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Institute of East Asian Studies
under the Patronage of Her Royal Highness Princess Mahachakri Sirindhorn, Thammasat University
The International Journal of East Asian Studies

Owner: Institute of East Asian Studies, under the Patronage of Her Royal Highness Princess Mahachakri Sirindhorn, Thammasat University Rangsit Center, Klong Luang, Pathum Thani, 12120, Thailand

Issued time: 2 issues per year (March – August and September – February)

Distributed to: Universities, related institutes, and public libraries throughout Thailand, and selected libraries abroad.


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Printing at: Thammasat Printing House, Thammasat University Rangsit Center, Klong Luang, Pathum Thani, 12120, Thailand
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Thailand’s Economic and Social Development in the Modern Period: from Open Door Policy to Good Governance

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Abstract

Background: There are the distinct factors affected the economic and social development in Thailand in each period. The study of the historical background of the economic and social development in Thailand is important for understanding its evolution. Furthermore, it provides the data and lesson learned for the present and the future.

Objective: The objectives of this study are to explain and demonstrate the economic and social development in Thailand from the King Rama IV period of reign that Thailand has opened the door for Capitalism to the present period.

Results: The significant results elucidate the Thai economic and social development in the modern period is effective in some aspects such as the GDP growth, the Thai people’s quality of life, the public health care. In the other hand, there are many problems remain come together with the development process such as the illiterate democracy, the environment and natural resources have been depleted and the environment degraded, the increasing of the income gaps etc.

Discussion and Conclusions: the sustainable development is necessary so we have to studies to propose the effective strategies for the economic and social development in Thailand. The rational choice development approach will be employed in the future.

Keyword: Economic and Social Development, Good Governance, Public Policy

Historical Background

The Ayuthian period of Siam, the name of Thailand used before 1939’s history came to the end in 1767 (b.e.2310) when Aauthaya, the capital city, was captured and sacked by the Burmese armies. But Siam did not remain long under Burmese power. Even in 1767 Phya Taksin and his followers were regaining control of parts of Siam, and by 1771 Phya Taksin controllnearly all of Siam of the Ayuthian period. He was the later crowed king. For several years he ruled wisely, but then began

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to show signs of madness, and in 1782 was executed. His successor was the founder of the present Chakri dynasty. The Siam kings of the Chakri dynasty are given the title of “Rama” (Ingram, C.J., 1997)

Since the mid-1850s, in King Rama IV or King Mongkut’s period of reign (1851-1868), the most dramatic trend of Siam’s economic and social development has been the transformation to the modern period. The first three kings of the new dynasty had little to do with Western nations, although toward the end of the third reign it became apparent that the traditional isolation from the West could not long be maintained. There were Western missionaries and a few traders in Siam during the first three reigns. But the principle official Western contacts were made though the missions of John Crawfurd (1821), Captain Henry Burney (1825), and Sir John Brooke (1850) for Great Britain, and Roberts Mission (1833) from the United Stated. Burney and Roberts succeeded in negotiating treaties but they were very limited ones. (Ingram, C.J., 1997) The studies begin with the reign of King Rama IV or King Mongkut when he became the king in 1851, he had learned several foreign languages and much of Western history and science and he is the king who employed Mrs. Anna Leonowens to teach his children. While the great powers in Europe had scientific and industrial revolution from the 1750s to the 1850s it began with industrial revolution in Great Britain. It is the consequence of the Steam engine invention by Thomas Newcomen in 1712 (www.encyclopedia.com, 2012) and was developed by James Watt in 1765. (www.egr.msu.edu, 2012) Afterwards, many industries in Europe were expanded. As the results, the population and urban societies were spread. Unavoidably, the great powers in Europe colonized and sought the resources and the markets for releasing their commodities in many parts of the world. Necessarily, Siam started to open the door for Western diplomats, traders, culture, globalization and capitalism. The modern period of the history of Thailand’s economic and social development is as follows:

Open the Door Period 1851-1867 (B.E. 2394-2410)

Since the beginning of the period of King Rama IV or King Mongkut who was ready to accept globalization and capitalism, when British approach Burma and France desired to occupy Indo-China region for opening the door to Yunnan and Tibet. On April 18, 1855, Sir John Bowring, the envoy extraordinary of Great Britain respectfully engaged the royal message from Queen Victoria, the monarch of Great Britain to Siam and King Mongkut unavoidably accepted change made the task of Sir John Bowring. (Pensri Duke, 1984).

Bowring Treaty is the friendship, trade and marine treaty between Great Britain and Siam but known as the “Bowring Treaty” was the Siam’s socio-economic “open door policy”. The results of Bowring Treaty brought the changing of Siam’s monopoly-trade system to free-trade system thus Siam revoked the traditional tax to the international tax system. Over the year, the international tax system attracted many traders from many countries and the Siam-traders were also increased.

Furthermore, Bowring Treaty encouraged Siam’s modernization with exposure the
Western civilization. Beside this, Siam must change the tradition law system enforced over 200 years to international law system. On the other hand, there were the negative impacts of this treaty such as Siam had lost extra territorial right to Great Britain. Thereafter, King Mongkut had signed the treaties with many countries such as France (1856), The United State (1856), Japan and other European countries. (Pensri Duke, 1984). Great Britain had opened the Siam’s market, Siam became Great Britain’s partnership in capitalism system. “Bowring Treaty” was the first constraint which increased Siam’s trade and the second constraint was the geography. According to Chao Phya River as the appropriate route for the trade-boat more than Mekong River, so Siam became wealthier than other countries in Indo-China. The beginning of the capitalism in Siam firstly caused by the Western colonialism and then developed together with the bureaucratic capitalists and the Chinese capitalists. Moreover, the worker class arisen in this era to serve many companies.

The Struggle in the Colonialism Period 1867-1910 (B.E. 2410-2453)

Most of changes were set in motion through the leadership of King Rama IV and his son, King Rama V or King Chulalongkorn. A distinctive feature of the period cover by these two important reigns especially in King Chulalongkorn’s period of reign (1868-1910) when Siam encountered with the two great powers, Great Britain and France. They desired to occupy Khmer, Lao and the land of northern- Malay Peninsula. The kings of Siam endeavored to protect Siam from the two great powers although lost 7 territories to Great Britain and France from the year 1867 to 1909 (b.e.2410-2452). Because of the two great powers had the strong royal armies, Siam necessarily had implemented the defensive-foreign policy. As a results, Siam had lost 518,700 square kilometers of territory. It is noticeable that the most territories Siam had lost were used to be the Siam’s colonies which were not settled the border until 1907. (Pensri Duke, 1984).

Firstly, Siam lost Outer Khmer to France in 1867 (b.e.2410) in King Mongkut’s period of reign after French had occupied Saigon and southern Vietnam. Secondly, Siam lost Sipsongjuthai in Lao to France, after French already had occupied Khmer with the allegation “Haw’s aggression” so France sent its Royal army into Sipsongjuthai and eliminated the Siam’s Royal army from this territory in 1888 (b.e.2431) in King Chulalongkorn’s period of reign. (Pensri Duke, 1984). Thirdly, Siam lost “the west land of Siam” to Great Britain in 1892 (b.e.2435) because this land was abundant of the valuable forest. The worst crisis came in 1893 (b.e.2436), when French gunboat “Le Lutin” forced their way up the Chao Phya River and French troops occupied Chandaburi in the East because French desired to occupied almost the land in the left of the Mekong River. Siam could not resist the great power so King Chulalongkorn signed the treaty with French on October 3, 1893 (b.e.2436). The results of this treaties caused the loosing of the most important territories namely The Kingdom of Lao and Sipsongjuthai approximately 143,800 square kilometers and the citizen around 600,000 persons. In the next decade, Siam lost
the territories for two times to France; There were the land in the right of the Mekong River (Manoplai, Champasak and Loungprabang) in 1903 (b.e.2446). Moreover, in 1906 (b.e.2449) Siam lost the inner Khmer that wealthy of agriculture and fishery to France. Lately, in 1908 (b.e.2451) Siam lost Atriburi, Kelantan, Terengganu and Pales approximately 15,000 square miles of territory to Great Britain. (Pensri Duke, 1984).

However, the most of Siam's territories lost in this period were Siam's occupies, most of them were the land outer Siam. Unlike the Western occupy, the Eastern occupy is loose that the great power only take the royal tribute and loyalty from its colony. Whereas the Western occupy extremely magnetize the power and the resources from its colony. Thus, Siam might not take the most power, resources and benefits from its colonies and after Siam lost its territories caused the lost of little benefit in these lands. The Threat from the Western Colonialism caused King Chulalongkorn accepted change and reform are as follows:

1) King Chulalongkorn built the nation-state with settling the Siam’s apparent territory, appending the northern cities and the southern cities, centralization of power, reforming the government, the government reorganization and the justice system including the police and the military affair.

2) Siam society had reformed as the modern society in many aspects; the slave and serf system were repealed, the education was reformed with the utilizing of the western system, the standard language was declared, the public health care and the religion also were reformed.

3) Siam’s economics system was reformed; King Chulalongkorn modernized the fiscal, the banking and the infrastructure system. (Likhit Dhiravegin, 2003) The many aspects of the reform in King Chulalongkorn’s period of reign brought Siam more modern than it used to be. Obviously, the king’s duties benefitted to Siam into the social structure. The Siam-people have more freedom, more justice, the education and can carrying on their satisfactory occupations. These factors gradually brought Siam more modern-state.

**The World War I Period 1914-1918 (B.E.2457-2461)**

The World War I was the world-level conflict, began from 1914 to 1918 in European countries. When the industrial revolution was done in the great powers in Europe such as Great Britain, France, Russia, Italy and etc. From the 1750s to the 1850s, the results of the industrial revolution caused the surplus of industrial-production, the increasing of the population and the urbanization. So the great powers in Europe need to expand their power and occupies for absorbing the resources (as raw materials for the industries) and releasing their industrial products. Then, in the 1900 century, every great power in Europe impressively proclaimed superiority and also compete each other. This situation caused the lost of balance of power in Europe and led to the war. It began with the separated of two exist namely, the Triple Entent, consisted of France, Russian Empire, Great Britain Empire, Kingdom of Italy including the United State and its alliances. For the opposite axis namely Triple Alliance, consisted of Austria-Hungary,
Germany Empire, Ottoman Empire and Kingdom of Bulgaria. And in the end, the Triple Entent was the total victory.

In this period, Siam was in King Rama VI or King Vajiravudh’s period of reign. In the first stage of the war, Siam announced as the neutral-nation but in April 1917 (b.e.2460), the United State joint with the Triple Entent and this axis tended to be the victory. Siam’s government took a decision to be the Triple Entent’s alliance and to declare war with the fear that the Triple Entent might not satisfy if Siam still neutral. Moreover, Siam’s government expected to give up the unfair treaties which draw in the colonial period. However, the battle was not occurred in Siam, in the end of the war, Siam’s representative went to the summit meeting in Versailles to negotiate about the unfair treaties. Unfortunately, this attempt was not succeed in that time, it will have been done in 1925 (b.e.2468) (Weerachai Chokmukda, 2011)

In 1914 (b.e.2457) the rice demand in the world distinctly increased although after the end of the war. Siam could export much rice with the good price because of the war. The rice demand in the world distinctly increased although after the end of the war. In 1919 (b.e.2462) the unusual drought caused the crop decreased to 67 percent. Consequently, the nation’s income decreased, in 1920 Siam was worse off for 81 million bath and the international reserves was left 50 percent. It had the finance problem. And the world economy was also encountered with the economic downturn. (Chattip Natsupa and Suthi Prasatset, 1984) So in this period Siam could not have more economic and social development.

The World War II Period 1939-1945 (B.E.2482-2488)

The World War II or the Second World War began in 1939 and ended in 1945, when the lost nations in the First World War did not satisfy the results of the Treaty of Versailles especially Germany that must pay off the war reparation and lost the territory. Then, in 1966 (b.e.2476) Adolf Hitler took the position of Germany’s leader. His outstanding policy was to give up the Treaty of Versailles and moreover, he started to accumulate the arms and empower the Germany’s army. It began with the separated of two exists namely, the Allies (Great Britain, France and Soviet Union) and the Axis (Germany, Italy and Japan). It was the widespread war in history, with more than 100 million people serving in military units. The war ended with the total victory of the Allies over the Axis in 1945. The World War II altered the political alignment and social structure of the world. Siam’s government decided to join with the liberal nations led by the United State. Siam was in King Rama VIII or King Ananda-Mahidon’s period of reign and Marshal Pibulsonggramas as the Prime Minister. On October 3, 1939 (b.e.2482) the country’s name was changed from Siam to Thailand. In early of the war Thailand decided to be neutral but when Japan’s royal army reached Thailand’s middle and southern–provinces. Thailand could not resist the Japan’s royal army, so Marshal Pibulsonggram agreed to be Japan’s alliance. While there was another movement in the United State namely “Free Thai Movement” led by Mom Rajawongse Seni Pramoj who did not accept the Thailand’s government decision. This group moved to resist Japan.
secretly. In 1945 (b.e.2488) when Japan lost in the war, Marshal Pibulsonggram resigned and Mr.Khuang A-Pai Wong became the Prime Minister. Mr.Khuang A-Pai Wong declared “Peace Announcement” to Great Britain but Great Britain did not accept caused Mr.Khuang A-Pai Wong resigned. After that, Mom Raja-wongse Seni Pramoj became the Prime Minister and had negotiated with Great Britain successfully. (Weerachai Chokmukda, 2011) And In 1946 King Bhumibol Adulyadej became Rama IX, who is the present king of the Thai Kingdom.

The results of the war caused the great powers’ occupies independence. Owning to the European Nation’s decline, The Soviet Union and the United States emerged as rival superpowers, setting the stage for the Cold War for 45 years after the World War II. When the United State established the NATO and The Soviet Union established the Warsaw Pact. It is the obviously separated of the superpowers’political ideology. In the Cold War period, the world situation was effected the Thailand’s economic and social development.

In 1947, the United State granted 3 million US Dollar to the Thai government to battle the Communism in Indo-China and expand the American’s Capitalism in Thailand. (Sombhop Manarangsan, editor, 1981)

Thailand in October 1958 (b.e.2501), Field Marshal Sarit Thanarat made coup’d’etat Prime Minister Marshal Pibulsonggram and took the position as Prime Minister. He started to modernize the Thailand’s economic development based on the basic principle “to encourage the private sectors to be the productive and trade system”. Obviously, he established the Board of Investment (BOI), National Economic and Social Development Council, Fiscal Policy Officer and etc. (Somjai Phagaphasvivat, 2004)

The National Economic and Social Development Plan Period (1961-present) (B.E. 2504- Present)

Thailand’s government started to use the National Economic and Social Development Plan in 1961 and now Thailand has 11 Social and Economic Development Plans. Each plan has the specifically objectives. The details are as follow:

The 1st Plan (1961-1966): The 1st plan firmly intent to develop the infrastructures which support the economic development. So that the transportation, the rural highways, the dams, the electric city were develop in that time. Naturally, the 1st plan encouraged Thailand’s economic growing. It is reported that the GDP grew 8 percent/year (The section of Study and Development Publication, National Social and economic Development Committee Department, 1988)

The 2nd Plan (1967-1971): Like the 1st plan, this plan emphasized the economic and infrastructure development. Beside this, the Thailand’s Government extent the aim of the development to rural area so the rural development and many projects for supporting farmers were applied. This plan caused the economic grow around 7.5 percent/year lower than that in the 1st plan because of the unstable global economic. And this plan also increased the different of Thailand’s income gaps. The development approach in the two first plans significantly caused the different of Thai people’s income gaps because the ideologies of the two first plans are to develop the
infrastructure and the GDP. Although they can increased the GDP, both the higher and the middle classes can access the interest while most Thai people (the lower class) could not access (The section of Study and Development Publication, National Social and economic Development Committee Department, 1988).

**The 3rd Plan (1972-1976):** The important objectives of this plan are to develop the economic structure and to allocate the incomes to the lower class. The government endeavored to increase the economic growing rates, the agricultural goods, and the irrigation. Unfortunately, the World’s economic confronted a problem because of the increasing of the oil’s prices. So the inflation reached the highest point and the World’s economic was hard-pressed. Thailand also affected by the world’s economic crisis too, so the education and the public health were insufficient especially in rural areas. (The section of Study and Development Publication, National Social and economic Development Committee Department, 1988)

**The 4th Plan (1977-1981):** Thailand’s government endeavored to increase the economic growing again but it could not stably keep the price of agricultural product. The income gaps were significantly increased. Furthermore, the social well fair was not enough especially in the northern and the north-eastern areas. It is reported that the children around 70-80 percent in those areas had the shortage of food and health care. (The section of Study and Development Publication, National Social and economic Development Committee Department, 1988)

**The 5th Plan (1982-1986):** From the 1st to the 4th plan, the overall of Thailand’s economy obviously grew. However, there were many problems such as the poverty, the weak economic structure, so the fifth plan was the “New Approach” for Thailand’s economic and social development. Thailand’s government wanted to correct the economic and social structure, the agricultural structure, the poverty and the public administration. So the public well fair was better than that in the past. (The section of Study and Development Publication, National Social and economic Development Committee Department, 1988)

**The 6th Plan (1987-1991):** The first five plans can develop Thailand’s economy and society based on the capitalism approach. It is reported that the national income increased from 58,900 million Bath in 1961 to 1,041,920 million Bath in 1985, According to the education, the secondary schools were established for every districts. And the public health care was extended to every region in Thailand so the people’s quality of life was satisfactorily developed. The 6th plan wanted to increase the efficiency of the national social and economic development in many ways such as the production system, the allocation of the personal income for the lower class. (Office of the National Economic and Social Development Board. the National Economic and Social Development Plan, 2012)

**The 7th Plan (1992-1996):** The 6th plan caused Thailand’s economic expanded for 10.5 percent/year and reached the highest point over the past 25 years and engaged with the world economy’s structure more than that in the past and the Thai people had the better quality of life. Then, Thailand’s government intent to continuously develop its economy.
So that, the 7th plan wanted to encourage the economic growing, to allocate the personal income, to develop the human resource, to preserve the environment and the natural resources. (Office of the National Economic and Social Development Board. the National Economic and Social Development Plan, 2012)

The 8th Plan (1997-2001): From the 1st plan to the 7th plan period, Thailand met success in economic development but there were many problems followed the development process in capitalism approach such as the materialism, the natural resources delegation and the pollution in the industrial areas. As a result, this plan encouraged both human and economic development. Beside this, the reservation of the natural resources is necessary. (Office of the National Economic and Social Development Board. the National Economic and Social Development Plan, 2012)

After Thailand’s economic crisis in 1997 on ward, the Thailand’s government emphasized the good governance principle with attempted to utilize the good governance principle in government affair.

