heat resistance and durability, toxic flame retardants are added during the production of baby necessities, devices, and toys (Toxic-Free Future, 2012). This includes baby bouncers (Winnebeck, 2013). Accidental inhalation of toxic flame retardants may damage the liver, brain, and reproductive organs. These materials are also carcinogenic, which increases the risk of cancer.

b) Toxic substances in the plastic and color coating

The colorful coating applied to devices (Figure 2) for aesthetic purposes may carry toxic substances. Phthalates, commonly found in plastics, can disrupt the endocrine system if inhaled or eaten. As children love to mouth and bite items, this poses a risk to the baby (Winnebeck, 2013).

**Figure 2** Color coated metal pipes for baby rockers

c) Negative impacts of plastic on the environment

Plastics are economical and easy to fabricate. They are widely used in various products and production lines (Sojobi, Nwobodo, & Aladegboye, 2016). In 2015, 63 million tons of plastic waste were produced. However, only 9% of the plastic waste was recycled, which means that 49.77 million tons of plastic waste still accumulated in landfills that same year (Geyer, Jambeck, & Law, 2017) and it will take at least 500 years to degrade. Moreover, plastics thrown into the ocean kill around 100,000 marine lives annually, whether by accidental ingestion or suffocation (D'Alessandro, 2014).

Currently, most commercial baby products are made of polymer plastics. In the article '10 best baby bouncers in 2020' according to reviews by 10,852 users (MSN, 2020), 30% of the baby bouncers have main brackets made of plastics. In the remaining 70%, the caps of the bracket connectors, the music and swinging controller casing, the seat belt buckle, toys, and entertainment accessories were also made out of plastic (Figure 3). If not processed and recycled properly after use, these products will definitely cause landfill problems for our environment.

d) Alternatives for baby devices - baby box

Finnish baby boxes, made of corrugated board, are used by many countries as resting and sleeping devices for babies. However, no studies have confirmed that baby boxes help prevent infant deaths or are 100% harmless to newborns. Professor Peter Blair from the University of Bristol, UK, mentioned that the baby box can only be used as a temporary substitute and is not a safe sleeping space for infants (Willets, 2017), so parents need to be extra careful when using it.

The Finnish baby boxes are usually around 70 cm (length) x 42.8 cm (width) x 27 cm (height), the size may not be big enough for babies older than three months. The excess cardboard surface prevents good air circulation, creating a stuffy atmosphere for the baby. In fact, there is no proof that it is solid enough to support babies after three months of age (Therrien, 2018).


(a) (b) (c)

**Figure 3** Samples of plastic components on baby bouncers
Reprinted from the following weblinks respectively
(a) https://www.v2mshop.com/?product_id=54099634_62,
(b) https://www.pinterest.com/pin/daily-sweepstakes--816981188652777748/,
(c) https://www.amazon.com/Baby-Trend-EZ-Bouncer-Bluebell/dp/B07C9ZR2VC?th=1

### 1.3 Exploring Materials for Baby Usage

As climate change concerns increase, many companies have started to focus on green features and environmental issues to remain competitive in the market (Omar, Osman, Alam, & Sanusi, 2015). Green features can be implemented via green operational methods by producing green products with non-toxic, biodegradable materials in many baby products.

a) Biodegradable materials

Studies have shown that corrugated cardboard is biodegradable and completely recyclable (Davis, 2017). Fast-growing pine trees are the main material used in the production of corrugated cardboard (How Products Are Made, 2019). Corrugated cardboard has also been introduced to the food and beverage (F&B) industry as a solution to non-degradable fast-food packaging (Liew & Siek, 2019). Re-board is another biodegradable and recyclable material. The inner core of the re-board is made of 100% recycled paper, making it safe for both humans and the environment. Since the two materials mentioned are non-toxic, biodegradable, and recyclable (Davis, 2017; Oriam green, 2019), they are suitable for use in baby products.

b) Vary in the maximum weight

If multiply layers of corrugated cardboard are glued together, it can be very durable and bear a heavyweight (Natter, 2019). Similarly, multiple layers of re-board can become strong enough to support a heavy-duty automobile. Today, these materials have been used to make furniture, as they are eco-friendly and resistant to pressure.