The 9th Plan (2002-2006): The economic crisis in 1997 caused Thailand’s economy in troubles and most Thai people encountered with the serious economic problems. It is the results of the imbalance development, so the 9th plan must accentuated the “Human Development” for “Sustainable Development” Then, the National Social and Economic Development Plan followed “His Majesty the King’s Sufficiency Economy Philosophy”, it was used as the method for sustainable development. In that time most Thai people interested in this philosophy. (Office of the National Economic and Social Development Board. the National Economic and Social Development Plan, 2012)

The 10th Plan (2007-2011): The 9th plan supported the economy’s growing around 5.7 percent/year. The economic stability was better and Thai people’s quality of life was improved. Like the 9th plan, the 10th plan followed the King’s sufficiency economy philosophy for the green and happiness society which Thai people have the merit, the strong family, the strong community, the peace society, the quality economy, the quality environment, the good governance and the democracy. (Office of the National Economic and Social Development Board. the National Economic and Social Development Plan, 2012)

From the 1st to the 7th National Economic and Social Development Plans based on the capitalism approach which supports the economic growing rates. The governments of Thailand in that time endeavored to increase the national income, the personal income and economic growing rates. In the same time, Thailand encountered with many problems such as the different of the income gaps, the poverty and the environment problems. Furthermore, when the world faced with the economic crises, it always affects Thailand’s economic situation too. Certainly, Thai people must face with economic problem especially in the economic crisis in 1997. It caused Thai people troublesome, so from the 9th plan to the present plan, the National Economic and Social Development Plan base on His Majesty the King’s sufficiency economy philosophy.
The Thailand’s Economic and Social Situation in the Present Period

Thailand had used the National Economic and Social Development Plans from 1961 to the 10th plan. From the implementation of the plans, the Office of the National Economic and Social Development Board has reported Thailand’s economic and social situations are as follow:

1. **Macro Economic:** In the present period, it is reported that Thailand’s economic growing rate is 7.8 percent in 2010 which recover from the world’s economic problem. The economic growth is the result of the increasing of the exportation rate, the consumption, the private investment, industrial production, the hotel and the retail. While, the agricultural production is decrease because of the flood.

2. **The country’s competitiveness:** World Economic Forum and World Bank had lowered Thailand’s competitiveness, found that Thailand competitiveness is lower than Japan and Singapore who develop their economy with innovations. Beside this, in ASEAN Thailand competitiveness is better than many countries except Malaysia. From the analysis of the indicators, represent that the factors in productive sector are weak, the government affair is ineffective and not transparent, the corruption, the crime, the violence, and the laws implementation is ineffective including the affect of the world’s economic problems.

3. **Infrastructure:** In 2010 the International Institute for Management Development (IMD) ranked Thailand’s infrastructure at 26 in Asia Pacific, lower than Singapore, Hong Kong and Malaysia.

4. **International Economy:** Thailand attended to support the neighboring countries for reduce the development gap especially in Mekong Sub Region.

5. **Social Situation:** Thailand has the progress of the development in many aspects such as job’s stability, the income, the educational chance, the public health care. However, there are many problems that will be developed such as the social structure, the income distribution, the safety of life and asset, way of life and the people’s participation.

6. **Natural Resources and Environment Situation:** Many decades Thailand’s natural resources have been over used for economic development. They has been degrad-ed incessantly, it is reported that the forest area left 33.5 percent of the country. Furthermore, the soil quality was decreased, the coast area was lost. Regrettably, these factors cause the decay of the natural resources and it will affect the sustainable development in the future.

(The Office of the National Economic and Social Development Board, 2012)

The 11th Plan (2012-2016): The Office of the National Economic and Social Development Board had studies the global’ situation and Thailand’s situation in the present period and summarized that Thailand continue facing with major global and internal changes which may either pose threats to or provide opportunities for the country’s development.

Major global changes

1) Changes in global rules and regulations have influenced the direction of future development. The 2008 world economic crisis has led to adjustments in global rules and
regulations in the areas of trade, investment, finance, and environmental and social matters. Reformed rules and regulations in trade and investment have focused mostly on transparency, climate change, intellectual property rights and international cooperation.

2) Multi-polar world economy in the new world order is increasingly important in shaping development. Adjustment to a multi-polar world economy, in which Asia has become an important engine of global growth, is imperative for Thailand. Meanwhile, the BRICs and ASEAN are becoming new economic centers.

3) Many countries are moving toward an ageing society. During the period of the 11th plan, the number of older persons around the world is expected to increase by 81.9 million. Changing demographic structure toward an ageing society in many countries will affect international migration and the diversification of cultures.

4) Global warming has some effects on climate change all over the world. Global temperature has increased on average of 0.2 degree Celsius per decade over the past 30 years, and has cause unpredictable climate changes as well as frequent and severe natural disasters. Ecosystems in many areas have become vulnerable, resulting in the loss of flora and fauna.

5) Global security of food and energy under severe threat. Rising demand for food and energy is due to significant increase in the world’s population, whereas the supply of raw materials has been constrained by limited arable lands, technology, and climate change.

6) Vital role of advanced technology in economic and social development. Advanced technology can be regarded both as opportunities in reducing inequality and enhancing Thailand’s competitive edge, and threats to the country’s development.

7) International terrorism has been a threat to the world community. Transnational terrorism and crimes tend to spread across the world and are increasingly violent. (The Office of the National Economic and Social Development Board, 2012)

Major internal changes

1) Economic aspect: Over the past decade, the Thai economy has experienced moderate growth with stability. While the industrial sector has played a major role in production, the agricultural sector remains a key source of income and a base for value added activities. Very recently, the service sector has emerged as an additional engine of growth.

2) Social aspect: Thailand is becoming an ageing society due to changes in population structure, characterized by the increase of older persons while the size of younger population and workforce decrease. Although potential development opportunities are provided for all Thai people, issues related to education quality, child intelligence, risk behaviors for health, and low labor productivity have remained major concerns. Thai society has confronted a crisis of declining ethical and moral.

3) Natural resource and environmental aspect: Natural resources have been depleted; and the environment degraded. Moreover, climate change has exacerbated the problems of natural resources and the environment, which have affected agricultural production and poverty. (The Office of the National Economic and Social Development Board, 2012)
Risk Assessment: Thailand will encounter risks and has to enhance societal resilience in order to effectively meet challenges in the following six areas; public administration is ineffective, economic structure remains vulnerable, demographic structure has changed with older persons increasing, while the younger and working populations have decreased, social values and traditions have deteriorated, natural resources have been depleted, and the environment degraded and national security is still critical. (The Office of the National Economic and Social Development Board, 2012)

Vision, Missions and Objectives of the 11th Plan (2012-2016)

The 11th Plan is an indicative medium-term strategic plan aimed at achieving the vision of the year 2027 which was set out by all parties in Thai society, that is

"Thai people are proud of their national identity, in particular hospitality. They also follow the path of Sufficiency Economy with democratic values and good governance. The economy is based on self-reliance and increasing linkages and competitiveness on the global market."

The 11th Plan is the first step toward the long term vision of 2027. For the next five years, vision and missions are set as follows:-

Vision "A happy society with equity, fairness and resilience."

Missions

1) To promote a fair and quality society so as to provide social protection and security, to enjoy access to a fair judicial process and resources, and to participate in the development process under good governance.

2) To develop people with integrity, knowledge and skills appropriate to their ages, and to strengthen social institutions and local communities for positive adaptation to changes.

3) To enhance the efficiency of production and services based on local wisdom, knowledge, innovation and creativity by developing food and energy security, reforming the structure of the economy and consumption to be environmentally friendly, and strengthening relations with neighboring countries in the region for economic and social benefits.

4) To build a secure natural resource and environmental base by supporting community participation and improving resilience to cushion impacts from climate change and disasters. (The Office of the National Economic and Social Development Board, 2012)

The Office of the National Economic and Social Development Board had analyzed both global and Thailand's situation and written and implemented the 11th Plan. The significant issues in this plan are to build the habitable, democratic society and to follow His Majesty the King's Sufficiency Economy Philosophy. In this context, my argument rests heavily upon the assumption that the success of the plan implementation base on two important factors, they are the quality of the citizen and the economic structure. These factors is the mostly effect to the potential of development.

In short, the National Economic and Social Development Plan had been implemented for 51 years. Thailand's economic and social development cannot reach the satisfactory point as we have anticipated, but the natural resources were degenerated consistently. There are good reasons to study and concern about the sustainable development.
The Good Governance Approach

With the end of the Cold War in the 1990s, the term “good governance” came into circulation, which signified prescriptions by donor agencies for carrying out economic and political reforms by recipient countries. These prescriptions were presented by international donor agencies such as the World Bank and the IMF were expected to be met with compliance. The World Bank in the early 1990s emphasized four objectives that had to be achieved for increasing economic growth. They were: increased government investment in education, health care and nutrition; greater competition in domestic markets; greater integration of the domestic economy; and the creation of a stable macro-economic environment. (Surendra Munshi and Biju Paul Abraham, editors, 2004)

The World Bank clarified the meaning of good governance “It is the manner and the way of power utilizing for employing the economic and social resources for sustainable development which comprehend the participation from any sector, the management in government sector, the responsibility, the law that involving development, the transparency and the information” (World Bank, 2010)

The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) clarified the meaning of good governance “The decision-making and implementation process (or not implemented) with the suggestion, the good governance is the guarantee for reducing the corruption, the minority’s opinion is considered, the disadvantaged people’s voice is applied in decision-making process, including to respond the social’s need in the both present and future” (UNESCAP, 2010)

The United Nations Development Program (UNDP) clarified the meaning of good governance “The implementation of the political, administrative and economic power in country’s affairs in every level which the mechanism, process and institution that the citizen and social groups can represent their need, interest, right and their duties legally. The coordination and compromise in the diversity society by those mechanism, process and institution” (UNDP, 2010)

The following up of such principles in 1999 after the Thailand’s economic crisis in 1997, the results have been outlined by the Thailand’s government. Begin with the Thailand’s constitution 1997 comprehensively set the basis of good governance. Moreover, there are the government’s laws and regulations, they are the Office of the Prime Minister’s regulation that build the good governance (1999), Government Regulation Act (2002), Decree of the good governance principle (2003) and the Strategic Plan for the bureaucracy development (2008-2012) (The Office of the National Economic and Social Development Board, 2012)

In private sectors, good governance has been applied in many organizations such as The Stock Exchange of Thailand enforced its regulations “Code of Best Practice for Directors of Listed Companies” in 1999. Then, in 2001 “the Good Corporate Governance Committee” was established. Thereafter, in 2003 the Stock Exchange of Thailand joint with The Securities and Exchange Commission to direct and
supervise the companies registered in the Stock Exchange of Thailand.

The good governance conceptual focus was explicated by Office of Public Sector Development Commission Thailand in 2009 as the “good governance rating” for pioneer and evaluate the good governance levels in the government sectors and provinces. Beside this, it proposed 10 good governance principles. They are Effectiveness, Efficiency, Responsiveness, Accountability, Transparency, Participation, Decentralization, Rule of Law, Equality and Consensus Oriented. (Public Sector Development Commission Thailand, 2010)

As we have seen, Thailand’s economy and society have continuously developed for many decades. Obviously, good governance principles have been utilized especially from the lately 1990s to present. My question is why Thailand’s economic and social development cannot reach the satisfactory point? Why we must encounter with many problems go together with the development? I suggest that we must study to find the strategies for sustainable development.

**Good Governance in Thailand’s Government Policy**

As well, a recent policy of Thailand’s Government proposes the good governance principle in a part of it to encourage the effectiveness of the government’s affair is as follow:

1) To successively develop the bureaucracy by outline the strategic management in nationlevel with the visions and the utilizing of Information technology in planning and decision-making process.

2) To successively encourage, enhance, develop and promote the government’s administrative system to be flexible.

3) To develop and encourage bureaucracy’s personal management system base on good governance principle which utilizing the merit system and provide the stability with knowledge-based and public workmanship.

4) To successively develop the government’s officers to increase the capability in their duties especially in the important positions which concern with the country’s development strategies.

5) To encourage the merit standard and good governance to the government’s officers and to increase the transparency in government’s sectors.

6) To support the local government’s affair to be the efficiency, transparency and responsiveness to the people’ expect.

7) To develop the bureaucracy to be the transparency system with checking and evaluating base on merit standard.

8) To encourage the participation in government affair, the citizen can participate in economic and social policy and planning process both in the nation-level and the local-level.

9) To encourage good governance process in the private sector especially in the transparency checking system and to support the responsibility to the customers, clients and steak holders. (www.thaireform.in.th/, 2012)

A new policy has been introduced requiring every government sectors and including the private sectors to implement the good governance principle. The fundamental questions of the success arise. First, how it will
be done? And second, when it will be done? I think it is important to be clear about these points.

Thailand government’s Economic and Social Development Policy

Economic Development Policy

The policy of Thailand’s government introduced many aspects of economic and social development, divided in 3 aspects, they are macro-economic policy, make money policy and adjust the economic structure policy. Let me introduce the important features of them, the policy showed that follow:

1) Macro-economic policy: The Thailand's government desire to distribute the income, increase the high and stable economic growing rates, enhance the extremely employment rate, encourage the finance approaching, develop the potential of the communities’ funds, develop the finance institutions to have the responsibility to the people including utilizing the good governance principle in finance system, adjust the tax system to promote the country’s competitive ability, build the impartiality in the society, encourage the resources efficiency applying, promote and utilize the disciplines in the finance sector, develop the elements and structure of the expenditure, encourage the private sector to participate in government’s affair, encourage the local government sector to be the efficient organization, adjust the state enterprise to be the efficient organization, manage the state’s property including the local wisdom way of life and culture for the economic stability, (www.thaireform.in.th/, 2012)

My argument about the macro-economic policy, there are three basic questions- What is Thailand’s position in the world stage? What is the position in the world stage we will reach? What are the driving force-factors used to the development? And how long it should take time?

2) Make Money Policy: The Thailand’s government desire to encourage the tourist industries, extend the agricultural and food industries’ role as the center of food production, develop Thailand to be the center of agricultural market, encourage and impel the energy industry, enhance the industrial competitive ability including the communities enterprises with the creative economy, encourage the entrepreneurs to extend their business to the neighboring countries that have labor and raw materials, gravitate the investment into the countries and build the new cities for business, create the quality and high wage jobs to the people, give the chance to access the loan and build the trade and investment networks. (www.thaireform.in.th/, 2012)

I do not deny the important of any reason for making money, However, few comments on this issue may be helpful to point out the connection between the economic development is not only to make money but also to link with the other aspects especially in the social, human right, knowledge and human dignity aspects.

3) Economic Structure Adjustment Policy:

Agricultural Sector: The Thailand’s Government desires to encourage the National Farmer Council as the mechanism for com-
communication with the government, increase the plant production, increase the animal production, develop the fishery, enhance the basic of the agriculturalist family’s strength, make the agriculturalist family’s data system and can link to the agriculturalist’s credit cards, accelerate the agricultural business, build the new generation agriculturalist, develop the agricultural industries for increasing the competitiveness in global market. (www.thaireform.in.th/, 2012)

**Industrial Sector:** Thailand’s Government desire to enhance industrial sector’s competitiveness ability, enhance the industrial sector to be the creative economy sector instead of the labor intensive-industry, develop and promote the agricultural industry, enhance the SMEs’ strength, specify the industrial production’s basic standard and quality, develop the new industrial zones, accelerate develop the industrial sector to amicable with the environment and communities, encourage the industrial tax standard to safe energy, support the entrepreneurs to do the business in the concurrently industrial zone, accelerate explore and seek the important mineral which useful to the economy. (www.thaireform.in.th/, 2012)

From my opinion, economic structure adjustment is necessary in Thailand, although is it depend on many constraints. Fundamental economic structure and people quality are the key factors for successful adjustment. Since the success of economic structure adjustment is base on the “human” as the mechanism to play the important roles in the appropriate economic structure. From this reason, the Thailand’s Government has to study the Thailand’s people and former economic structure and then evaluate the possible and the time of this duty.

**Social Development Policy**

1) **Education Policy:** Thailand’s Government desire to accelerate develop education quality with the knowledge system reform, build the education chances, reform the teacher to be the professional career, manage the higher and vocation education to appropriate with the labor demand, accelerate develop information technology for education as well as the international standard, support the research and development to create the nation’s wisdom, develop the universities to be the research universities in the world stage and increase the ability of human resources for ASEAN community. (www.thaireform.in.th/, 2012)

The Thailand’s Government tries to develop the education in many ways. For this issue, I would like point out the necessary of the education: the quality and sufficient of education is the basic apparatuses to prepare its citizen for the development in every aspects especially in the politic, social and economic. Furthermore, the education unavoidably inter-act with the politic, social and economic aspects. Thus, the government has to systematic plan to develop and reform the education and the process of the reform and the development is need the time, may be for decades. For these reasons, the government has to really pay attention in these duties for long time.

2) **Public Health Care Policy:** The Thailand’s Government desire to develop the system of Public Health Care quality and link to every level, produce the Public Health Care staff for increasing the medical staffs that appropriate with the population in each area, integrate build the measure for decreasing the
malaise and death rates, develop the public health volunteer’s ability to be the communities’ public health management, develop the people’s quality of life in every ages, encourage the people to play sports for encouraging their health, impel Thailand to be the best practice of Health Care service in Asia. (www.thaireform.in.th/, 2012)

The citizen’s health is truly involved and interact with the education achievement because if the people have good health, they can efficiency learn and study. On the other hand, if the people have quality and enough education, they can correctly take care of their health. My suggestion is the government has to develop the public health care together with the education.

Conclusion

Thailand has been developed the economy and social for many decades, the modern period started in King Rama IV period of reign as the “open door for globalization”. Both situation in the country and the situation in the world affect the Thailand’s economic and social development in every period as we seen. Thailand’s economic and social has been developed, the Thai’s people have the higher quality of life, the income, the education chances and the freedom in the way of life. The remarkable that there are the problems occur in the development process. They are the income gap still wide, the social structure still has the wide basis with the most of lower class, The Thai politics is also still illiterate democracy. There are two fundamental constraints which affect the effectiveness of the development, the quality of the citizen, and the economic structure. From the Neo-Liberalism point of view that based on the believing “state is the atomistic actors” state seeks for the maximum benefit, the cheating is the obstacle for cooperation. And what is the state’s interest? That we have to studies and explain for the effective policy implementation in Thailand. Lately, in the present time that the threats such as the global warming, the natural resources degeneration are increasing. The development with the knowledge-based and good governance is necessary. I hope that most countries concern about the sustainable development.

Acknowledgment

This study is made possible by support from the Office of National Research Council of Thailand. I hereby would like to record its gratitude.

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Cholinesterase Inhibitory and Antioxidant Activities of Thai Traditional Remedies Potentially Used for Alzheimer’s Disease

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Abstract

Background: At present, cholinesterase inhibition and neuronal protection from oxidative stress are well-known mechanisms that widely used for the treatment of Alzheimer’s disease (AD) (1,2). According to Thai traditional medicine, brain hypo-function, which has similar symptoms to that of AD, was due to declining in wind-element, blood circulation and neurological system. Trikatuk is herbal remedy, strongly increases wind-element, had been used as nootropic remedy for body balance in rainy season. It’s composed of 3 plants: Zingiber officinale rhizomes (Zo), Piper nigrum fruits (Pn) and Piper retrofractum fruits (Pr) in either ratio of 1:1:1(Tk1), 3:2:1(Tk2), 1:3:2(Tk3) or 2:1:3(Tk4).

Aims: This study focused on acetylcholinesterase (AChE) and human butyrylcholinesterase (BuChE) inhibitory activities by the method of Elman (3, 4) and antioxidant activity by DPPH method(5) of the 4 remedies and ingredients.

Methods: Sixty grams of each plants and recipes were extracted by 95 %ethanol (250 ml x 3), then evaporated under reduced pressure and dried in vacuum-dry at 45°C for 24 hour. Piperine and 6-gingerol of each extracts were also determined by HPLC.

Results: The results showed that the ethanolic extract of the 4 remedies at dose of 0.1 mg/ml had BuChE inhibitory effect more than 70%. The IC50 of AChE inhibitory activity of Zo, Pn, Pr, Tk1, Tk2, Tk3, Tk4, galantamine were >300, 25.46, 51.60, 45.6, 51.97, 41.19, 42.93, 0.1 μg/ml and that of BuChE were 60.82, 42.94, 34.58, 28.74, 25.39, 33.01, 33.28, 0.37 μg/ml respectively. All Trikatuk remedies exhibited higher BuChE inhibitory activity than that of AChE. The Tk1 and Tk2 exhibited higher BuChE inhibitory activity than single herb. The antioxidant activity of Zo and Tk2 were 16.59 and 48.80 μg/ml which was higher activity than the others. The percentage of piperine and 6-gingerol in Tk2 extract (w/w) were 18.57 ± 0.22 and 1.05 ± 0.01 mg/g.

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Cholinesterase Inhibitory and Antioxidant Activities of Thai Traditional Remedies Potentially Used for Alzheimer’s Disease

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Introduction

Thailand is an aged country that over 10% of population is now over 60. As predicted by Institute of Population and Social Research, Mahidol University, the population of older persons will exceed 12.9 million in 2025 and 20 million in 2050(1, 2). The incidence of Alzheimer disease (AD) is increasing every year in accordance with the increasing of elderly population and could be pose significant health problems in the future. AD is a chronic neurological disorder characterized by memory impairment, cognitive dysfunction, behavioral disturbances, and deficits in daily living. At present, acetylcholinesterase (AChE) and butyrylcholinesterase (BuChE) inhibitors are well-known drugs used in the treatment of AD (3). However, these drugs are limited in use due to their adverse effects and are effective only against mild type of AD (4, 5). In addition, oxidative stress is one of the major mechanisms causing neuron and astrocyte death in AD (6,7,8.). Dual effects of antioxidants in neurodegeneration were direct neuroprotection against oxidative stress and indirect protection via suppression of glia-mediated inflammation (9). Plants possessing profound central nervous system effects and antioxidant activity have received much attention as food supplement to improve cognitive function against cognitive deficit condition such as Alzheimer’s disease.

According to Thai traditional medicine, brain hypo-function, which had similar symptoms to that of AD, was due to declining in wind-element, blood circulation and neurological system. Trikatuk was herbal remedy, strongly increases wind-element, had been traditionally used as nootropic remedies for body balance in rainy season. It composed of 3 plants: \textit{Zingiber officinale} (Zo) Roscoe. rhizomes, \textit{Piper nigrum} L.(Pn) fruits and \textit{Piper retrofractum} Vahl (Pr) fruits in either ratio of 1:1:1 (Tk1), 3:2:1(Tk2), 1:3:2 (Tk3) or 2:1:3 (Tk4). The Tk 1 was used in general treatment whereas the Tk2, Tk3 or Tk4 were used to treat illness due to impairment of fire-element, wind-element or water-element respectively (10). Pn and Pr, had been reported to be AChE inhibitor at concentration of 0.1mg/ml with % inhibition of 58.02 and 65.16 μg/ml(11). Piperine, the major active principle in Pn and Pr, significantly improved memory impairment and neurodegeneration in animal model (12), beneficially influence antioxidant molecules and antioxidant enzymes (13). Moreover, piperine assessed bioavailability enhancer of others substance (14). 6-Gingerol and shogaol, two major substance in Zo, possessed high antioxidation and anti-inflammatory activities (15) whereas 6-Shogaol was found to modulate neuroinflammation (16). Crude extract of Zo showed specific inhibition of BuChE rather than AChE enzyme (17). The combinations of these plants might have synergistic effects on AD treatments.

Conclusion: The combined recipes had synergistic effect on BuChE inhibitory activity more than single herb. In addition, the Tk2 might protect neuronal cell from oxidative stress toxicity due to its antioxidant effect. These results revealed that Tk2 was the potential use for AD treatment.

Keyword: Cholinesterase inhibitor, trikatuk remedy
This study focused on AChE and BuChE inhibitory activities and also, anti-oxidation activity of the four remedies and individual ingredients.

**Materials and methods**

**Plant Materials**

Zo rhizome was purchased from Petchaboon province, Pn fruits and Pr fruits were purchased from Chantaburi province, Thailand. The crude drugs were identified according to their characters of taxonomic importance. All voucher specimens were kept at Department of Thai Traditional Medicine, Faculty of Medicine, Thammasat University.

**Chemicals**

Acetylcholine Iodide (ACTI), 5,5'-dithiobis-(2-nitro-benzoic acid , DTNB), galantamine, AChE (from electric eel, type VI-S lyophilized powder, 844 units/mg protein), butyrylcholine iodide (BuCTI), human BuChE (lyophilized powder, 122 units/mg protein), bovine serum albumin (BSA), Tris-HCL, butylated hydroxytoluene (BHT), piperine and 6-gingerol were purchased from Sigma (Thailand). 50mM Tris-HCL, pH 8.0 was used as a buffer for all experiments. AChE / BuChE was separately dissolved in buffer to obtain 1130 U/ml stock solution, kept at -80°C and was further diluted in 0.1% BSA in buffer. DTNB and ACTI / BuCTI were dissolved in buffer and millipore water respectively.

**Extraction**

Crude drug was separately washed, dried in hot air incubator at 50°C and then grinded to fine powder. Sixty grams of each drug Zo, Pn, Pr and each remedy Zo: Pn : Pr in ratio of 1:1:1(Tk1), 3:2:1(Tk2), 1:3:2(Tk3) or 2:1:3(Tk4) was 3 times macerated in 250 ml of ethanol for 3 days and filtered. The combined filtrates were evaporated under reduced pressure (Rota evapor R-205, Germany) until nearly dry and further vacuum-dry (vacucell, Germany) to dryness.

**Determination of active constituents in crude extracts**

By means of HPLC using Agilent® LC 1100/1200 system, with photodiode array (PDA), detector (model G1315D), automatic injector (model G1329A), ZORBAX Eclipse XDB-C18 column (Agilent®), water and acetonitrile as mobile phase, gradient elution as 0 min: 40% B, 30 min: 50% B, 50 min: 90% B, 60 min: 100% B, elution rate of 1.0ml/min, the pipermide and 6-gingerol were detected at wavelength 254 and 282 nm (18). Data were analyzed by ChemStation® software.

**Microplate assay for AChE/BuChE activities**

The AChE/BuChE activity was measured by following the increase of yellow color produced from thiocholine when reacts with DTNB ion (Dithiobisnitrobenzoate). The increase of spectrophotometer absorbance measured at 405 nm was reversed to the amount of enzyme inhibitor and, also, was linear for more than 2 min. The AChE/BuChE activity assay were performed according to Elman et al, 1961(19) and modified by Ingkani-Saan et al, 2003 (11). Briefly, 125 µl of 3mM DTNB, 25 µl of 15 mM ATCI or BTCI, 50 µl of
buffer and 25 μl of sample dissolved in buffer containing not more than 10% ethanol were added to the wells followed by 25 μl of 0.28 U/ml AChE or BuChE. The microplate was read at 405 nm every 5 second for 2 minutes by microplate reader (BioTex model Power Wave XS). The velocities of the reaction were automatically measured. Enzyme activity was calculated as a percentage of velocities compared to that of the assay using buffer without any inhibitor. The inhibitory activity was calculated from 100 subtracted by the percentage of enzyme activity.

**Microplate assay for DPPH radical scavenging activity**

DPPH radical scavenging assay (20) appears as a deep violet color and shows a strong absorption band at 520 nm. Briefly, pipette sample solution in each concentration 100 ml in 96-well plate. Add DPPH solution 100 ml in each sample and mixed (Final conc. of sample 100, 50, 10, 1 μg/ml). The absorbance (A) was measured at 520 nm. Calculated by formula %inhibition = [ (A control-A sample)/ A control] X100 and EC\textsubscript{50} value calculated by linear regression analysis. BHT was used as positive control.

**Results**

Table 1 showed the percentage yield of each extract, the amount of active principles, piperine and/or 6-gingerol in each extract. Table 2 showed that the ethanolic extract of the four remedies at dose of 0.1 mg/ml had BuChE inhibitory effect were nearly 70%. The IC\textsubscript{50} of AChE and BuChE inhibitory activity of the all extracts were shown. The IC\textsubscript{50} values of BuChE were lower than that of AChE. The Tk1 and Tk2 exhibited the lower IC\textsubscript{50} of BuChE inhibitory activity than single herb. The IC\textsubscript{50} of DPPH activity of Zo and Tk2 were 16.59 and 48.80 μg/ml which were lower than the other extracts.

Table 1 showed the percentage yield and the amount of piperine or/and 6-gingerol in each extract (% w/w of extract).

<table>
<thead>
<tr>
<th>extract</th>
<th>% yield</th>
<th>Piperine (%w/w of extract) mg/g.</th>
<th>6-Gingerol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zo</td>
<td>5.754</td>
<td>-</td>
<td>1.59 ± 0.06</td>
</tr>
<tr>
<td>Pn</td>
<td>6.667</td>
<td>40.38 ± 0.13</td>
<td>-</td>
</tr>
<tr>
<td>Pr</td>
<td>15.045</td>
<td>21.15 ± 0.25</td>
<td>-</td>
</tr>
<tr>
<td>Tk1 (Zo:Pn:Pr 1:1:1)</td>
<td>9.613</td>
<td>20.07 ± 0.03</td>
<td>0.46 ± 0.00</td>
</tr>
<tr>
<td>Tk2 (Zo:Pn:Pr 3:2:1)</td>
<td>8.088</td>
<td>18.57 ± 0.22</td>
<td>1.05 ± 0.01</td>
</tr>
<tr>
<td>Tk3 (Zo:Pn:Pr 1:3:2)</td>
<td>9.374</td>
<td>20.94 ± 0.17</td>
<td>0.30 ± 0.01</td>
</tr>
<tr>
<td>Tk4 (Zo:Pn:Pr 2:1:3)</td>
<td>10.796</td>
<td>19.23 ± 0.42</td>
<td>0.42 ± 0.01</td>
</tr>
</tbody>
</table>
Table 2 showed activities of each extract as % inhibition of AChE and BuChE at dose of 0.1 mg/ml (means (sd)), the IC$_{50}$ of AChE, BuChE and IC$_{50}$ of DPPH (μg/ml).

<table>
<thead>
<tr>
<th>Extract code</th>
<th>% inhibition of AChE</th>
<th>% inhibition of BuChE</th>
<th>IC$_{50}$ of AChE (μg/ml)</th>
<th>IC$_{50}$ of BuChE (μg/ml)</th>
<th>IC$_{50}$ of DPPH (μg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zo</td>
<td>22.63 (2.0)</td>
<td>40.42 (2.0)</td>
<td>&gt; 300</td>
<td>60.82</td>
<td>16.59</td>
</tr>
<tr>
<td>Pn</td>
<td>57.98 (2.2)</td>
<td>50.04 (2.9)</td>
<td>25.46</td>
<td>42.94</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Pr</td>
<td>45.68 (3.4)</td>
<td>60.48 (2.0)</td>
<td>51.60</td>
<td>34.58</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Tk1</td>
<td>49.86 (2.2)</td>
<td>67.58 (2.2)</td>
<td>45.6</td>
<td>28.74</td>
<td>79.31</td>
</tr>
<tr>
<td>Tk2</td>
<td>48.84 (1.8)</td>
<td>71.84 (1.9)</td>
<td>51.97</td>
<td>25.39</td>
<td>48.80</td>
</tr>
<tr>
<td>Tk3</td>
<td>51.38 (1.3)</td>
<td>63.15 (2.5)</td>
<td>41.19</td>
<td>33.02</td>
<td>&gt;100</td>
</tr>
<tr>
<td>Tk4</td>
<td>50.41 (3.1)</td>
<td>70.35 (3.4)</td>
<td>42.93</td>
<td>33.28</td>
<td>87.18</td>
</tr>
<tr>
<td>positive control</td>
<td>93.04 (0.9) *</td>
<td>72.50 (0.9)*</td>
<td>0.1 *</td>
<td>0.37 *</td>
<td>11.52 **</td>
</tr>
</tbody>
</table>

* galantamine as positive control, ** BHT as positive control

Discussion

This study focused on anticholinesterase and antioxidation effects of trikatuk, Thai traditional remedies, and theirs ingredients in vitro level. Acetylcholinesterase inhibitors have been a proper therapeutic approach to alleviate the cognitive symptoms of AD (21). Within particular condition such as moderate or advanced stages of AD, BuChE may replace AChE in hydrolyzing brain acetylcholine. Therefore, selective BuChE inhibitor or mixed double function inhibitor is the treatment of advanced cases (22). This study resulted that the combined recipes exhibited more BuChE inhibitory activity than individual herbs. The most AChE inhibitory activity was found in Piper nigrum extract as this plant had been claimed for the AChE inhibitory activity (11). Piperine, the main active principle in Piper nigrum and Piper retrofractum and also in trikatuk extracts, had been revealed to protect against neurodegeneration and cognitive impairment in animal model of cognitive deficit like condition of AD(12). Trikatuk recipes were the mixtures of Piper nigrum and Piper retrofractum in four difference proportions, so the recipes beneficially acted as the enzymes inhibitors, especially Tk2 which showed the specific anti-BuChE effect.

It is known that oxidative stress is one of the major mechanisms causing neuron and astrocyte death in AD. Therefore, any antioxidants with anti-inflammatory action may be more beneficial in the prevention of this neurodegenerative disease (9). Zingiber officinale
was another ingredient in trikatuk remedies. 6-gingerol and 6-shogaol, two main active principles in Zo, were clearly known as potent anti-oxidants which had been proved to protect neuroinflammation (15, 16). This study showed that the extract of Zo and Trikatuk remedy in the ratio of Zo: Pn : Pr 3:2:1 (Tk2) had the antioxidation activity with IC_{so} of DPPH activity of 16.59 and 48.80 μg/ml. This antioxidation activity were related to the 6-Gingerol content. The Tk2 might protect neuronal cell from oxidative stress toxicity due to its antioxidant effect of 6-gingerol. In addition, the Zo extract also showed specific inhibition of BuCh rather than ACh enzyme. This specific anti-BuChE effect was also due to 6-Gingerol content (17).

According to basic principle of Thai traditional pharmacy, components in drug compounding were divided into four categories as main ingredient, auxillary drug, controlling drug and coloring or flavoring agents (23). Usage of drug remedy should be more reasonable than single drug for the ingredients may have synergistic effects or reduce any toxic effect. In this study, the percentage of piperine and 6-gingerol in trikatuk remedy (Tk2) extract (w/w) were 18.57 and 1.05 mg/g. Besides piperine and 6-gingerol, in trikatuk remedies, there were other substances such as volatile oils, oleoresins and theirs derivatives which also had synergic effects (24). Moreover, the trikatuk remedies were considered to be efficacious and safe. Subacute toxicity studies of water extracts of the three formulae of Trikatuk showed no differences in pathological between the extract-treated groups and the control groups (25). Based on this study, the use of trikatuk remedy extract in the ratio of Zo:Pn:Pr 3:2:1 was reasonable and potential for using as co-treatment for prevention or treatment of AD.

Conclusion

The combined recipes, trikatuk remedy in the ratio of Zo:Pn:Pr 3:2:1 (Tk2) showed specific anti-BuChE effect more than single herb. This recipe also had antioxidant activity than others and might protect neuronal cell from oxidative stress toxicity due to its antioxidant effect of 6-gingerol. These results suggested the potential use of trikatuk remedy, Tk2, as prevention or additional treatment of AD.

Acknowledgement

This work was supported by the Higher Education Research Promotion and National Research University Project of Thailand, Office of the Higher Education Commission.

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Cholinesterase Inhibitory and Antioxidant Activities of Thai Traditional Remedies Potentially Used for Alzheimer’s Disease

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Moving toward Multicultural Society?: South Korea’s Migration Trends and Immigration Policies with the Focus on Foreign Labor

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Abstract

Background: South Korea’s attempt to achieve multiculturalism and attract more foreign labor; ranged from unskilled manpower to highly skilled foreigners, is very intrigued why the nation with its homogeneous myth and strong ethnocentric nationalism would yearn for multicultural society. With large numbers of the prospective immigrant influx, the newcomers who would bring along with them diversities might be viewed as an intimidation to the nation and the society, therefore the nation should require for a proactive response to the change.

Objective: This paper will explore South Korea’s recent immigration policies that have been established to respond to national interest in more foreign manpower. Furthermore, it will go beyond the discussion about the homogeneous myth and the source of Korean ethnocentric nationalism that could obstruct South Korea’s process of moving toward a multicultural society. The study aims to address how South Korea, at the policy level, acts upon the recent immigration situation and prepares the nation and its citizens for the societal change as a result of the fast growing numbers of immigrants.

Discussion and Conclusion: South Korea's recent immigration policies reflect national interest in attracting more foreign talents and manpower in response to the labor market demand. Aiming to move toward multicultural society, multiculturalism and social integration have been adopted in order to dissolve with the problems and concerns over the immigrations. The study concludes with the societal challenges that might hinder the approach to multicultural society and ends with the suggestions to overcome with the challenges.

Keywords: Immigration policy, Labor immigrants, Multiculturalism, Nationalism

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Introduction

From 1960s to 1980s, almost 2 millions of South Koreans emigrated overseas for temporary employments. However, recently, South Korea, a former major labor sending, has transformed itself to a major receiving country when 1.2 millions of foreigners including female migrants, return overseas Koreans, and foreign labors constitute 2.4 percent of the total population. If this trend of immigration influx continues, the number of foreign residents in South Korea would reach 2.5 millions in 2020, and plausibly rise up to 4.1 millions by 2050, considering 9.2 percent of the total populations (Kim, 2010). This huge number of immigrant influx requires the policy adjustment to respond to the change in society as well as the reinforcement of the border control and the migration management in order to prevent the conflicts deriving from the immigration. Moreover, with regard to the homogeneously nationalistic and patriotic sentiments that had been provoked throughout Korean history and the consequent traumatic feelings from the colonization, Cold War and Korean War, seemingly, it is hard for the Koreans to open to foreigners. Hence, South Korea’s intention to transfer the nation to a multicultural society becomes very interesting.

This paper explores South Korea’s recent immigration policies, namely ‘The First Basic Plan for Immigration Policy 2008-2012’ and other related policies that have been established to respond to the national interest in attracting more foreign manpower. Claiming that South Korea’s intent to adjust the policies is to bring in more foreign labor force due to the economic driven needs, I noticed that the rationale underlying in the immigration policies, that are centered on social integration and multiculturalism, is not only for managing the fast growing number of the immigrants, but also for solving the humanitarian problems regarding foreign workers themselves and the natives’ negative attitudes toward foreign workers. I also pay close attention to the nationalism and ethnocentrism that were cultivated throughout Korean history as it reveals the societal challenges that could hinder the state approach to multiculturalism.

In this paper, I will utilize the neoliberalism approach or the migration management, that was designed to promote economic competitiveness by directing the right types and numbers of migrants, as a mean to analyze South Korea’s characteristic of migration control or policy and its related consequences. Moreover, I will use the national identity approach that highlights historical experiences, cultural idioms and social conflicts that have shaped past and current immigration policies, to explain the uniqueness of South Korea’s national identity and history that strongly influenced its immigration policy.