1.3.1 Corrugated Board

Corrugated boards are widely used for carton boxes to deliver foodstuffs and war materials since World War II (Nordstrand, 2003). It is also applied to furniture, such as a chair for children and babies. The world's first mass-produced corrugated cardboard seat was the "Spotty Children Chair" (Figure 4) designed by British designer Peter Murdoch (1792~1873) in 1963. It is non-toxic, waterproof, and chemical-resistant. In 2010, the German architect, Manuel Kretzer, designed and developed "Chick "n" Egg Chair," which was initially designed for kids (Figure 5) (Kretzer, 2011). Lately, the "Rip + Tatter child's chair" (2011) (Figure 6) was designed by New York designer Pete Oyler using a series of corrugated paper chairs for the age of 2 to 5. It is claimed that the product is resistant to baby drool. The material has a history of being applied chairs for almost 60 years and presently these chairs are still selling in the market. A corrugated board has a great application value as it is convenient for printing and is possible to be formed into different shapes and sizes (Packaging Innovation, 2020).

**Figure 4** Spotty Children Chair
Reprinted from: https://www.wright20.com/auctions/2006/10/modern-contemporary-design/492

**Figure 5** Chick "n" Egg Chair
Reprinted from: https://www.homedit.com/cardboard-furniture/

**Figure 6** Rip+Tatter child's chair
Reprinted from: https://afilii.com/en/rip-tatter-chair-for-children-by-pete-oyler/

a) Anti-bump effect

A corrugated board is made of arched craft papers sandwiched between two flat facings (liners) with flutes in the middle. This structure has an anti-bump effect that can reduce the effect of external forces and effectively absorb impact, helping the contents to resist damages from accidental impact or falls (Heritae Paper, 2017).

b) Flutes in the structure of the corrugated board

Corrugated board panels are made up of wavy cardboard flutes sandwiched between two flat facings (liners), and are categorized according to their flutes. The flutes also act like cotton or sponges, enabling the box to maintain a cool temperature while creating a ventilation effect. Larger flutes confer greater strength and cushioning ability to the cardboard. Different flutes can be combined to meet specific needs. In general, the corrugated board offers good compressive and pile-up strength. The "C Flute" corrugated board is the most popular option, taking up 80% of the market (Cross, 2017).

1.3.2 Re-Board

Re-board has high durability and moisture resistance. It usually has a thickness of 10 - 16 mm and is available in different colors. The flutes of re-board are structured in a vertical format and are more intensive compared to ordinary corrugated cardboard. It is also relatively lighter, thus reducing the carbon footprint required for logistics (Oriam green, 2019). Due to its advantages and eco-friendly properties, it has gradually replaced some traditional materials, such as plywood in industrial productions and exhibition construction, and is also widely used to make children's furniture.

### 1.4 Exploration of Dove Imagery in Ideology

In many myths and folklore, birds are said to have extraordinary power and have been described as Godly mounts, spiritual animals beside the Gods, or even the embodiment of Gods. Therefore, birds are often used to symbolize the soul and spirit of human beings; they represent thoughts and have lofty spiri2ts and thoughts (Huffman, 2016). The white dove has been a symbol of peace for hundreds of years. It is often depicted alongside words of love, devotion, and peace in current imagery (Patane, 2018).

Doves mate for life, making them a symbol of longevity and loyalty in Chinese societies. Chinese people respect the dove for its devotion to its offspring and regard it as a symbol of fertility as well (Chinasage, 2018). According to Chinese Fengshui, a dove totem can change the “qi” to increase peacefulness and harmony in one place (King, 2019). In Hindu mythology, Parvati the goddess of love protects marriage and fertility in a family (Choate, 2014). It is said that Parvati had a happy marriage with her husband, Shiva, in a cave called Amarnath, whilst in form of doves called Kapoteshvara and Kapoteshvari (ENVIS Resource Partner On Avian Ecology, 2015). Dove totems also often appear in Native American, Slavic, Celtic, and Japanese mythology and folklore (Bartlett, 2019). They are rooted in different cultures and clans. Most people believe that doves symbolize longevity, peace, maternity, harmony, and maternal love.