South Korea’s Proactive Open-door Policy

As recent South Korea’s immigration policy reveals the national interest in pursuing the ‘proactive open door policy’ and the demand for more foreigners in order to enhance
The trend of the low fertility rate and rapidly aging population in many developing countries generated much concerns over the working population declines and the labor shortage that might lessen national productivity and national competitiveness. Inevitably, the trend intruded South Korea. Before the Korean War in 1950, the total fertility rate was approximately at 6 children per woman (Phang, 2005). However, after the war broke out until 1980s, the number had plunged to 1.7 and continued to fall until it reached 1.23 in 2012 (est., CIA world fact book, 2012) making South Korea’s fertility rate descended to the world lowest when the other OECD countries’ rate is at the average of 1.63 children per women (KIS, 2009). Moreover, apart from the extremely low fertility rate, in the midst of modernization and intense economic development, South Korea is also confronting with another challenge which is the rapidly aging population as it was forecasted that by 2050, 38 percent of its total population will be aged 65 and older making the total cost benefits to the elderly plausibly exceed to 25 percent of its GDP (Howe, et al, 2007).

The consequence of the total population declines plunged the amount of the Korean workforce as most advanced countries have experienced. Unfortunately, unlike the other advanced countries, South Korea could have to confront with the labor shortfall in the midst of its high economic development. This extremely challenges the government in finding how to prevent the decrease of its working population, to procrastinate the decline as well as to replace the vacancy in the labor market. The concerns over the potential loss in international competition and the economic downturn caused by the shortage of labor provoked the Korean government to seek for the opportunity to increase the working population by encouraging the opening for more foreign labor.

With much of the world populations that are still young and growing when working age population in the developing country could fill in the labor gap of the aging country (Kent and Haub, 2005), the UNPD (2000) suggested the ‘Replacement Migration’ as an alternative solution to the population and working age population declines. Regardless the pursuit of the population stability, replacement migration could at least serve as an optional solution to the labor shortage caused by the working age population declines as many countries have turned to immigration as a partial remedy.

Expectedly, the recent South Korea’s immigration policy displays high degree of correspondence to the UNPD’s replacement migration scheme. The first task of ‘the First Basic Plan of the Immigration policy 2008-2012’
is to enhance national competitiveness through proactive opening in order to secure growth potential by attracting highly skilled foreigners to help Korea with technological innovation, develop value-added industries and lead global management. The plan aims to attract highly skilled foreigners with an improved visa system, the more convenient immigration services for entry, sojourn and exit, and the improvement of the nationality system by allowing the dual nationality and relaxing the requirements for general naturalization. Additionally, at the national-level, the policy reveals its support to the effort in finding and attracting highly skilled foreigners via ‘Contact Korea’\(^5\), overseas job consulting and arrangement through KOTRA’s\(^6\) ‘overseas offices, ‘HuNet Korea System’\(^7\), and overseas job fairs\(^8\). Apart from attracting more highly skilled labors, the policy also aims to attract foreign manpower for the balanced development of the national economy. Although the implementation of the Employment Permit System and Work-Visit system could reduce the unskilled labor shortage in manufacturing sectors, the shortage still continues. In order to attract skilled foreign labor in responding to regional and industrial demand, the policy was planned to improve the skilled production labor introduction system and expanding access channels for skilled labor. Moreover, to attract unskilled labor to reflect corporate demand and social costs, the foreign workers are being introduced to meet the demand of companies by the Ministry of Labor through the selection of skills, experiences, and other qualifications along with Korean language fluency, based on their training performance and qualification levels. In addition to the simplified employment procedures and the rationalized employment cost by the Ministry of Labor and the Ministry of Justice, the policy also attempts to improve the quota system for unskilled labor, to create the better working environment, to reinforce safety and health training and to support for the improvement of the foreign workers’ life in Korea through the consultation services and the support centers for the foreign workers under the local government.

Believing that international migration can be a constructive economic and social force contributing to national economy, and with the demand for more working population to sustain the national productivity and to procrastinate the population shortfall, the open-door immigration policy could be a favorable way out. South Korea’s migration management strategy acts in accordance with the neo-liberal approach that aims to ensure the right number and the right types of the migrants to reflect the national demand. Its direction is now to pursue and to attract more highly skilled foreign labors with the opening door to a very friendly and pleas-

\(^5\) A comprehensive service support system to attract highly skilled foreigners by Ministry of Knowledge Economy, Ministry of Foreign Affairs & Trade, Ministry of Labor, and Ministry of Justice

\(^6\) Korea Trade-Investment Promotion Agency (http://english.kotra.or.kr)

\(^7\) An online visa recommendation and inspection system by Ministry of Justice

\(^8\) The oversea job fairs held by Ministry of Knowledge Economy, Ministry of Foreign Affairs & Trade and Ministry of Education, Science and Technology
ing atmosphere by believing that they could help South Korea achieve the more advanced economic development. Still, South Korea is at the same time carefully assorting the right kind and the right number of the skilled and unskilled labor with Visa, the Employment Permit System, and the Work-Visit system.

The possibility that the foreigners could contribute to the economic development and help strengthening the national competitiveness is so high that South Korea could not turn down. Regardless the conflicts and the problems the immigration would produce, the benefits of the on-demand immigrants are still desirable and undeniable. Conventionally, it comes to the Koreans now to judge how wide the door of their homogeneous land should be left open.

Homogeneous Korea: Single-race nationalism and patriotism

The open-door policy might put a great contribution to the national economy. However, the policy works as a double-edge sword; on one hand, it reflects the national demand for more labor, but on the other hand it could open up to social problems regarding the social frictions and the discrimination against the newcomers.

In the recognition of the ‘national identity’ approach, the country’s history, national identity and social conflicts are viewed as a construction of the immigration policies. Then, the understanding of Korean national identity and the Korean’s attitudes and believes is required for the explication of Korean’s migration management strategies underlying the immigration policies.

Noted that the myth of ethnic homogeneity remains widespread in Korean society and believed that it is still prevailing the component of the national identity (Yang, 2009), it is a conventional consequence of the state nationalism and patriotism acculturation that has provoked the homogeneously nationalistic sense from time to time in order to create the feeling of togetherness and to draw the citizen’s participation in helping the nation achieve the same goals.

Scrutinizing Korean history of the state-led nationalism and ethnocentrism acculturation, the advent of the ethnic homogeneity or the single race nationalism displayed the state exploitation of the nationalistic and ethnocentric consciousness to overcome with the national crisis dated back to the 14th century. By emphasizing the ‘Dangun’\(^9\) myth, it provoked the sense of unity among the Koreans as sharing the same ancestor and the sense of being superior to other neighboring countries as being distinctly civilized as old as China.

\(^9\) Dangun Myth: The Korean history started when Dangun founded a nation in 2333 BC. He was a son of Hwanung and Wungnyo, a bear-woman. Hwanung, who was the illegitimate son of Hwanin, the heavenly lord, descended to earth with his magical power and the four guardian gods to rule human world. One day, a bear and a tiger came to ask Hwanung to turn them into human. To fulfill the wish, the bear and the tiger had to stay in the cave without the sunlight and to eat only garlic and mugwort for a hundred days. Only the bear endured and was transformed into a woman. The bear-woman got married with Hwanung and begot Dangun who grew up and founded the old Joseon. (Moon, 1997)
Traditionally invented in Joseon Dynasty (1392-1910), the myth of Dangun was not meant to create the public sense of being homogeneous. However, later during the colonization by Japan (1910-1945), the Koreans developed the idea of ethnic homogeneity as a counter measure against the Japanese propagandist notion of ‘naisen ittai’ or ‘the Korea and Japan are one and the same’ (Han, 2007). Then, in order to gain the recognition, the Koreans emphasized their unique identity and the Korean national characters to differentiate themselves from the Japanese as well as to provoke the nationalism at the same time.

Apart from utilizing the homogeneously nationalist sentiments and the national identity as a counter measure to the Japanese assimilation during the colonization, the Koreans adopted the idea of ethnic homogeneity and transformed it into the Korean nationalism that was later reinforced by economic growth, democratization movement and foreign currencies crisis. Regardless the forming of the Korean nationalism, each time the nation faced with dilemmas, the nationalism was always pulled out as a secret weapon to quietly strike back the difficulties that were created externally. Throughout the Korean War, nationalistic elements were strengthened as the competition occurred between North Korea and South Korea over which side was more nationalistic and therefore more legitimate (Han, 2007).

There were reports stating that the nationalism induced by the anti-communist sentiment was very strong during the civil war as a consequence of the civil war triggered by the communist North Korean’s invasion. Under the first Republic (1948-1960), nationalism was based on the anti-japanism and the anti-communism and it is also believed that President Rhee Syngman utilized these sentiments to secure the legitimacy of his regime as well as President Park Chunghee manipulated it during his authoritarian regime.

Under his presidency, Park Chunghee (1961-1979) emphasized the nationalist consciousness by strengthening it through the education and acculturation. He utilized the Korean tradition and anti-communist sentiment in order to provoke the sense of nationalism by expecting to create the unity of the Koreans and the sense of sacrificing for the nation to help together revitalizing the country through the economic development. He launched the ideology of official nationalism with the themes of ‘self-reliant economy’ and ‘self-reliant defense’, together with ‘tongdo sogi’, meaning ‘Morality of the East and Technologies of the West’, the nationalist concern that shared by the Third world elites, aiming to modernize the nation with the capitalist industrialization, defend the communist in the North and establish a national identity with the goal to achieve the economic development. (Moon, 1997)

Nationalism and ethnic homogeneity were emphasized most of the time throughout Korean history. With these feelings that have been instilled to the heart of the Koreans and aroused occasionally, whether or not Korea is homogenous, it is believed to be a magnificent tool in encouraging Korean people to sacrifice their own personal life and goal and contribute to the national achievement, although it might covertly create the negative feelings toward foreigners as the Korean have tried to exclude them for centuries.
From nationalism to international immigrants conflicts

As responding to the global movement of people as a consequence of the globalization era, most wealthy states centered their immigration policies to attract necessary foreign human resources. South Korea, with the experience of the speedy cumulative economic growth contributing the nation to enter the OECD in 1996, is as well attempting to pursue open-door policies by encouraging foreigners to migrate in order to secure the people who have the knowledge, information and the capacity to lead technological innovation, recognizing as the highly skilled foreigners, as announced in the present plan for immigration policy. Moreover, besides attracting foreign talents, South Korean government foresees the openness as a contribution to the national competitiveness.

Earlier claimed that the open immigration policy works as a double-edge sword, still, it seems that most developed nations have adopted the open policy for longer than half a century. However, they could not deny that it also engraved the frictions onto the society regarding the conflicts between the minority and majority.

Formerly notable in conforming the exclusionary approach, or ‘not very friendly’ one, even if the South Korean government is now in pursuing the open-door policy, along with the multiculturalism, there were numerous cases showing the recent serious conflicts regarding the immigrant workers and the natives. Witnessed the conflicts caused by the openness policies in the European countries, South Korea must have already had calculated seriously over the cost and benefits the nation would have to risk. In relation to the nationalism and patriotism whether or not they were a consequence of the homogeneous belief or the patriotism and nationalism acculturation by the Korean political leaders, it is undeniable that they last in Korea. As the sentiments and attitudes are considered to be very much elusive, it is hard to identify whether there are marks on the Koreans regarding much love toward their nation or their own believe-to-be single race and whether or not this would obstruct the open of the country to the international immigration.

Examining South Koreans’ notions of national identity, attitudes toward foreigners and racial/ethnic minorities, and social distance feelings toward foreigners and minority groups, in ‘South Korean’s attitudes toward Foreigners, Minorities and Multiculturalism’\(^{10}\), it revealed that South Koreans tends to think that the immigrants in South Korea are not a serious threat to South Korean economy and culture because they are small and powerless minority group. Moreover, the South Koreans tend to have sympathy toward the immigrants as they are disadvantaged and mistreated. However, it was noted that even if they are more open at the individual level, at the international level, South Korea still remains at defensive nationalism. (Yoon, et al, 2008)

\(^{10}\) Paper prepared for presentation at the annual meeting of the American Sociological Association, Boston, MA, 2008 done by In-Jin Yoon, Young-Ho Song and Young-Joon Bae (Korea University)
Although it is widely perceived that South Korea tends to be ethnocentric and exclusive to foreigners, the research shows that nowadays the Koreans’ attitudes become more open and the Koreans tend to have better acceptances toward foreigners. However, in the public society, the reality might not go in accordance with the research in which the conflicts caused by the misunderstanding and bias still occur from time to time to fortify that the sentiments and beliefs cannot be eased so easily.

Widely believed that the immigrants could provoke strong public sentiment in the host countries caused by differences in racial, language, religions, ethnic backgrounds and diverse cultural traditions, it unquestionably leads to problems caused by misunderstanding. Moreover, the native-born could somehow perceive the immigrants as the threat to their jobs and their own ethnic cultures. Then, the government’s determination in transferring South Korea into a multicultural society is beyond question, first, on how the government would manage to achieve the multicultural society on the land of enduring homogeneously nationalistic and patriotic sentiments that had been provoked throughout its history of national building, and second, whether or not the strong pride of Korean national identity and the ethnocentric consciousness would obstruct the state desired approach.

Current report of Korean Times and Busan Haps (2012) revealed the survey result conducted by the Joint Committee with Migrants in Korea (JCMK) that 73 percent of migrants workers had experienced verbally abused, 26.8 percent suffered from physically abused, and nearly 14 percent claimed that they were sexually harassed. Even though, it seems that the government had tried to lessen the conflict regarding humanitarian issues and working conditions of migrant workers via numbers of policies and programs, the human right conditions of the foreign workers seem not to improve much. This might imply that may be the problems cannot be easily diminished in reality.

Regardless of the foreign workers human rights violation that either caused by miscommunication, racism, cultural superiority or just pure individual bias, there revealed the conflicts caused by the immigrants as well. Recently, Chosun Ilbo (19 Jan, 2012) reported the conflicts in the ‘Chinatown neighborhood’ in Seoul. With the work-visit program that allows ethnic Korean from China and Russia to stay and work in South Korea for 3 years, the number of the return Koreans has increased sharply. This provoked the conflicts in Seoul in which that the residential areas of those ethnic Koreans from China have been spread out in wider area triggering the complaints by locals that the influx of the foreigners cause the drop of the property price due to the increasing crimes and other problems. Moreover, there were also reports of the increasing crimes led by foreigners involving in gambling, prostitution, illegal smuggling, drug trafficking and loan sharkning.

In pursuing the open-door policies and multicultural society, the government should act immediately to assault with those problems mentioned. Moreover, the program and the policy to prevent and to cope with the discrimination and to promote understanding between the natives and the newcomers should be well considered.
Korean Multiculturalism and Social Integration

South Korea’s intention to adopt the ‘social integration’11 as a mean to mobilize the country toward multiculturalism is obviously seen through its new immigration policies and programs that were established to lay the foundation in the society preparing the Koreans for the influx of the immigrants as predicted as well as creating understanding among the Koreans regarding the immigrants. Not only the discrimination toward immigrants that has been concerned, but also the better living condition and the assistance to the new arrivals are also the main focus of the policy.

South Korea seems to be in the process of adjusting themselves according the changing world situation. Just like other countries, the phenomenon of globalization intruded Korea. With the movement of people coming in and out, in order to attract the talented and the potential ones, the society as well calls for an adjustment not only to attract those foreign labors, but also to assist them once they arrive in, in order to prevent the conflicts and to keep the social cohesion strong.

Realizing the situation, in the last decade, South Korea established ‘The Korea Immigration Service Foundation, aiming to assist citizens of other countries residing in Korea to feel at home here. Later in 2009, the first basic plan for immigration policy was released with the aim to involve better education of both Koreans about immigrants and of immigrants about Korea. As of the policy initiative, the pilot version of ‘the Korean Immigration and Integration program’ (KIIP) was designed and implemented by the Ministry of Justice through social integration division. The program consists of two halves: Korean language training and Understanding Korea Society. In the Korean Language programs, there are 5 proficiency levels to be completed before move up to the Understanding Korean Society where the immigrants will be taught about Korean society and culture. Now, most people who are taking KIIP are foreign laborers who hope to become Korean citizens and to have greater freedom in changing jobs. (Korea.net 2009)

Moreover, in ‘The First Basic Plan for Immigration Policy’, the direction and the action plan to promote social integration were stated clear. To achieve high-quality social integration, the policy revealed the emphasis over the needs to improve public understanding of multicultural society by raising awareness through school education, social education, boosting promotional efforts for multicultural

11 OECD defined ‘social integration’ as “the process by which people who are relatively new to a country (i.e. whose roots do not reach deeper than two or three generations) become part of society”. However, the concept of the ‘European integration’ refers to shaping a new structure out of individual entities, the nation states emphasizing on the new, collectively determined unity could be useful for conceiving a two-way process of integrating migrants and established nationals (OECD, 2003) Moreover, the process of the integration is explained as the process for the immigrants to learn a new culture, to acquire rights and obligation, to gain access to positions and social status, to build personal relationship with members of the host society and to form a feeling of belonging to and identification with that society
society, reinforcing participation and communication between the local communities and the foreign migrants in addition to the enforcing of the immigration law in order to prevent the conflicts that would be invoked by the illegal migrations and the immigrants themselves.

Conclusion

South Korea migration trends and situation as well as the immigration policies reflect national interests both state and civic society. The policies’ direction shows its aim to attract more foreign labor and achieve multicultural society with social integration with the hope to make South Korea a desirable destination of migration and create social cohesion where the Korean nationals and foreigners could live together in harmony.

By studying South Korea’s recent immigration policies and society regarding the migration trends, societal conditions, history and national identity, it reveals the powerful determinants that have influenced greatly on the immigration policies. First, the immigration policies in South Korea are shaped by the economic driven factors majorly. In order to reflect the demand of the labor market regarding foreign labor due to the labor shortage and the business sectors that desire for foreign talents or foreign human capitals that could contribute to the national competitiveness, South Korea, therefore, is in pursuing of the openness in order to attract more foreign manpower. Secondly, social driven factors also serve as a determinant to the immigration policies as well. The challenge that South Korea is facing and becoming more seriously in the near future would be the problem of the working population declines. In order to attract foreign manpower or create a ‘Pull’ factors drawing immigrants into the country, South Korea might need to adjust the national atmosphere to be more open, and friendly for foreigners. Therefore, to battle with discrimination toward the foreign labor and foreigners as a whole and to reconcile social frictions becomes highly significant and, hence, should be concerned as a priority once designing the immigration policies and immigration control.

The rationales to explain why South Korea desires for more foreign labor and attempt to achieve multicultural society is that South Korea is in need of more working population in a short time in order to serve an immediate need of the business sectors in fulfilling the vacant positions. Moreover, to prevent the crisis that would cause by the instant shortfall of labor as a result of the total declines in population; the working population in the nations with young and growing population could serve as an option that South Korea might consider to acquire. In addition, to gain more competitiveness in the fierce global market competition, the talented human capitals are, as well, very tempting to possess, regardless of their nationality and ethnic backgrounds. In order to develop the economy with the full potentials, the highly skilled foreign labors that correspond to the market demand are also attractive enough. Therefore with multicultural society, South Korea will appear more attractively to those prospective foreign workers.

In addition to South Korea’s immigration policies’ aims to pursue the openness and to attract more foreign labor, they also try to promote the multicultural society where native
Koreans and foreigners could live together happily. Practically, with the enduring history of being homogeneously nationalistic, to achieve the openness, it would take greater endeavor than of the government to overcome with the challenges. However as to lay the foundation to the society and design the action plan to overcome with the challenges, South Korea planned to utilize ‘social integration’ as a tool to mobilize the nation with the homogeneous nationalism toward multicultural society. To prepare the citizen for the societal change, the policy shows its plans to acknowledge the citizen about the multicultural society through public education. Moreover, it plans to assist the new arrivals with language and culture education, and the consultation program helping them adjust themselves to their new home. In addition, the plans also encourage the participation of the foreigners in the local communities so that both the native residents and the newcomers could create better understanding within each other and live together in harmony.

Whether or not the ethnocentric nationalism would obstruct the attempt to become multicultural, it still remains unclear to answer that the ethnocentrism was a cause of discrimination or conflicts between the origins and the immigrants as the problems occurred recently show more conflicts that not only caused by the natives rejecting the immigrants with the discrimination towards race or ethnic backgrounds, but the rejections also seem to be affected by the miscommunication: verbally and physically, more than just by the ethnocentric feelings purely. Nevertheless, since the public consciousness is elusive, the judgment is hard to define. South Korea as a very homogenous and racist country could be just a myth and the world’s perception of South Korea has been deceived by this myth for too long now. Therefore, to judge whether or not South Korea could overcome with the statement and achieve multicultural society, as they long for might be a time-consuming event.

The Korean society has been a close society that excluded foreigners for a long time. Therefore, it is hard to integrate the segmented pieces into one. Besides the support of the language and cultural education to the foreigners, the government should also encourage the citizens to adjust their attitudes and behaviors toward foreigners in order to make the government’s achievement more comprehensive. The conflicts in the society are not only caused by the foreigners do not understand the Korean society, but also the Koreans do not understand foreigners and do not aware of the harmless differences. The emphasizing of education on various ethnic backgrounds and foreign cultural differences might create better acceptance toward foreigners among the Koreans, as it is the foundation of the mutual understanding achievement. Moreover, the government should also point out the advantages the nation could gain from the immigration to the people because without it, it would lead to numbers of economic problems.

The immigration should be a win-win situation for the South Koreans and the immigrant labors; the immigrants could access to a better life in South Korea and the South Koreans could benefit from them regarding the labor substitution and the foreign talents and innovation. However, it might be a long journey of the South Korean’s government
in achieving multicultural society unless the better understanding between the Koreans and the foreigners can be settled and that is when they can live together happily in South Korea.

As this paper has focused only on the response of South Korea’s at the policy level that acts upon the national interest regarding the immigration and the recent migration situation, further study on the issue of the civic society’s response and action plans to support and to response to the national policy shall be done in order to provide with more preferable and advantageous resolutions to the concerns over the immigration in South Korea.

Acknowledgement

This paper is a revision to the paper to be presented in the National Conference on Korean Studies on July 16th 2012 at the Faculty of Humanities, Ramkhamhaeng University, Bangkok, Thailand

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Empowerment Approach and Dietary Self-Management in Rural Thais with Impaired Fasting Glucose

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Abstract

Background: A two-group-quasi-experimental design was carried out to test whether nutrition education with an empowering approach can motivate dietary self management among rural Thais with impaired fasting glucose.

Methods: Through screening for pre-diabetes in Phetchabun province, 90 subjects were recruited from rural district with 44 in the intervention group and 46 in the control group. The empowerment process consisted of a total of six sessions that covered active learning in nutrition knowledge and skill practice in dietary self-management. Empowerment outcomes and related health indicators were assessed at three interval times in a 1 year follow up.

Results: Critical thinking ability and participatory behavior were enhanced through a supportive environment. Subjects increase their self efficacy in tailoring a meal plan with proper caloric intake and in the decision of food choice. This resulted in better related health outcomes. The percentage of subjects with fasting blood glucose less than 100 mg/dl was significantly higher in the intervention group compared with the control group, 36.4 [95%CI 22.1-50.6] vs. 10.9 [95% CI 1.9-19.9]. In group of BMI ≥ 23 kg/m², the percentage of subjects who lost weight ≥ 5 % from baseline value was significantly higher in the intervention group, 48.3 [95% CI 30.1-66.5] vs.10.8 [95% CI 0.8-20.8].

Conclusions: Results from this study suggested that nutrition education with an empowering approach is possible among rural Thais. Improvement of related health outcomes was shown. There may be a delay in the realization period in the case of some individuals relative to diabetes mellitus. Further study is needed to ensure healthy eating sustainability.

Keywords: Dietary self-management, Impaired Fasting Glucose
Abbreviations: IFG, impaired fasting glucose; FBG, fasting blood glucose; PCU, primary care unit; IGT, impaired glucose tolerance; FGD, focus group discussion.

* Correspondence: savanit@tu.ac.th
Introduction

Diabetes is a growing global health problem. Prevalence for all age-groups worldwide was estimated to be 2.8% in 2000 and 4.4% in 2030 (1). Diabetes increases risk of a number of serious health problems: coronary heart disease, stroke, and kidney disease. It is one of the leading causes of death in most high-income countries and is epidemic in many developing countries. Increasing numbers of type 2 diabetes are associated with economic development, aging, urbanization, diet and other lifestyle changes (2). The majority of people with diabetes in developing countries are in the 45 to 64 year age range while in developed countries are more than 64 years of age (1). The conditions of impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) are known as “pre-diabetes”. People with these conditions have a higher risk for developing diabetes and an increased risk of cardiovascular disease (3).

Thai National Health Examination Survey IV (4) reported the prevalence of diabetes in Thai people aged ≥ 15 years at 6.9%, in males 6.0%, in females 7.7%. The prevalence of impaired fasting glucose (IFG) is 10.7%, in males 11.8%, in females 9.5%. Prevalence rates of diabetes were greater in urban compared with the rural area. Prevalence of obesity (BMI ≥ 25 kg/m2) figured at 28.4% in males and 40.7% in females. Prevalence of the male with a waist circumference ≥ 90 cm figured at 18.6% and females with a waist circumference ≥ 80 cm figured at 45%. It may link to the cardiovascular disease burden in Thailand. High health care costs and serious consequences of the disease affected the quality of life of the patients, families, and communities.

The pre-diabetic is in a high risk group to develop to diabetes mellitus. To prevent diabetes and its complication, intensive lifestyle interventions is considered to be helpful. Both diet with and without exercise is a significant treatment targeted in these preventive trials (5-8). Preventive treatment early in the course of the diseases reported to be of benefit (2). Dietary modification and exercise programming when implemented for high risk people in the community setting or real life situation need more consideration to achieve positive behavioral change (9-11). It is challenge to set up strategy and design of intervention program for pre-diabetes in rural people with lower educational levels and socioeconomic conditions. The way of life of this population group is influenced by urbanization. Their food consumption patterns tend to an imbalanced diet with high caloric intake and sparse physical activity. The pace of urbanization is expected to continue with consequences on health. The most effective means to reduce the disease burden and improve the quality of life should be based on one’s own capability especially in daily dietary management and physical activity. Believing that people can be capable of making their own choices and decisions promotes empowerment (12-14).

An important factor for one to succeed in positive behavioral change is self efficacy; that is they should perceive themselves to be competent to perform such a specific behavior (15). An individual’s confidence in an ability to change can result in a persistent effort to regularly execute new ways of healthier eating.
given time. Provision of health information and skill is necessary to gain control. Empowerment was defined “as the capacity to define, analyze and act on your own problems” (16). Promoting empowerment means believing that people are capable of making their own choices and decisions (14). The empowerment approach is a perspective on practice that provides “ways of thinking about and doing practice” (13). Empowerment education model consists of 5 steps: experiencing, naming experiencing, analysis, planning and doing (17).

Recommendation from American Diabetes Association 2010 for pre-diabetes or diabetes promotes weight loss 5-10% for all overweight or obese individuals with caloric restriction from low-carbohydrate, low-fat diet and increase in dietary fiber. Regular physical activity at 30 min/day, is recommended. Nutrition education with an empowering strategy and intervention was carried out in this study. Motivation to change and practice for increasing self efficacy was included. The aim of this study was to investigate the notion that the empowering approach can motivate rural pre-diabetes Thais to be understood in dietary self management leading to disease prevention.

Methodology
Study design and subjects
Duration of this quasi-experimental study was from March 2010 to the last intervention in September 2011. All subjects reside in the village of sub district, Sri-Thep district, Phetchabun province which is located in central part of Thailand. At the provincial level, DM prevalence increased from 2.1% in 2007 to 3.4% in 2011. 77% of the population (442,847 subjects) aged ≥35 years were screened for pre-diabetes, a figure of 4.9% was found (18). In this study, four sub districts in rural area were randomly selected as control or intervention area. There is no difference in physical and socio-economic condition in these two areas and they are 15 kilometers away from each other. Focus group discussion was employed for formative information of people and community context. Since the study is a two-group- quasi-experimental design, the formula for two independent groups was used. Based on 95% power of test, with statistical confident at 95% and the expected effect size in three fourth of standard deviation of primary outcome measurement, the calculated sample size is 47 per group. 629 subjects aged 35-65 years registered for screening of diabetes mellitus and hypertension. Those with a previous diagnosis of diabetes mellitus, a history of liver or kidney and cardiovascular disease were excluded. Fasting blood glucose from the finger tip was determined by an Accu-Check Advantage home glucose monitor model reading (plus 5.2%) to get the value that can be compared with fasting plasma glucose (FPG) (19). 133 subjects were found with impaired fasting glucose (FPG was 100-125 mg/dl). 118 subjects were confirmed to not have diabetes mellitus by the 2-hr oral glucose tolerance test values of less than 200 mg/dl. 118 subjects were confirmed to not have diabetes mellitus by the 2-hr oral glucose tolerance test values of less than 200 mg/dl. 102 subjects agreed to attend the research project with 53 subjects were in control area (the control group) and 49 were in the intervention group. The control group received general knowledge at the beginning of the project about the importance of food and nutrition, weight control, and physical activity in the prevention of diabetes.
The Human Ethics Committee of Thammasat University approved the protocol and all participants gave written informed consent.

**Intervention**

Nutrition education with empower strategy and intervention all were carried out in this study. The process covered active learning in nutrition knowledge and skill practice in dietary self-management. It consisted of a total of six sessions developed by the researcher. Sessions 1-6 of nutrition education were applied throughout the study at wk 4, 11, 18, 22, 35, and 52. They were applied after all measurement data were collected in each period. Subjects recorded their data in a personal workbook. Then they interpreted same by comparison with normal values and the previous ones. As for provision of knowledge, subjects participated in the interactive learning about the pre-diabetic condition; disease prevention by dietary self-management; knowledge of food groups, food exchange list, and how to make an eating plan with quantified portions of food intake. A workbook was used as resource information and as a series record of personal data. Food serving size and how to make a food exchange were demonstrated and exercised repeatedly in all 6 sessions as well as the serving size of rice in the lunch activity. Subjects set up goals for weight reduction (<5%) and glycemic control (<100 mg/dl). They calculated their energy need from weight, height, and physical activity and made tailor eating plans to achieve goals. Portion sizes of each food group were planned and interchanged based on carbohydrate counting from a food exchange list. Local food dishes and subjects’ own menus were used as a learning model of suitable portion size together with a model food exchange list. Subjects executed their eating plan to cope with their daily life food intake and occasional excesses. The ‘can do’ or ‘cannot do’ as planned was evidenced according to their anthropometric and biochemical data. They revised the ‘how-to-do’ from their peers and retried the activity. Topic/activity titles, content focus, and timing of intervention in each session appear in Table 1.
## Empowerment Approach and Dietary Self-Management in Rural Thais with Impaired Fasting Glucose

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### Table 1: Topic titles, content focus, and timing of implementation of each session.

<table>
<thead>
<tr>
<th>Topic titles</th>
<th>Content focus</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>wk</td>
</tr>
</tbody>
</table>
| 1. Increase awareness and emphasize reason for dietary change | Interactive learning:  
- Motivation of self efficacy in management  
- Condition of Pre-DM/DM, its contribution to health and quality of life  
- How to prevent DM by dietary self-management | ✓ | - | ✓ | - | - | - |
| 2. Set up goals and learn how to achieve goals    | Subjects set up goals for 5% weight reduction and blood sugar <100 mg/dl. Interactive learning: dietary modification to achieve goals | ✓ | - | - | - | - | - |
| 3. Increase knowledge and skills                  | Increase knowledge of food groups and nutrients  
- Subjects practice skill for counting serving size by using food model, local dish, and subject’s own menu.  
- In lunch activity, subjects practice skill in estimating serving size of rice. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4. Consideration of data changes                 | Subjects record their anthropometric and biochemical data.  
Participating in a dialogic discussion with their peers  
- Subjects learn to interpret data by comparison with normal values and previous data.  
- Subjects discuss causes of change of their data relative to dietary intake and other lifestyle change.  
- Subjects find out barriers to positive change and express how to solve these problems. | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
Table 1 (continued)

<table>
<thead>
<tr>
<th>Topic titles</th>
<th>Content focus</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Calculation for BMI</td>
<td>Subjects do by themselves with peers, mindful of weight reduction as disease prevention.</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>6. Energy requirement and eating plan</td>
<td>Subjects calculate their energy requirement based on weight, height, and physical activity. Subjects learn details of tailor made eating plan using food exchange list for weight management and glycemic control.</td>
<td>✓ - - - - -</td>
</tr>
</tbody>
</table>

Evaluations of empowerment outcomes and related health indicators

Empowerment outcomes and related health indicators were evaluated. Both qualitative and quantitative methods are used. Framework of empowering strategies focuses on capacity-building for individuals and groups and created environmental support (12, 20). The daily nutrient intake was assessed by a 3-day food record at wk 0, 28 (6 months from baseline), wk 40 (9 months from baseline) and wk 53 (12 months from baseline). Food portion size was estimated by the subject using standard household measuring units such as a ladle of rice, a table spoon of meat, a teaspoon of oil and sugar, and so on. Anthropometric data inclusive of height, body weight, and waist circumference were assessed at wk 0, 4, 11, 18, 22, 28, 40, and wk 53. BMI was calculated as weight in kilograms divided by height in meters squared. Biochemical data; blood glucose level was assessed at wk 0, 4, 11, 18, 22, 28, 40 and wk 53 from finger tip after an 8-hr overnight fast. Diabetes was diagnosed by a FPG ≥ 126 mg/dl or a 2 hr OGTT ≥ 200 mg/dl. The data for subjects who progressed to diabetes were not followed up on. Subjects with complete data were analyzed. There were 44 subjects in the intervention group and 46 subjects in the control group.

Statistical analysis

Data were reported in mean + se for dietary intake, anthropometric data, and biochemical data. Analysis of covariance was used as adjustment on the mean comparison between control and intervention groups across the intervention period. All the statistical tests
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are based on 95 percent confidence level. A chi-square test was used to compare percentage values of demographic data between the intervention and the control group. Statistical significance test was considered at 0.05.

Results

Qualitative study is described and presented in complement with quantitative results.

Formative information

Formative information from FGD was reported as follows: Almost all subjects resided in the same village and were in close contact, some of them being relatives. Almost all of them earn money from agriculture inclusive of rice or sugar cane plantation cultivation. There is seasonal variation in heavy activity and leisure time that involved their energy expenditure. They have 3 meals a day with almost all subjects cooking for themselves especially dinner. Plain rice and sticky rice are their staple foods. Only one subject in the intervention group consumed unpolished rice. Generally, vegetable oil is used for cooking. Fish is the main source of protein that is available from natural water resources. Other animal protein and other food items are procured from the market held 3 days a week in the village. There is primary care unit (PCU) located in the community for health service at the sub district level.

Subject baseline demographic data

Subjects in the intervention group consisted of 17 men and 27 women with mean age (+SE) were 52.7±0.4 years while the control group consisted of 12 men and 34 women with mean age amounting to 52.9±1.1 years. In the intervention group, there were 27.3% with an age range of ≤50 years, 86.4% ≤ being primary school attendees, and 79.6% were in agriculture while in the control group the figures were 32.6%, 82.6%, and 58.7% respectively. There were no significant differences in mean age and percentage values between the two groups.

Empowerment outcomes

The process is exercised in the domain of personal empowerment through group participation with a supportive environment. Collective efficacy, critical thinking ability, and participatory behavior were evidenced from actual contact as described follow. First of all this research project has encouraged subjects to read i.e., a personal workbook, to write and to record their data as well as to enhance critical thinking in self data consideration. Listening and discussing/reasoning were encouraged in group discussions with their peers. Subjects’ numeracy skill was enhanced with simply calculation and quantitative information. Knowledge, information, and numeracy skill increase their self efficacy in tailoring a meal plan with proper caloric intake and in the decision of food choice. When subjects executed the plan and evaluated the result, they used the evidence from anthropometric and biochemical data for self-evaluation. Subjects’ skill in analysis, planning/action and self-evaluation were developed with evidence-based know-how. These activities were done repeatedly in sessions 1-6. A supportive environment was provided from empowerment through groups: This group was made up of subjects
with the same pre-diabetic condition. A dialogical approach was used in sessions 1-6, and questions were posed to encourage subjects to think through thus promoting discussion of their data in an overall related picture. Dietary intake and physical activity were discussed in detail. They expressed barriers of change and how to solve these problems. Peer groups helped each other to modify food intake in their context, culturally-based and family-based. These processes developed critical consciousness. Friendly talk with resourceful support helped the subjects to interact without stress, to feel free to share their personal data and experiences, and also their feelings and thoughts. From success or failure case sharing, subjects were able to figure out their own problems and how to overcome barriers. It emphasized the assumption that success comes from personal responsibility for change. Barriers and intention to perform as addressed by subjects in the intervention group appear in Table 2.

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Intention to perform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often join the party with excess amount of food intake or drink served</td>
<td>No intake of soft drink; avoid or reduce amount of sugar or fatty food; plan to join the party with mindful of how much more caloric intake they could have that day</td>
</tr>
<tr>
<td>Preference for some fatty food</td>
<td>Reduce intake of bacon, baked items, high fat meat</td>
</tr>
<tr>
<td>Preference for sweet fruit or drink</td>
<td>No intake of soft drink; have portion of fruit intake as meal plan or exchange with rice portion</td>
</tr>
<tr>
<td>Alcohol intake - alcohol intake in male subjects is more serious issue than female</td>
<td>Reduce portion or abstain, restrict daily alcohol consumption to less than 50 cc per day</td>
</tr>
<tr>
<td>Large amount of corn or peanuts or tamarind as snack</td>
<td>Decrease intake of these snacks and think of food exchange list to have proper caloric intake each day</td>
</tr>
<tr>
<td>Food condiment is almost always used in substantial amount.</td>
<td>Less condiments added i.e. sugar/oil/salt/fish sauce</td>
</tr>
<tr>
<td>Preference for coffee 3 in 1</td>
<td>Change to self adjusted coffee with less sugar and cream added. After had been changed, individuals try 3 in 1 again and found that it is too sweet.</td>
</tr>
</tbody>
</table>
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Table 2 (continued)

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Intention to perform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating of too much food after heavy physical or agricultural activity</td>
<td>Control food quantity as planned; do not fill up their plate based on how hungry they feel, have more bulky portion with green vegetable</td>
</tr>
<tr>
<td></td>
<td>Physical activity increase or decrease as concerns the agricultural calendar and quantity of dietary intake</td>
</tr>
<tr>
<td>Less physical activity when free from rice and sugar cane cultivation</td>
<td>Walking, bicycling, walk uphill to find some eating plant, net fishing</td>
</tr>
<tr>
<td>Have sugar cane beverage when thirsty</td>
<td>Drinking water instead of sugar cane beverage</td>
</tr>
<tr>
<td>Young family members store some food or drink for their elders: baked items, yogurt, dessert items, and the like.</td>
<td>Restrain from making such items available to the elderly; family members learn about food and nutrition for diabetes prevention from subjects.</td>
</tr>
</tbody>
</table>

Nutrients intake, anthropometric data, and biochemical data

Nutrient intake; anthropometric data: weight, BMI, and waist circumference; and biochemical data: FBG at baseline and follow up periods in the intervention and control groups, number and percentage of subjects with FBG less than 100 mg/dl were shown in Table 3.