## 2. Objectives

There are three objectives in this study:

1) To identify the needs of parents’ requirements for a baby device

2) To design a baby device for parents that can securely support a baby up to twelve months of age

3) To create a recyclable baby device that also helps parents to improve awareness of environmental issues

## 3. Materials and Methods

Literature reviews and studies show that baby bouncers and baby rockers generally contain toxic flame retardants and toxic color coatings that may cause pollution or harm babies. The researchers herein decided to use questionnaires from previous related studies as a reference for the requirements of the questionnaire design; the questionnaire was only released to respondents after pilot tests were conducted with professional experts. The researchers also planned to use an experimental research method to ascertain the most suitable material for a baby resting device.

### 3.1 Questionnaire Design

Questionnaire surveys (United States Census, 2019) were used to explore Malaysian working parents’ perceptions regarding the functions, features, and materials used in baby devices. The first section of each group of questions investigated the parents' safety awareness and knowledge. The second section was aimed at understanding the parents' requirements for the functions and features. The third section was aimed at gaining an understanding of parents' requirements on material safety, as well as structure and shape preferences that are auspicious and harmonious for the baby (Table 1).

**Table 1** Questionnaire design

| Part | Category | Group | Section |
|---|---|---|---|
| 1 | Classification Question | Personal Information | Basic data |
| | | | Experience in using a Baby device |
| 2 | Likert Scale Question | Baby Bouncer Baby Rocker | Safety knowledge and cognition |
| | | | Function and feature |
| | | Baby Box Baby Device | Safety knowledge and cognition |
| | | | Function and feature |
| | | | Material used |
| 3 | Personal Preference | Design Suggestion | Structure and shape |

3.1.1 Research Measuring Instrument

Research has shown that the five-point Likert scale enables a data collection rate to parallel in-person responses to a statement or proposition (Cherry, 2018; Vinney, 2019; Sauro, 2019). A partial correlation analysis method was used to analyze the collected data because this method describes the correlation between two variables under the influence of one or several additional variables (SAS, 2018); making it possible to combine two approximate variables into one.

The online survey and data collection tool – Formplus (www.formpl.us) was used to measure knowledge, user experience, requirements, and opinions. The researchers made each question required using the "make the field required" function to ensure that all questions were answered and each questionnaire complied with the requirements.

3.1.2 Pilot Test and Reliability

Expert sampling methods were conducted by seven professional experts with at least 10 years of working experience in relevant design fields, who were also parents (Table 2). The pilot test had a 100% attendance rate. Three experts E1, E2, and E4 suggested a reduction in the number of questions to minimize the time required to complete the questionnaire; all experts agreed that the content and questions were in line with the research objectives.

**Table 2** Experts' biodata

| Sequence | Experts | Education | Working Experience | Profession |
|---|---|---|---|---|
| E1 | Ms. N | PhD | 10 years | Industrial Designer |
| E2 | Ms. H | Master | 18 years | Fine Art Artist |
| E3 | Mr. N | Degree | 15 years | Fine Art Artist & Sculptor |
| E4 | Mr. A | Master | 18 years | Architect |
| E5 | Mr. Lu | Master | 20 years | Industrial Designer |
| E6 | Mr. I | Master | 23 years | Industrial Designer |
| E7 | Mr. L | Master | 10 years | Applied Science Architect |

3.1.3 Selection of Respondents for Questionnaire

Purposive sampling in the intercept recruiting method was applied to select potential respondents from corporate groups, local societal hubs, etc., where respondents had similar backgrounds and experiences to share (Workbook E: Conducting In-depth Interviews, 2015).

For the primary group of respondents that were conducted through a face-to-face questionnaire survey, the researcher targeted Malaysians living in Klang Valley, a big area with a high-density population encompassing Selangor and the national capital city of Malaysia – Kuala Lumpur.

The researchers also adopted a snowballing technique to obtain more data from respondents at different locations and to complete the questionnaire survey within the specified time because this method can easily collect a large sample size if applied several times (Albuam, 1993).