Significant differences in nutrient intake from baseline are as follow. In the intervention group, a decrease in energy and gram of carbohydrate intake at wk 28, wk 40, and wk 53 and a decrease of dietary fiber at wk 53 was found. In the control group, there was an increase in the percentage of energy from carbohydrate at wk 28 and wk 40 and a decrease of gram of fat, the percentage of energy from fat at wk 28 together with a decrease in the percentage of energy from protein at wk 40. When the intervention group was compared with the control group, significant differences are as follows. At the baseline level, the percentage of energy from carbohydrate was higher and the percentage of energy from fat was lower in the intervention group. As for the corresponding week, energy intake in the intervention group was lower at wk 28, wk 40, and wk 53 while gram of carbohydrate intake was lower at wk 28 and wk 40. The percentage of energy from protein in the intervention group was higher at wk 40 and gram of dietary fiber was lower at wk 53.

There was no significant change from the baseline in weight and the BMI in both groups. Waist circumference in the intervention group was significantly decreased at wk 28, 40, and 53. When compared with the control
group, the intervention group was significantly lower in mean weight at wk 28 and wk 53, in BMI at wk 53 and in waist circumference at wk 28. Table 4 shows a subgroup analysis for subjects with BMI ≥ 23 kg/m². At the baseline, the mean weight of the intervention group was significantly higher than of the control group and weight change or weight reduction was significantly higher at wk 28, 40, and 53. The percentage of subjects who lost weight ≥ 5% from baseline value was significantly higher in the intervention group at wk 53.

FBG was significantly decreased at wk 28 and wk 40 in both groups when compared with baseline value. When compared with the control group, the intervention group was significantly lower in FBG at wk 53 while the percentage of subjects with FBG less than 100 mg/dl was significantly higher, 36.4 vs. 10.9 (Table 3).

### Table 3  Nutrient intake, anthropometric and biochemical data at baseline and follow up periods in the intervention and control groups

<table>
<thead>
<tr>
<th>Parameters*</th>
<th>Intervention group n=44</th>
<th>Control group n=46</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BL</td>
<td>wk28</td>
</tr>
<tr>
<td><strong>Carbohydrate (g)</strong></td>
<td>284.6±15.1 [254.6-314.6]</td>
<td>203.1±12.6 [178.1-228.0]</td>
</tr>
<tr>
<td><strong>Carbohydrate (E%)</strong></td>
<td>74.5±1.2 [72.0-76.9]</td>
<td>70.0±1.1 [67.8-72.3]</td>
</tr>
<tr>
<td><strong>Fat (g)</strong></td>
<td>24.2±2.3 [19.7-28.7]</td>
<td>22.9±1.8 [19.3-26.6]</td>
</tr>
<tr>
<td><strong>Fat (E%)</strong></td>
<td>13.6±1.2 [11.4-15.9]</td>
<td>16.7±1.0 [14.7-18.8]</td>
</tr>
<tr>
<td><strong>Protein (g)</strong></td>
<td>45.0±2.4 [40.2-49.8]</td>
<td>38.0±1.8 [34.9-41.5]</td>
</tr>
<tr>
<td><strong>Protein (E%)</strong></td>
<td>11.7±0.4 [10.9-12.6]</td>
<td>13.2±0.4 [12.4-14.1]</td>
</tr>
<tr>
<td><strong>Dietary fiber (g)</strong></td>
<td>8.5±0.6 [7.4-9.6]</td>
<td>6.6±0.9 [6.1-8.3]</td>
</tr>
<tr>
<td><strong>Weight (kg)</strong></td>
<td>65.4±1.6 [62.2-68.7]</td>
<td>62.5±0.5 [61.6-63.4]</td>
</tr>
<tr>
<td><strong>Body mass index (kg/m²)</strong></td>
<td>26.0±0.7 [24.7-27.3]</td>
<td>25.0±0.2 [24.6-25.4]</td>
</tr>
</tbody>
</table>
**Empowerment Approach and Dietary Self-Management in Rural Thais with Impaired Fasting Glucose**

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**Table 3** (continued)

<table>
<thead>
<tr>
<th>Parameters*</th>
<th>Intervention group n=44</th>
<th>Control group n=46</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BL</td>
<td>wk28</td>
</tr>
<tr>
<td>Fasting blood glucose (mg/dl)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>104.4±0.8</td>
<td>98.9±1.4</td>
</tr>
<tr>
<td></td>
<td>[102.9-106.0]</td>
<td>[96.1-101.6]</td>
</tr>
<tr>
<td>Number and percentage of subjects with fasting blood glucose less than 100 mg/dl</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0(0)</td>
<td>28(63.6)</td>
</tr>
<tr>
<td></td>
<td>[49.4-77.9]</td>
<td>[33.0-62.5]</td>
</tr>
</tbody>
</table>

*Mean ± SE, number with ( ) percentage and [ ] 95%CI

**Table 4** Subgroup analysis for subjects with BMI ≥ 23kg/m²

<table>
<thead>
<tr>
<th>Parameters*</th>
<th>Intervention group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BL (n=29)</td>
<td>wk28</td>
</tr>
<tr>
<td>Mean weight (+ SE)</td>
<td>71.9±1.9</td>
<td>69.3±1.9</td>
</tr>
<tr>
<td></td>
<td>[69.2-75.7]</td>
<td>[65.6-72.9]</td>
</tr>
<tr>
<td>Weight change from baseline, Mean (+SE)</td>
<td>-2.67±0.58</td>
<td>-3.09±0.76</td>
</tr>
<tr>
<td></td>
<td>[-3.79, -1.54]</td>
<td>[-4.57, -1.60]</td>
</tr>
<tr>
<td>Number and percentage of subjects who lost weight ≥ 5 % from baseline</td>
<td>10(34.5)</td>
<td>10(34.5)</td>
</tr>
<tr>
<td></td>
<td>[17.2-51.8]</td>
<td>[17.2-51.8]</td>
</tr>
</tbody>
</table>

*Mean ± SE, number with ( ) percentage and [ ] 95%CI
Discussion

Nutrition education with an empowering strategy and intervention were carried out in this study to find out whether this approach can lead to disease prevention among rural Thais with IFG. Subjects who were informed of IGF and agreed to participate in this education program were recognized as those with awareness of their unhealthy condition. They were thought to need proper knowledge and skills to effect self care. Almost all of them were primary school attendees with a mean age of 52 years old. An empowering approach is a challenge in such a study group. The process of empowerment incorporates interactive learning strategies. The content provided is essential for daily food intake management and to aid in recovery from an unhealthy condition. The effect of the intervention was assessed and the data were compared within a group and between a group. A subgroup analysis was done in subjects with BMI ≥ 23 kg/m².

Dietary regimen to achieve weight reduction is a controversial issue. A high-fat diet is believed to promote weight gain from its high energy density. However, the studies of a low-carbohydrate diet have resulted in a more pronounced short-term weight reduction compared with a low-energy, low-fat dietary regimen, probably because the achieved energy deficit was larger (21, 22). Dietary assessment revealed that daily energy intake of both group is mainly from carbohydrates (75.4% in the intervention group and 68.5% in the control group at baseline) which is higher than the recommendation (50-55%). Rice and sweet fruit were the main sources of carbohydrates in these subjects. To reduce caloric intake, a proper serving size of rice was provided to tailor the meal plan as well as food exchange of fruit. Subjects agree to consume plain rice instead of sticky rice in at least two meals per day. This may result in weight reduction and decreased fasting blood glucose in the intervention group. However, low protein and dietary fiber intake is probably a consequence of reduction of rice consumption. Rural Thais usually consume rice with items such as a sauce of shrimp paste and chili that is eaten with vegetables and fish. Unpolished rice is recommended in a dietary regimen to decrease the carbohydrate content and increase dietary fiber. It is also a rich source of vitamins and minerals and is available in a rural community. A high protein diet should also be recommended in these subjects to achieve an adequate protein intake of 1 gram per kg body weight per day. The dietary intake of these subjects is low in fat content. The percentage of energy from fat is less than 20 throughout this study while the recommendation is 30. As usual, rural Thais consumed a low fat diet. However, a reduction of saturated fat and trans fat was recommended. In several studies, the type of fat, rather than total fat intake has been associated a risk of diabetes. Adverse effects of saturated fat and trans fat in glucose metabolism and insulin resistance was reported (23).

Subjects in the intervention group were able to set goals for weight reduction at a value of ≥ 5% of the initial weight and FBG less than 100 mg/dl. They can make frequent daily decisions that fit their way of lives with a result that 48.3% in subjects with BMI ≥ 23 kg/m² can be able to lose weight ≥ 5% from the baseline level. Weight reduction at a value
of ≥ 5% of the initial weight was found to be beneficial in disease prevention (3). The percentage of subjects with fasting blood glucose less than 100 mg/dl at wk 53 in the intervention group was significantly higher than the control group (36.4 vs. 10.9). The intervention was designed to increase capability in dietary self-management in rural Thais to increase skills in problem solving, decision making, as well as planning and evaluation. All skills can promote a behavioral change via the possible mechanism of self-efficacy. Strategies and interventions to enhance self-efficacy in dietary self-management for rural Thais with impaired fasting glucose are the following:

1. Evidence-based knowledge of an individual’s situation as well as consideration of their own data may increase their awareness and concern.

2. Through academic knowledge, subjects were able to have more information about pathogenesis and possible causes that was simply explained. Subjects may be able to figure out their problems in relation to the causes. Sharing considerable knowledge made the continuous academic talk both more interesting and absorbable.

3. Knowledge in food and nutrition should be applied in a culturally-based subject-context to promote changes of perspectives.

4. Health literacy and numeral skills were enhanced throughout the process in quantitative tasks. Numeral skills may be strongly associated with one’s confidence in self-management (24, 25). Increasing health literacy and numeral skill may affect a subject’s ability to engage in adopted health promoting behavior.

5. A local health personnel was trained as a facilitator and learning resource. A learning resource is an important factor for continuing learning activity in the empowerment process of health promotion in the rural area of Thailand (26).

Limitations of the study are as follow. Energy intake calculated from the food records may be underreported even though the interviewing was also added to the records. Weight reduction in the intervention group continued to wk 53 or a 12 month follow up indicated that the subjects were able to adhere to an energy restricted diet. The result is not known for a longer time. Follow up for 1 year may not be enough for relapse prevention. Low protein intake and inclusion of dietary fiber tell us that close monitoring should be done to ensure a good regimen.

Conclusion

Results from this study suggested that nutrition education with empowering approach is possible among rural Thais. It is an effective tool to increase self-efficacy, and promote the capability for problem solving and decision making skills in the matter of dietary self-management geared toward healthier eating behavior. Improvement of related health outcomes was shown. There may be a delay in the realization period in the case of some individuals relative to DM. Further study is needed to ensure healthy eating sustainability.

Acknowledgements

This study has been financially supported by Faculty of Medicine, Thammasat University.
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Empowerment Approach and Dietary Self-Management in Rural Thais with Impaired Fasting Glucose

Napaporn Pimsingh, Savanit Ongroongruang, Sriwatana Songchitsomboon, and Junya Pattaraarchachai


A Comparative Study of the Characteristics, Content and Meanings of Dreams in Classical and Modern Thai Literature with the Phrommachat

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Abstract

Background: Dreams are one of the oldest arts in the world and one that is cross-disciplinary in nature. In Thai culture, the beliefs in the interpretation of dreams have been passed down from the beginning of the Ayutthaya period. With regard to the dream vision texts, the Thais often treated the text as a bed-side consultant. The study is based on literary sources. The oldest Thai text on this subject is the “Phrommachat”.

Objective: This research has three objectives: 1) To study about the characteristics of dreams; 2) To study the content and meanings of dreams; and 3) To compile the content, the interpretations, and the similarities of dreams.

Result: Dreams are a ‘Macro philosophy’ with five interdisciplinary groups that have dealt with dream concepts. As for the images and ideas occurring in the dreams and their interpretations, they can be categorized into six topics: 1) love affairs; 2) offspring and pregnancy; 3) wars and politics; 4) holy objects, faith and omen; 5) causes of dreams, the timing of dreams, and how to lessen or avoid disastrous events; and 6) Others. In reviewing 56 stories of classical and modern Thai literature, there are 25 dream stories in the classical texts and 31 in the modern texts. The analysis of these stories illustrates some similarities and contrasts between the dream contents and their interpretations, with some items having 100 percent similarities to the interpretations given by the “Phrommachat” text.

In six literary stories, the dream interpretations show both similarities and contrasts. These are the “Ramayana” of King Rama I, the “SamKok”, the “Liilt Taleng Phai”, the “Rajatiraj”, the “Khun Chang, Khun Phaen” and the “Nee Læ Lok”. The contents of the dreams are interpreted differently. They are about parents, gods and goddesses, fishing, as well as other objects. However, it was found that 22 dreams were not mentioned in the “Phrommachat” text.

Discussion and Conclusion: In modern times, the age of news and information has changed from the printed media to the social network. The spread of information on the interpretation of dreams has also expanded to the new media and the printed media. Due to fears of copyright infringement, a whole gamut of new interpretations has been conceived and thus it is difficult to conclude which path is correct and retains accuracy; even when some of the interpretation is made by some of the more famous dream interpreters in modern times.

Keywords: Characteristic, contents and meanings, dreams, Thai literature

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A Comparative Study of the Characteristics, Content, and Meanings of Dreams in Classical and Modern Thai Literature with the Phrommachat

Charinya Somprasong

Introduction
Statement of the Problem

Human has an eternal and innate curiosity. In the past, there was no modern technology to respond to this need or that could aid in the forecasting of future events. The only recourse was to discover knowledge from the objects or phenomenon around them and the frequency of events were recorded as statistics in an attempt to forecast the future. There is evidence for this collection of facts from the prehistoric times to the modern times (Kanyawee Sathapong, 2009; Kirti Bunchua, 1992). From historical events and works of literature, it can be discovered that the interpretation of dreams was an important subject and one of the 50 disciplines that the Thai institution of the monarchy nurtured as a source of advice (Phra Soonthornwohan, 2529). Thai beliefs in dreams have been passed on from ancient times. It was generally believed that dreams were auguries and omens of future events that human could discover while sleeping. Texts that dealt with the interpretation of dreams are among some of the oldest in the world, dating back thousands of years. Examples include the ancient Egyptian records of the dreams of Pharaoh Thutmose IV (c. 1419-1389 B.C.), which was recorded on papyrus (Thanik Muenkhamwang, 2554), the Atharva Veda, which was one of the first records of ancient India (c. 1500-1000 B.C.) and the scriptures of the philosopher monks of Lan Na, which referred to desires as the origin of man’s dreams: that is greed, anger, and delusion, while dream visions came from four origins: a disturbance of the humors, a relapse into a past life, divine inspiration, and early morning dreams. (Uravasri, 2554).

The research entitled “Thai culture in literature: from the Rattanakosin era to the 1932 Revolution” (Chermalya Rachapantharak and Phuangphet Surattanakawikul, 2541) found from the studied literature that dreams were attributed to many reasons, such as a physiological imbalance, a subconscious urge, divine inspiration, and past and previous merit and karma. These, then, give rise to visions that tell of the future. Dreams could also come from desires that were not acted upon, and these desires find their outlet through dreams. (Sigmund Freud, 1999; Saleur, 2551).

Nevertheless, if dreams were analyzed using psychological principles, dreams are also important in boosting morale. But if dreams were considered in the cultural context, the study and passing down of dream interpretation texts are a form of supportive research and has a useful purpose in terms of preserving the way of life, customs and beliefs and are a concrete expression of principles and culture. In the post-modern sense, dreams expand the traditional bounds of knowledge.

Objectives

1. To study the characteristics of visionary dreams.
2. To study the content and meaning of visionary dreams.
3. To compile the content, interpretation, and similarities of visionary dreams which appear in classical and modern Thai literature.

Research Methods

The study of the phenomenon in general, research and gathering of information
from classical and modern Thai literature, the meaning and frequency of dreams, the selection of texts from the 5 periods of Thai literature (Sukhothai, Ayuthaya, Thonburi, early Rattanakosin, and modern Rattanakosin periods) were conducted via questionnaire. Four hundred questionnaires, which were formulated by the researcher, were distributed. The researcher compared the list of Thai literature that appears in the academic text of Sukhothai Thammatirat Open University (2533), Ajarn Pleung na Nakhon’s text on the history of Thai literature (2527), texts of the Literature and History Division of the Fine Arts Department (2539), so as to find common ground in terms of quality, reliability, and validity. The texts from modern Thai literature were selected by a panel of three literary experts.

As for the analysis of the content of the literary works, the researcher utilized texts from the Royal Institute and copies of the authentic texts compiled by the Literature and History Division of the Fine Arts Department. The texts are widely accepted in terms of the standard of textual accuracy. For comparisons of similarities in the content and meaning of dreams, the researcher referred to the oldest existing text on dream interpretation, that is, the “Phrommachat” (The Siam Bannakhom, 2554). The researcher gathered the data and information and used analytical description and qualitative research methods in the analyses.

Research Results

The analysis of the content, interpretation, and meaning of dreams from 80 works of classical literature and 80 works of modern literature (totaling 160 works) found content that were related to dreams and their interpretation in 56 works. There were 239 dreams from classical literature and 124 dreams from modern literature, making a total of 363 dreams. The research work, therefore, fulfilled its objective in gathering the following information:

**The Characteristics of Dreams**

Dreams are the ultimate metaphysical philosophy and the study of dreams is a cross-disciplinary pursuit, spanning the sciences, sociology, anthropology, psychology, and psycho-analysis. In the past, however, the analysis of dreams has only come from select perspectives and mainly from 4 groups: 1) Psychologists; 2) Engineers; 3) Scientists and archaeologists; 4) Poets and writers; and 5) Academics and the philosophers, both Westerner and Thai.

From the study of the content of the literary texts, it can be seen that the content and interpretation of dreams can be categorized into 6 separate characteristics as follows:

1. Love and relationship between youths
2. Offspring and pregnancy
3. War, politics, and government
4. Holy objects, luck, omens and auguries
5. The occurrence and timing of dreams and ways to counteract negative dreams
6. Other subject matters (seeing parents, the dead, teachers, gods and goddesses, heaven, flying dreams, mountain-climbing dreams, fortresses, fountains, waterfalls, demons, hell, fallen teeth, weeping, clothing, distant people, beauty queens, the sea, rivers, swimming, necklaces, shoes, lotus-gathering, flowers and trees, vehicles, animals, dragons, naga, snakes, jade swans,
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vultures, pigs, horses, crocodiles, white elephants and buffalos, tigers, elephants, bears, chickens, dogs, cats, rhinos, crows, large birds, and various insects).

The analysis of the dream content and the similarities in interpreted meanings can be characterized into 6 categories:

1. Love and relationship between youths In the classical texts, there were 11 dreams in this category, and the modern texts also had the same number. The interpretations of dreams in the literary texts were the same as the interpretation in the “Phrommachat” (100 percent similarities).

2. Offspring and pregnancy In the classical texts, there were 15 dreams in this category, while modern texts only had two dreams. The interpretations of dreams in the literary texts were the same as the interpretation in the “Phrommachat” (100 percent similarities).

3. War, politics, and government In the classical texts, there were 10 dreams in this category, while modern texts only had two dreams. The interpretations of dreams in the literary texts were the same as the interpretation in the “Phrommachat” (100 percent similarities).

4. Holy objects, luck, omens and auguries In the classical texts, there were 53 dreams in this category, while modern texts had six dreams. The interpretations of dreams in the literary texts were the same as the interpretation in the “Phrommachat” (100 percent similarities).

5. The occurrence and timing of dreams and ways to counteract negative dreams In the classical texts, there were 53 dreams in this category, while the modern texts had 13 dreams. The interpretations of dreams in the literary texts were the same as the interpretation in the “Phrommachat” (100 percent similarities).

6. Other subject matters In the classical texts, there were 107 dreams in this category, while modern texts had 90 dreams. As for the interpretations of the dreams in this category when compared with the “Phrommachat”, the research found the following results:

- Similarities in interpretations (in the literary texts and the “Phrommachat”)

   Dreams that involved seeing the dead, teachers, yogi, heaven, flying, fortresses, mountain-climbing, fountains, waterfalls, hell, demons, falling teeth, weeping, own death, clothing, distant people, beauty queens, the sea, rivers, swimming, necklaces, shoes, lotus-gathering, flowers and trees, vehicles, and other animals.

   Dreams that involved seeing parents, gods, goddesses, and fishing had differing interpretations in the literature from the “Phrommachat”. Furthermore, there were also 22 dreams that do not appear in the “Phrommachat”.

   The analysis of dreams in this miscellaneous category can be summarized in three ways, that is, dreams with different interpretations from the “Phrommachat”, dreams with similar interpretations in the literature, but differing from the interpretation of the “Phrommachat”, and dreams that do not appear in the “Phrommachat”.

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- Dreams with different interpretations from the “Phrommachat”

Seeing parents, which was interpreted in the literature as imminent good luck had two instances (one in “Phra Aphaimanee”, (Phra SoonThorn Wohan, 2529) and the other in “Ubattihet”. (Dokmaisod, 2516) This interpretation is different from the “Phrommachat”, which interpreted the same dream as one that expressed the anxiety of the dreamer – an inauspicious dream.

Going fishing and catching a fish was interpreted in the literature as luck in love and had two instances [one each in “Ni lae Lok” (Dokmaisod, 2516) and “Chang Samran” (Duanwad pimwana, 2546)]. This interpretation is opposite to the “Phrommachat”, which interpreted the same dream as a love that is about to be lost.

- Dreams with similar and differing interpretations

Seeing parents, whether they are still alive or not, was interpreted in literature as an augury of luck in two instances (one each in “Phra Aphaimanee” [Phra SoonThorn Wohan, 2529] and “Ubattihet” [Dokmaisod, 2516]). However, other works of literature interpret the same dream as an expression of anxiety or as an inauspicious dream in three instances [one each in “Ubattihet” (Dokmaisod, 2516), “Game Rak Tong Mon” (Mae Chong, 2554), “Daed Chao Ron Koen Kwa Cha Nang Chib Ka Fae” (Jadej Khumjorndej, 2554), which is in accordance with the interpretation of the “Phrommachat”.

The fishing dream was interpreted in the literature as a lucky dream in two instances (one each in “Ni lae Lok” [Dokmaisod, 2516]) and “Chang Samran” [Duanwad pimwana, 2546]). However, in two other instances in other works of literature [(one each in “Busababan” [Dokmaisod, 2516]) and “Chang Samran” [Duanwad pimwana, 2546]), their interpretation is in accordance with the “Phrommachat” which interprets the dream as the imminent loss of love.

Seeing a god or goddess was interpreted in the literature as a lucky dream in 10 instances [one each in “Kham Chan Sansern Phra Kiat Somdet Phra Phutta Chao luang Prasat Thong” (Phra Maha Raja Khru, 2181), King Rama I’s “Ramakien” (King Rama I, early Rattanakosin), “SamKok” (Chao Phraya Phra Klang Hon, early Rattanakosin), “Rachatirat” (Chao Phraya Phra Klang Hon, early Rattanakosin), “Lilit Sadet Pai Kat Tap Phama Meuang Kanchanaburi” (Klommalueng Mahasakdhipollasepya, early Rattanakosin), “Phra Aphaimanee” (Phra SoonThorn Wohan, 2529), “Ngao” (Rose Laren, 2516) with “Khun Chang, Khun Paen” (King Rama II, early Rattanakosin) having three instances]. In five instances, however, dreams involving gods or goddesses were not interpreted positively, which was in accordance with the interpretation of the “Phrommachat”. These instances can be found in “SamKok” (two instances), “Rachatirat” (one instance), “Phra Aphaimanee” (one instance), “Busababan” (one instance), “Ngao” (one instance) and “Sai Bor Yud Saneh Hai” (Suwannee Sukhorntha, 2554) (one instance).

- Dreams and their interpretation, as they appear in the literature, have some similarities to each other but do not appear in the “Phrommachat” as follows:

In “SamKok”, Dragon wrapping itself
around the body means imminent death. Riding a dragon, means imminent promotion. Riding a dragon with a stunted tail means betrayal by subordinates. Swallowing a jade swan means a son will be born. Three horses eating from the same manger means serious illness and bad luck. Hearing Demons' voices means bad luck. Demon inviting the dreamer to stay means bad luck. Seeing the wind gradually blowing a lamp out means bad luck, and being attacked by a big black pig but managing to use a weapon toward it off means imminent promotion and respect from the people.

In other literature; seeing a god riding a garuda pecking you to death has no interpretation ("Ramakien"). Seeing yourself as a giant bestriding two lands means imminent promotion and honor ("Rachathirat", Chao Phraya Phra Klang Hon, early Rattanakosin). Fighting with a crocodile means the appearance of an enemy ("Lilit Taleng Pai", Somdej Phra Maha Samana Chao Krom Phra Paramuniji-tajinorasa, early Rattanakosin). Being chased by a crocodile means the appearance of an enemy ("Phra Aphaimanee"). Seeing a cloud twist itself into a rainbow means a daughter is about to be born ("Phra Aphaimanee"). Seeing a Brahmin in white with a white conch shell in her hand means the end of bad luck and help from others ("Khun Chang, Khun Paen"). Being mauled to death by a rhino means bad luck and loss of life (Ngo Pa, King Rama V, early Rattanakosin). Seeing a nun giving advice means support from other people ("Busababan"), and seeing a chicken that is beaten to death means misfortune will come from bad karma ("Karma Mee Jing", Worawut Masenah, 2546).

Discussion of Results

Since time immemorial, it was not popular to "counteract" dreams by oneself, but to "counteract" it with others, namely astrologers, teachers, parents, relatives, elders, and nannies (Phra patom Sompothikhatha: 127, Phra Aphaimanee: 602). In the present day, dreams are also often interpreted into lottery numbers as a further way to exploit dreams. This practice is a departure from custom and is a direct result of the changes in Thai culture and the way of life.

The analysis of the occurrence and importance of dreams, as well as the time of day of the dream found that the dreams in literature conformed to the interpretations of the oldest texts, such as the ancient Egyptian records of the dreams of Pharaoh Thutmosis IV (c. 1419-1389 B.C.), which was recorded on papyrus (Thanik Muenkhamwang, 2554), the Atharva Veda (c. 1500-1000 B.C.), the scriptures of the philosopher monks of Lan Na (2000-2100 B.E.), the Mahapattawayna text on dream interpretation (written during the time of Siddhartha Buddha) and certain parts of the Al-Qu’ran, the Holy Bible, and the Tripitaka. The ancient Indian and Lan Na beliefs were also similar in their treatment of the origin of dreams.

With regard to the dream vision texts, it was found that Thais often treated the text as a bed-side consultant (as seen in certain parts of Phra Aphaimanee). The beliefs in the interpretation of dreams have been passed down from the beginning of the Ayutthaya period (Larp Klabcharoen, 2553: Foreword). The dream vision texts that have been passed down to the present day includes the "Phrom-
machat” which, originally, was written on palm leaves and later on appeared in printed form via the printing press of Dr. Bradley near the end of the reign of King Rama V. There were also further editions printed by the Panichsuphol Printing House (B.E. 2492), the Hong Hon Srimapho (B.E. 2553), and the Siam Bannakhom (B.E. 2554).

The study also found that dreams were a psychological mechanism, which is in accordance with the theory on dreams of Karl Jung (1983). Jung approached dreams from the psycho-analytical angle, with the conclusion that dreams were a manifestation of the subconscious and can appear as pictures or symbols that require interpretation. Dreams occur from a state of anxiety and fear of failure and are a way for the psyche to compensate. This conclusion is also in accordance with Sigmund Freud’s (1999) and Karl Jung’s (1983) theories, which state that dreams occur from desires that were not fulfilled, and the suppressed emotions find their outlet in dreams.

Psycho-analytic theories also concur with the perspectives of Thai philosophers on the origin of dreams and beliefs in omen and auguries (the “Phrommachat”). The idea of dreams as a metaphysical philosophy concurs with the ideas of Pong (2009) and Kirti Bunchua (1992), who stated that dreams have symbolic meanings that need to be interpreted to be properly understood. The character and psychological characteristics of the dreamer should also be factored into interpretations since they are intrinsically linked. This idea also concurs with Alfred Muari’s (1995) conclusions where nightmares originate from a failure in key dream mechanisms that usually help to maintain the psychological balance of the dreamer (Allan Hobson and Robert Mccarley, 1977). Furthermore, this idea also conforms with the idea of (Kittikorn Meesap, 2549) as well as the tenets of the Buddhist religion, which states that dreams are merely “psychological conditions where humans dream of things that appeared in waking life, but were kept in the subconscious memory” (Sujin Borphamrnanrakket, 2544).

With regard to the interpretation in literature, it was found that interpretations concurred with the interpretations found in the “Phrommachat” and also theories in semiology as expressed by Solesur (2551). Patchanee Choechanya, Mettha Wiwatanakul, Thiranand Anawatchsiriwongse (2538) Rajitlak Saengurai (2548), where the symbols in dreams can have indirect as well as direct meanings.

The concurrence between the characteristics, content, and meanings of dreams in literature and the related theories on dreams can be summarized in the following diagram:
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Diagram 1 Illustration of the relationship between the time of occurrence of dreams, methods of counteracting dreams, interpretations, theoretical frameworks, and other
From the diagram, there is clear evidence of the similarities and relationships between the theories and the documentary sources regarding dreams. The evidence supports the credibility in the dream interpretation texts that have been passed down through the generations as well as the ideas of Thai philosophers as they appear in the “Phrommachat”.

Conclusion

In studying the documentary evidence, it can be seen that the “Phrommachat” referred to the origin, the timing, and the interpretation of dreams. The contents were essentially the same from the version inscribed on palm leaves to the ones being circulated in book form and the new media today (The Hong Holl Srimahapho, 2553). Some of the content were also quite similar to ancient Egyptian texts, religious texts, and modern research works. The “Phrommachat” is the oldest extant Thai text on dreams that the researcher employed as the framework for the content analysis and as the basis for comparisons of dream interpretations as they appear in the classical and modern literature. The results of the study found similarities in the explanations for the origin, timing, and interpretation of dreams. The qualitative findings are illustrated in the following diagram:
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Diagram 2 Conclusion of The Characteristics, Content, and meanings of dreams in Classical and Modern Thai literature
Recommendations

Further Research

1. This research on the characteristics, content, and meaning of dreams through classical and modern Thai literature drew from sources from across Thai history from the Sukhothai period to the modern day. It compared the similarities and differences in meanings with historic texts that are legacies of the past. The research could be further expanded to include other social groups and texts, both from established sources as well as those that are more local so as to gain a wider base for analysis.

2. The next step of the research could utilize the conclusions of this work as a new guideline to study literature, other printed sources, as well as other media with dream interpretation contents so as to consolidate confidence in the Thai heritage in accordance with Api rak Chaipanha (2548) who commented that “Literature is a lens into the social condition” and to come up with meaningful conclusions in the cultural context.

Policy

State agencies that are responsible for conserving and overseeing Thai culture and heritage should promote and support research funding at the national and local levels in order to develop, conserve, and pass on heritage in this area in a sustainable manner to be a legacy for future generations, as one of the oldest arts in the world that continues to exist to the present day.

Acknowledgements

This research received the generous funding from St. John’s University, Bangkok, Thailand.

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Abstract

Background: Foreign direct investment (FDI) has played the important role in economic development, both for Thailand and Vietnam. In order to explain FDI patterns in Thailand and in Vietnam for the past 20 years, ARIMAX model is employed. The ARIMAX model, as well, is used to forecast the value of FDI in these two countries.

Objective: The objective of this paper is to construct the leading indicators that are able to explain and predict the behaviors of foreign direct investment inflow to Thailand and Vietnam. The paper introduces ARIMAX model to explain and predict the value FDI inflow to these two countries. Data used in this paper is quarterly data during the period of 1988-2010.

Result: The study finds that GDP per capita, real interest rate, degree of openness, and exchange rate are the leading indicators for explaining and forecasting the FDI values to these two countries. Among these factors, degree of openness is the most important factor to explain the FDI pattern.

Discussion and Conclusion: The study finds that investment promotion policies and the reduction in trade transaction costs play the important role in FDI decision. The model forecasts that the value of FDI to both countries would be converge the same in the first quarter of 2012.

Keywords: Foreign Direct Investment, Leading Indicator, ARIMAX model

Statement of the Problem

During 1970s, most of the developing countries in Asia emphasized on domestic protection and import-substitution policies, and considered the effects of foreign direct investment (FDI) on economic development in the negative way. However, today is the period of free market promotion that almost all of Asian countries are focusing on FDI promotion and trade barriers minimization.

Under the current free trade policies, more FDI has flown into the developing Asian countries. According to UNCTAD, in 1980, only 545 million US dollars worth of FDI has flown into these countries, however, in 2000, the value of FDI has reached to 357,847 million

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dollars. This data shows the end of protectionist policy that created high consumer cost in the long run. Gradually, these countries turned to choose free trade policies by promoting investment from abroad. (Brooks, et al., 2003)

Thailand and Vietnam are the two countries that can well represent the good examples of the changes in policies of these developing countries in Asia.

**Table 1** Foreign Direct Investment inflow to Thailand, Vietnam, and Asian developing countries, 1988-2010. (millions of USD)

<table>
<thead>
<tr>
<th>Year</th>
<th>Thailand</th>
<th>Vietnam</th>
<th>Asian Developing Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988-1990</td>
<td>1,105 (-)</td>
<td>76 (-)</td>
<td>18,031 (-)</td>
</tr>
<tr>
<td>1998-2000</td>
<td>6,102 (452%)</td>
<td>1,412 (1,757%)</td>
<td>50,492 (180%)</td>
</tr>
<tr>
<td>2008-2010</td>
<td>9,675 (58%)</td>
<td>9,003 (537%)</td>
<td>82,000 (62%)</td>
</tr>
</tbody>
</table>

**Source:** 3-year average estimated from the data of United Nations Conference on Trade and Development (UNCTAD), Foreign Direct Investment database. Numbers in parentheses represent the growth rates. \( \left( \frac{X_{t+1} - X_t}{X_t} \right) \times 100 \)

From Table 1, during the period of 2008-2010, the value of FDI inflows into Thailand and Vietnam were in the similar amount; 9,675 and 9,003 million US dollars respectively. However, as percentage of FDI to GDP, it was found that role of FDI to Vietnam economy is much more important than those in Thailand or in other Asian developing countries. This implies that Vietnam depends heavily on FDI. FDI may be very important for the country like Vietnam that faces problems of over labor supply in agricultural sector, lack of infrastructure and transportation networks, and over-investment in unprofitable state-enterprises. (Samai Krothin-thakom, et al., 2008; Tien, 2009)

**Table 2** Foreign Direct Investment inflow as percentages on GDP, 1988-2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Thailand</th>
<th>Vietnam</th>
<th>Asian Developing Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988-1990</td>
<td>2.45 (-)</td>
<td>0.78 (-)</td>
<td>1.36 (-)</td>
</tr>
<tr>
<td>1998-2000</td>
<td>4.97 (102%)</td>
<td>4.92 (1,171%)</td>
<td>3.24 (138%)</td>
</tr>
<tr>
<td>2008-2010</td>
<td>3.03 (-39%)</td>
<td>9.51 (93%)</td>
<td>3.05 (-6%)</td>
</tr>
</tbody>
</table>

**Source:** estimated from the data of United Nations Conference on Trade and Development (UNCTAD), Foreign direct investment database. Numbers in parentheses represent the growth rates.
Foreign Direct Investment Leading Indicators: the Case Study of Thailand and Vietnam

Chanin Mephokee, Anuwat Cholpaisan, and Tananat Roopsom

Since FDI has played very important role for economic development in both Thailand and Vietnam, this article aims to explain the behaviors of FDI in Thailand and in Vietnam for the past 20 years. In this article, the leading indicators are constructed in order to explain the factors affecting the value of FDI and forecast the future value of FDI flow into these two countries. The article is divided into 4 parts. The second one would be literature review on factors affecting the value of FDI. In the third part, Autoregressive Integrated Moving Average with External model (ARIMAX) is employed to estimate the FDI in the future by constructing FDI Leading Indicators. Results of the study and conclusion would be in the fourth part.

Literature Review

In general, capital flows from one country to others can be explained by the difference in expectation on rate of return and/or the risk diversification reason. (Cooper, 2002) The incentives for FDI to the host countries can be considered into; (1) Import-substituting FDI, (2) Export-increasing FDI, and (3) Government-initiated FDI. (Moosa, 2002)

Chanin et al. (2011) explained the factors affecting FDI into three categories that are; size of domestic market, macroeconomic factors, and policy variables. The market size can be represented by GDP or GDP per Capita. They assumed that market size can be used to monitor the level of aggregate demand. Larger size of market is, more variety of products will be. Higher GDP per Capita implies higher purchasing power of consumers. This market size as a leading variables concept can be seen in works by Fujimura and Edmunds (2006), Pham (2002), and Sufian and Sidiropoulos (2010). According to these works, market size has positive effects on the value of FDI inflow.

Macro-economic factors are domestic economic factors (tax rates, inflation rates, infrastructure development) and labor-market factors (wage rates, minimum wage rate, labor productivity). These factors would affect the decision of foreign investors on costs and economic stability. Fujimura and Edmunds (2006), Campos and Kinoshita (2003), and Chakrabarti (2001) mentioned that an increase in minimum wage rate, tax rate and inflation rate have negative relation to FDI. Meanwhile, an increase in labor productivity and infrastructure development has positive relations.