### 3.2 Repeated Measurements on Different Thicknesses of Boards

The repeated measurements method from the experimental research design where all subjects will receive the same method of tests (Ross, & Morrison, 2004) was applied to "manipulate and control" and to observe the causal processes and effectiveness of the experimental results for this study. "C Flute" corrugated board and re-board brown were used as the main experimental subjects for this research study (Table 3) or "liners" that were made of brown color craft papers.

a) Sustainable weight and durability of corrugated board vs re-board

Two prototypes were placed separately on a scale (Figure 7) to compare the total carrying weight. In this experiment, the re-board proved to be approximately 60 g heavier than the corrugated board.

b) Weight-bearing capacity and durability

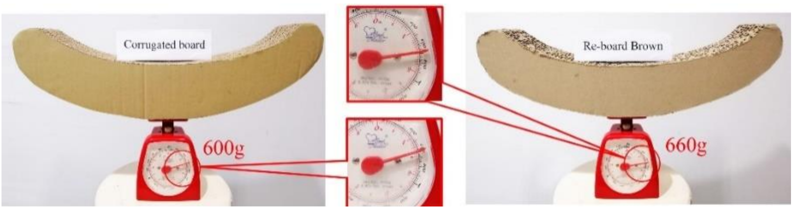
A 12 kg and 16 kg dumbbell were placed on the two prototypes and then rocked continuously for one minute to test the weight-bearing capacity and durability of the two materials. The observation result shows that the corrugated board had a significantly slighter slant compared to the re-board, please refer to the red arrows pointed in figure 8.

c) Ventilation capability

A hairdryer was used to test the ventilation of the two prototypes. A piece of paper was stuck on the top side of the prototype and the hairdryer was aimed at the flutes of the two prototypes at the same power. After three attempts, it was determined that the corrugated cardboard with wavy flutes had better ventilation compared to the re-board with vertical flutes as the slender paper strip floated higher (Figure 9). Re-board is heavier and more durable compared to corrugated board, but its ventilation effect is not as good. Hence, the researchers decided to use corrugated cardboard as the main material for this research study.

**Table 3** Experiments on materials

| No. | Materials | mm | Experiments |
|---|---|---|---|
| 1 | "C Flute" Corrugated board | 5 | ▪ Strength and supporting capabilities<br>▪ Ventilation capability<br>▪ Total weight for carrying |
| 2 | Re-board Brown | 10 | |




(a) (b)

**Figure 7** A test for comparison of total sustainable weight: (a) is corrugated board weighted 600g, (b) is Re-board brown weighted 660g

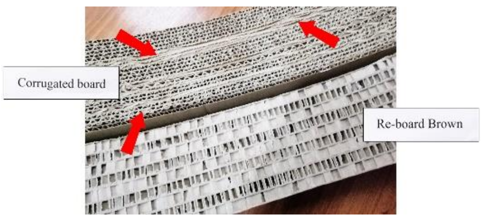



**Figure 8** Weight-bearing capacity and durability of materials.


(a) (b)

**Figure 9** A hairdryer was used to test for comparison of ventilation capability,
(a) corrugated with wavy flutes managed to lift the paper to approximate 70 degrees,
(b) re-board with vertical flutes only managed to lift to approximate to 5 degrees.

## 4. Results

The researchers collected a total of 252 sets of valid questionnaires in the 14 days after the pilot was tested. Data were recorded in the online production system with statistical and detailed analysis. It was classified into six sections: basic data, safety knowledge and cognition, function and feature, the material used, and personal preferences on design.

Out of the 252 sets of data, 214 were parents with one (42.9%) to two children (42.1%). Only 38 (15%) of them had three or more children (Table 4). It showed that the average number of children for Malaysians is 1 - 2. According to the respondents, 103 (40.7%) of them had two baby resting devices at home. There were 91 respondents (36.1%) who reported having only one baby resting device at home, while only 58 (23.3%) had three or more such devices at home (Table 5). Regarding safety knowledge, more than 70% of the respondents agreed it was safe to put the baby in bouncers and/or rockers, and it was fine for the infant to be placed inside for 60 mins or more. There were 248 (98.4%) respondents who understood that the device ceased to be suitable and/or safe when the baby's head was lower than the horizontal line of the feet.

**Table 4** Number of children at home

| **Children** | **Total respondents** | |
|---|---|---|
| One | 108 | (42.9%) |
| Two | 106 | (42.1%) |
| Three and above | 38 | (15.0%) |
| Total | 252 | (100%) |

**Table 5** Number of baby devices used

| **Device used** | **Total respondents** | |
|---|---|---|
| One | 91 | (36.1%) |
| Two | 103 | (40.7%) |
| Three and above | 58 | (23.2%) |
| Total | 252 | (100%) |

For functions and features, only 163 (64%) respondents agreed that the inverted U-shape cotton fabric backrest provided good protection for the baby's back. Other features such as stoppers, easy assembly and disassembly, and removable and washable accessories seemed to be a must, as indicated by more than 90% of the respondents. When it came to entertainment, 71% of the respondents agreed that entertainment was one of the main considerations on a device.

The ability to sway and rock in multiple degrees and directions (93.7%), and adequate space to accommodate the baby (88.5%) were not the main concerns of most respondents (Table 6). Regarding the material used to make baby devices, more than 90% of the respondents agreed that characteristics such as biodegradable materials, good ventilation, hypoallergenic, shock absorbance, and durability are all necessary features to ensure the baby's comfort and safety. In the personal preference and design suggestion section, 80 (31.8%) respondents picked the shape of a cute bird because it carried an auspicious and harmonious meaning. Although 32.9% of the respondents selected 'others' as an option, they did not specify the preferred symbol, icon, or animal. Hence, the researchers decided to take the 2$^{nd}$ highest-ranking element as the key element (Table 7).

**Table 6** Function and Features of the baby device

| **Questions** | **Agree / Very much agree** | | **Disagree / Strongly disagree** | |
|---|---|---|---|---|
| The inverted U-shaped cotton fabric backrest provides good protection to the baby's back. | 163 | (64.7%) | 83 | (32.9%) |
| The stopper's function is the main reason for selecting a baby rocker | 238 | (94.4%) | - | |
| Easy folding or disassembling functions is the main consideration | 245 | (97.2%) | - | |

| Questions | Agree / Very much agree | | Disagree / Strongly disagree | |
|---|---|---|---|---|
| It is important that the accessories used in the device can be removed and washed easily. | 251 | (99.6%) | - | |
| The entertainment functions are the main consideration. | 179 | (71.0%) | - | |
| Baby rocker can be swayed and rocked in any degree and direction. | - | | 236 | (93.7%) |
| It is more important to consider the space in which the baby's daytime resting device can accommodate the baby than the weight it can withstand. | - | | 223 | (88.5%) |

**Table 7** Personal preference and design suggestion

| Devices with auspicious and harmonious meaning | Total respondents | |
|---|---|---|
| **Adorable bird** | **80** | **(31.8%)** |
| Adorable little mammal | 52 | (20.8%) |
| Daytime scenery | 37 | (14.5%) |
| Others | 83 | (32.9%) |
| Total | 252 | (100%) |

## 5. Discussion

The researchers intend to create an eco-friendly non-toxic baby resting device that caters to Malaysian parents' ideologies and requirements regarding the functions and materials based on data collected from 252 respondents. The collected data was used as a reference for production and design work, to uphold the four key elements requested by respondents: the assembly process, stopper, good ventilation, and ideology.

a) Device assembly

The newly designed baby resting device will consist of a few half-joined portions that can be easily assembled and disassembled. Parents can assemble them into a complete and intact baby resting device in a few simple steps with simple tools that will be provided.

b) Stopper

A rectangular brick made out of the same material can be slotted-in at the base of the device to stop the device from rocking, effectively converting it into its stable configuration and giving it dual functions.

c) Ventilation issue

After repeated measurements on two materials, a corrugated board will be used as the main material to achieve the best ventilation effect. This has the benefit of reducing the chances of allergic reactions due to the hypoallergenic nature of the corrugated board.

d) Ideology

The researcher intends to use the dove as the symbolic and model reference for this study to convey auspicious meanings such as blessings and harmony.

### 5.1 Design Progress of the Device's Dove Structure

The structure and shape were created with a rotated "C" shape seating cushion. Based on the photograph of a dove, the bottom part of the drawing was modified into a curve, creating a final outer contour that looks like a dove (Figure 10, step 1).

a) Prototype making

The researchers synthesized all results and outcomes to make a prototype of the baby resting device that mimicked the shape of a dove using the corrugated board. The researcher tested various origami techniques and found a big disadvantage where all the flutes of the board were covered, thus reducing ventilation and preventing air circulation (Figure 10, step 2). To combat this problem, the corrugated boards were arranged in an upright manner where all the flutes were in a vertical position to increase good ventilation for babies to lay (Figure 10, step 3).

b) Size of the device

To accommodate a baby of up to 10 months old, the new baby resting device for this research study was made to be larger than ordinary devices with measurements of 100 cm length, 50 cm width, and 46 cm height (Figure 10, step 4).

c) Stopper

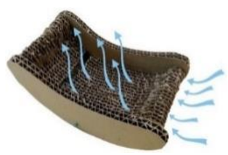
A brick shape stopper was created with the same material to slot into the hole under the device to convert to its stable configuration (Figure 10, step 5). The device can then be raised at one end to ensure the baby's head is higher than the feet when lying inside the device (Figure 10, step 6).

d) Easy assembly and disassembly function

The entire device comes in three half-joined portions to facilitate easy self-assembly and disassembly. The middle frame including the structure of the dove's head and the tail is the main support for the baby’s body weight. The left and right sides are the auxiliary frames that provide a larger resting space for the baby to lie flat and flip without any obstruction when combined with the middle frame. The outermost prevention frames are fences to prevent the baby from accidentally turning over or falling out of the device when sleeping (Figure 10, step 7). Two wooden bars are applied as the main bonding tool to maintain balance and hold its weight. In three simple steps, parents can connect all portions by slotting in the wooden bars that have screws to lock them together from the other side (Figure 10, step 8). A removable small sleeping mattress filled with cotton is used to provide a comfortable base with good ventilation and to facilitate easy cleaning (Figure 10, step 9).

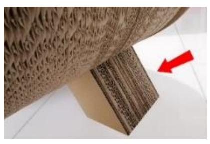
1. Drawing development of device


2. A prototype made of corrugated board with origami techniques



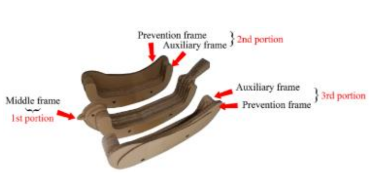
3. Prototype with corrugated board arranged in an upright manner


4. Final measurements of the device



5. Corrugated board stopper to be placed under the device


6. One end of the device will be raised when the stopper is slotted-in




7. Parts of the device

8. Long wooden bars to lock all portions together

9. Baby sleeping in the device

**Figure 10** Steps 1 to 9 are arranged from left to right in three rows accordingly

## 6. Conclusion

Based on the survey, Malaysian parents have started paying more attention to materials used in baby devices and prefer baby devices that do not cause any harm or danger to their infant's health. Besides, due to the ideology on newborn babies, most parents are still prejudiced against using rectangular baby boxes.

After experimenting with the two suggested materials, a corrugated board was used to create the baby resting device through this research study due to its superior ventilation ability and because it is manufactured from recyclable materials that are harmless to babies and the environment. The prototype is also made in the shape of a dove according to the preferred design choice, to relieve concerns and resistance to baby devices made of boxy shapes.

After combining all data and results from the questionnaire surveys and experiments, guidelines and references for the design of the new baby resting device were detailed. As a result, an eco-friendly and multi-functional baby resting device was made with the corrugated board which consisted of the following advantages:

a) A biodegradable non-toxic material that is recyclable, to help to reduce landfill problems when the device is no longer in use.

b) Better ventilation capability through the flutes of corrugated boards.

c) Divided into three half-joined portions for easy re-assembly into a complete and intact baby device with three simple steps.

d) With an accessory-stopper to change the device from rocking configuration to non-rocking configuration.

e) A small removable sleeping mattress to enhance the comfortability and ease of cleaning.

The prototype is made on a relatively large scale to ensure it is solid, stable, and can carry heavy weights; however, it may cause inconvenience for parents to carry it around. If the design is slated for mass production, researchers may consider reducing the size to enhance convenience.

The creation of this research study can be extended to provide hotels a possible additional facility for guests with newborn babies, to reduce the hassle of carrying a cumbersome baby device when traveling, while improving the quality and hygiene of the guests in the hotel.

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