Policy variables are degree of openness and exchange rate. This concept is under assumption that degree of openness represents the free trade policy that eliminates barriers to trade, creates investment facilities, and promotes intellectual property rights protection. Therefore this policy creates positive environment for FDI inflow. Weaker domestic currency would benefit the FDI inflow on industries that are production bases for exporting. The works on this concept can be seen in works by Sufian and Sidiropoulos (2010), Fujimura and Edmunds (2006), Campos and Kinoshita (2003), and Chakrabarti (2001).

Variables used in recent works are shown in Table 3.
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Table 3  Leading Variables for FDI

<table>
<thead>
<tr>
<th>Variables</th>
<th>Effect on Investment</th>
<th>Fujimura and Edmunds</th>
<th>Campos and Kinoshitra</th>
<th>Chakrabarti</th>
<th>Pham</th>
<th>Sufian and Sidiropoulos</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
<td>(NA)</td>
<td>(+)</td>
<td>(+)</td>
</tr>
<tr>
<td>GDP per Capita</td>
<td>(+)</td>
<td>(+)</td>
<td>(NA)</td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
</tr>
<tr>
<td>Min. Wage</td>
<td>(-)</td>
<td>(NA)</td>
<td>(-)</td>
<td>(-)</td>
<td>(NA)</td>
<td>(NA)</td>
</tr>
<tr>
<td>Productivity</td>
<td>(+)</td>
<td>(NA)</td>
<td>(+)</td>
<td>(NA)</td>
<td>(NA)</td>
<td>(NA)</td>
</tr>
<tr>
<td>Openness</td>
<td>(+)</td>
<td>(+)</td>
<td>(NA)</td>
<td>(NA)</td>
<td>(+)</td>
<td>(+)</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>(+)</td>
<td>(NA)</td>
<td>(NA)</td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
</tr>
<tr>
<td>Tax Rate</td>
<td>(-)</td>
<td>(-)</td>
<td>(NA)</td>
<td>(NA)</td>
<td>(-)</td>
<td>(NA)</td>
</tr>
<tr>
<td>Inflation Rate</td>
<td>(-)</td>
<td>(-)</td>
<td>(-)</td>
<td>(NA)</td>
<td>(NA)</td>
<td>(-)</td>
</tr>
<tr>
<td>Facilities</td>
<td>(+)</td>
<td>(+)</td>
<td>(NA)</td>
<td>(+)</td>
<td>(-)</td>
<td>(+)</td>
</tr>
</tbody>
</table>

Source: collected by researcher. Degree of Openness

Methodology

ARIMAX model is applied to explain the FDI behaviors in Thailand and in Vietnam in the past and to forecast the volume of FDI to these two countries in the future. The ARIMAX model consists of three steps that are (1) testing the ability of being the leading variables, (2) testing the stationary of the data, and (3) estimating and forecasting (see Gujarati; 1995, Kamonwan; 2012)

Leading Variables Test

Theoretically, several variables can be the leading variables for FDI inflow such as minimum wages, labor productivity, and investment-facilitating index. However, with the limitation of data availability, some variables above are not able to be collected perfectly. With data available in hand, variables used in this paper are real GDP, GDP per capita, consumer price index, real interest rate, degree of openness, tax rate, and exchange rate. Granger Causality test is used to check all these seven variables whether they are leading variables or not. The result of Granger Causality test is shown in Table 4.
Foreign Direct Investment Leading Indicators: the Case Study of Thailand and Vietnam
Chanin Mephokee, Anuwat Cholpaisan, and Tananat Roopsom

From Table 4, the test shows that the leading variables that can forecast FDI behaviors in both Thailand and Vietnam are GDP per Capita, Real interest rate, and Degree of Openness. Exchange rate can be a leading variable for Vietnamese FDI only.

**Unit Root Test**

In general, time-series data such as FDI may face the problem of non-stationary that causes the problem of spurious regression. To avoid this problem, the data must be checked on stationary data by using Unit Root test. Under Unit Root test, the non-stationary data would be rejected when MacKinnon p-value < 0.5. If data is non-stationary, data used in this model would be changed into the term of differentiations in order to transfer the non-stationary data to be the stationary ones. After using Unit Root test, it was found that data is

<table>
<thead>
<tr>
<th>Country</th>
<th>(Quarterly lag) Leading variables</th>
<th>Data source</th>
<th>Hypothesis (1)</th>
<th>Hypothesis (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>RGDP (4)</td>
<td>(1)</td>
<td>accept</td>
<td>reject</td>
</tr>
<tr>
<td></td>
<td>GDP PER CAPITA (4)</td>
<td>(1)</td>
<td>reject</td>
<td>accept</td>
</tr>
<tr>
<td></td>
<td>CPI (4)</td>
<td>(2)</td>
<td>accept</td>
<td>reject</td>
</tr>
<tr>
<td></td>
<td>R INTEREST (3)</td>
<td>(1)</td>
<td>reject</td>
<td>accept</td>
</tr>
<tr>
<td></td>
<td>OPENESS (2)</td>
<td>(2)</td>
<td>reject</td>
<td>accept</td>
</tr>
<tr>
<td></td>
<td>TAX (4)</td>
<td>(1)</td>
<td>reject</td>
<td>reject</td>
</tr>
<tr>
<td></td>
<td>EXCHANGE (2)</td>
<td>(2)</td>
<td>reject</td>
<td>accept</td>
</tr>
<tr>
<td>Thailand</td>
<td>RGDP (4)</td>
<td>(1)</td>
<td>accept</td>
<td>reject</td>
</tr>
<tr>
<td></td>
<td>GDP PER CAPITA (4)</td>
<td>(1)</td>
<td>reject</td>
<td>accept</td>
</tr>
<tr>
<td></td>
<td>CPI (4)</td>
<td>(2)</td>
<td>accept</td>
<td>reject</td>
</tr>
<tr>
<td></td>
<td>R INTEREST (3)</td>
<td>(1)</td>
<td>reject</td>
<td>accept</td>
</tr>
<tr>
<td></td>
<td>OPENESS (2)</td>
<td>(2)</td>
<td>reject</td>
<td>accept</td>
</tr>
<tr>
<td></td>
<td>TAX (4)</td>
<td>(1)</td>
<td>accept</td>
<td>accept</td>
</tr>
<tr>
<td></td>
<td>EXCHANGE (2)</td>
<td>(2)</td>
<td>accept</td>
<td>reject</td>
</tr>
</tbody>
</table>

**Source:** Estimated by researchers and (1) World data bank (2) United Nations Conference on Trade and Development
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Figure 1  Foreign Direct Investment and its first differentiation term.

Note: Researchers disaggregate data form annual data to quarterly data by quadratic-by-average technique.

non-stationary, but the first differentiation of the data is stationary. Therefore all data are transformed to the term of first differentiation, D(FDIV).

From Figure 1, it was found that the value of FDI inflows in both Thailand and Vietnam exhibit the pro-cyclical movement. This implies that in the long run the value of FDI inflows in both countries have been increasing continuously. Even if in the short run, during the recession, FDI in both countries showed the same declining patterns. Moreover, the value of FDI inflows in both countries show the trends that are convert to the same level.

Estimation and Forecasting

Autoregressive Integrated Moving Average (ARIMA) model can be explained by this equation;
FDIt = the amount of FDI at quarter t
\( \Delta d = \) first degree of differentiation
\( \epsilon_t = \) white noise term at quarter t

ARIMAX model is developed from ARIMA model by including leading variables into the model in order to improve the ability on forecasting. The ARIMAX model can be explained by this following equation:

\[
\Delta_d FDI_t = \sum_{i=1}^{p} \phi_i \Delta_d FDI_{t-i} + \sum_{j=1}^{q} \theta_j \epsilon_{t-j} + \epsilon_t
\]

Where,
FDI_t = the amount of FDI at quarter t
t \( \Delta_d = \) first degree of differentiation
\( \epsilon_t = \) white noise term at quarter t

ARIMAX model is developed from ARIMA model by including leading variables

\[
\Delta_d FDI_t = \sum_{i=1}^{p} \phi_i \Delta_d FDI_{t-i} + \sum_{j=1}^{q} \theta_j \epsilon_{t-j} + \sum_{k=1}^{r} \gamma_k X_{t-k} + \nu_t
\]

Where,
X = FDI leading variables at quarter t
and k is the number of lag.

In these model, the dependent variables are FDI value in Thailand and in Vietnam during the period of 1988 to 2010 which are quarterly data. Therefore there are 92 observations. In case of the FDI in Vietnam, independent variables are first differentiate of FDI in first lag and ninth lag and SHOCK in forth lag. In case of Thai FDI, independent variables are first differentiate of FDI in first and forth lag and SHOCK in forth lag. The common independent variables in both cases are GDP per capita, real interest rate and degree of openness.

The results of ARIMA and ARIMAX model are illustrated in Table 5
According to Table 5, all leading indicators have impact on FDI in the same direction as expected by theories with the significant level more than 95 percent. Considering the value of Root Mean Square Error, it is found that ARIMAX model is able to explain the FDI behaviors better than ARIMA model in both countries. Therefore, ARIMAX model would be used for forecasting the the value of FDI inflow for the next 6 quarters. The results of forecasting can be seen in Table 6.

Table 5  Estimation Results

<table>
<thead>
<tr>
<th>Independent Variable (Quarterly lag)</th>
<th>Vietnam</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(FDI) (1)</td>
<td>ARIMA</td>
<td>ARIMAX</td>
</tr>
<tr>
<td>D(FDI) (4)</td>
<td>15.32*</td>
<td>1.81*</td>
</tr>
<tr>
<td>D(FDI) (9)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SHOCK (4)</td>
<td>-8.36*</td>
<td>-0.91*</td>
</tr>
<tr>
<td>GDP PER CAPITA (4)</td>
<td>-7.69*</td>
<td>-3.38</td>
</tr>
<tr>
<td>R INTEREST (3)</td>
<td>-</td>
<td>2.01*</td>
</tr>
<tr>
<td>OPENNESS (2)</td>
<td>-</td>
<td>-0.97*</td>
</tr>
<tr>
<td>EXCHANGE (2)</td>
<td>-</td>
<td>7.23*</td>
</tr>
<tr>
<td>Adjust R2</td>
<td>-</td>
<td>1.92*</td>
</tr>
<tr>
<td>Root Mean Square Error</td>
<td>0.30</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>330.17</td>
<td>313.14</td>
</tr>
</tbody>
</table>

Source: Estimated by researchers

Table 6  FDI Forecasting (millions USD)

<table>
<thead>
<tr>
<th></th>
<th>2554 (Q1)</th>
<th>2554 (Q2)</th>
<th>2554 (Q3)</th>
<th>2554 (Q4)</th>
<th>2555 (Q1)</th>
<th>2555 (Q2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>2108.19</td>
<td>2104.03</td>
<td>2139.84</td>
<td>2215.53</td>
<td>2331.09</td>
<td>2486.92</td>
</tr>
<tr>
<td>Thailand</td>
<td>2132.59</td>
<td>2128.53</td>
<td>2153.84</td>
<td>2228.78</td>
<td>2332.59</td>
<td>2469.78</td>
</tr>
</tbody>
</table>

Source: Estimated by researchers
Let put some remarks here that the definitions of FDI are different between these two countries. In case of Vietnam, with the definition set by the Vietnam Ministry of Planning and Investment, FDI is the total investment value of foreign investment enterprises (FIEs) that includes equity owned by Vietnamese people (TIEN, 2009). Therefore the amount of Vietnamese FDI may be overestimated. However, in case of Thailand, with the definition of the Bank of Thailand, FDI includes (1) equity capital that more than 10 percent owned by foreigners, (2) lend to affiliates, and (3) accumulated profit. Therefore, the amount of Thai FDI may be underestimated because it excludes the value of reinvestment earning.

Results of the Study and Conclusion.

This article aims to apply the econometric model by construct leading indicators to explain and forecasting the value of Thai and Vietnamese FDI. The interesting results from the study are as follows.

1. Country purchasing power; represented by GDP per capita, and costs of doing business in host country; represented by real interest rate, are the suitable leading indicators for FDI inflows. Meanwhile, foreign investors concern on the country liberalization policies on trade and investment; represented by the degree of openness.

2. The degree of openness can be considered as marginal-effect variable more than a leading variable and is able to explain case in Vietnam better than that in Thailand during 1988 to 2010. This is from the fact that Vietnamese government has changed the investment policy to be more open to foreign investors after Thai government did (Doi Moi, 1986).

3. The study finds that the GDP has no impact on the inflow of FDI; on the contrary, the change in FDI inflows would affect the GDP. This finding is the same as the findings on the study of Cooper (2002) and on the study of Sufian and Sidiropoulos (2010).

4. Since production costs in Vietnam are relatively lower than those in Thailand, the FDI inflows in Vietnam have invested more on export-base projects. Therefore the exchange rate is the FDI leading variable in the case of Vietnam only. It is not the leading variable for Thai case.

5. The relatively higher production costs in Thailand may be the reason why the exchange rate is not the leading variable in case of Thailand.

6. If the FDI policies in these two countries will not be changed in the near future, by the first quarter of 2012, the value of FDI inflows in both countries would be converted to the same level. However, the actual value of FDI inflows in the future may be different from the predicted ones by the model because there are some important variables that cannot be included in the paper’s models due to the limitation of data availability.

Acknowledgement

This paper is the brief of the research on the project of “Greater Mekong sub-region Trade and Investment Cooperation:
The Comparative Study on the Foreign Direct Investment in Thailand and Vietnam. The project of research has supported by the National University Research of Office of the Higher Education Commission, Institute of East Asian Studies, Thammasat University, 2555

Researcher would like to thank Ms. Pailin Cholpaisan, instructor at Faculty of Economics Dhurakittbhandit University for collecting data and estimating the model.

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English Reference


SWOT Analysis of Primary Care Unit Service in Urban and Suburban Areas by Primary Care Medical Students: A Comparative Study of Bangkok and Pathumthani Province

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Abstract

Background: Primary care, the “port-of-entry” into the health care system must consequently adapt to higher demands and expectations from healthcare consumers. Urbanization has significant impact on health and quality of life, in which primary care units (PCUs) must rethink their service.

Objectives: The study aimed to compare the SWOT analysis of PCUs in urban and suburban areas through an observational study of medical student experience with PCU health care delivery.

Methods: Students are divided into groups and sub-groups and experience the health service distributed by PCUs in urban and suburban areas in the context of Kolb’s experiential learning method. SWOT analysis is performed in comparison between these PCUs. After action review and presentation of SWOT results with PCUs is finally carried out.

Results: It appears that health care which is provided by each PCU correlates with the nature of each population and the availability of skills in health care providers. This demands a different strategic plan for PCUs in urban and suburban areas. During the after action review, PCU personnel agreed with the SWOT analysis, even though students mentioned points that PCUs had overlooked.

Conclusion: A collaborative model between academic sector, service sector and social sector taking part in primary health care system is promising. SWOT analysis by medical students showed that PCU strategies should be tailor-made, depending on the character of the population and the PCU itself.

Keywords: Primary health care, primary care unit, SWOT analysis, urbanization

* Corresponding author: itimwinter@yahoo.com
Background

Defining health in modern society has shifted from the biological model toward a bio-psycho-social-spiritual dimension in which health care is more proactive. In this model there is an increase in the role of health promotion and disease prevention as well as a greater concern for quality-of-life (QOL), rather than merely concentrating on physical wellness. Primary care, as the “port-of-entry” into the health care system must consequently adapt to the higher demands and expectations from health care consumers. These demands and expectations are also influenced by globalization, urbanization, and increased patients’ rights advocacy.

In light of these pressures, primary care units (PCUs) can face significant difficulties in providing a sustainable, holistic approach to providing health care. First, it may be difficult for them to change their health care provision paradigm to include more proactive health care. Depending on the cultural setting, the health care providers may not be fully culturally competent in addressing the quality-of-life issues of a particular population. Moreover, there may not be the health education skills available to train health care providers in the new methods. Finally, the new paradigm may require additional administrative and managerial skills that also need to be acquired by the health care providers or their support staff.

In Thailand, PCUs are no exception, as they are faced with all of these difficulties. On the contrary, additional obstacles are faced by Thai PCUs due to the significant differences within the country, particularly differences between the needs of urban, suburban, and rural populations. PCUs in Thailand are the largest health care workforce in Thailand’s Primary Care System under the national universal coverage policy. Each PCU is responsible for a population ranging from approximately 10,000 to 30,000 persons. Less than 50% of the PCUs are staffed with a full-time physician. It is anecdotally known that, there are many fewer physicians in suburban PCUs than in urban areas, and the discrimination in care is even more acute in rural areas where nurse practitioners or official public health workers are more rarely available. However, there is, at this time, no existing study of the differences between the nature of care in different geographic area types, and there is no official or unofficial program for addressing these discrepancies. This research presented in this paper uses a portion of the Thammasat University medical curriculum (particularly the Holistic Health Care portion) to examine this differential health care availability. More specifically a comparative analysis of competencies between PCUs in urban and suburban areas is conducted based on the experience of medical students.

Objectives

The objectives of this study are to:

1) Compare the strengths, weaknesses, opportunities, and threats of PCUs in urban and suburban areas.

2) Examine the issues regarding PCU personnel through an observational study of medical student experience with PCU health care delivery.
Methods

The design of this evaluation was an observational study carried out during March and April of 2011, by the 4th year medical students of Thammasat University. These students are required to practice primary care to meet the requirements of their Holistic Health Care course. The students visited PCUs in Pathumthani province (a largely suburban area) and in the city of Bangkok. Students were divided into three groups, each group was then sub-divided into three sub-groups, with approximately 10 students per sub-group. Each of the three groups visited a PCU in Bangkok (responsible for a population of approximately 30,000 persons) and three Pathumthani PCUs (each PCU responsible for a population of approximately 10,000 persons).

The students attended seven hours of lecture prior to the visits, to instruct them in primary care and to provide them with requirements for observing the situation at the PCUs. Each group visited the PCUs for 19 hours in order to gain concrete experience in the operation of the PCU. After the visits (Concrete Experience), the medical students attended 14 hours of group discussion concerning the subjects at the PCUs and their observations (Reflective Observation). This discussion was intended to make the results of the observation most effective and to allow the students to organize their thoughts about individual observations into more abstract conceptualizations of the situations they observed (Abstract Conceptualization). Finally, students were required to synthesize their experiences into presentation form, and to discuss their findings with staff and other students (Active Experimentation). This learning process was designed in correlation with the Kolb’s experiential learning model (Figure 1).

Figure 1  Kolb’s experiential learning model
At the conclusion of the presentations by the nine sub-groups a comparison was made of the results of the SWOT analysis performed by each group, and staff members then held an after action review (AAR) with the PCUs to discuss the student perceptions with PCU personnel.

Results

Students in the medical curriculum are familiar with the conventional method of education; a strong focus on one-sided lecture presentations with some site visits and observation after the lectures. In the research presented here it was apparent that the introduction of experiential learning has created enthusiasm among primary care medical students completing their Holistic Health Care course, in addition to broadening their experience from pure theory to practical fieldwork experience.

The students collected the observations from PCUs in Bangkok and in Pathumthani province. The PCUs in Bangkok are administered by the Health Department of the Bangkok Metropolitan Administration, whereas the PCUs in Pathumthani province are under the administration of the provincial Ministry of Public Health. Both sets of PCUs are subject to the budgets and administrative oversight of the National Health Universal Coverage (UC) system. The characteristics of both types of PCUs were gathered through the students’ participatory observation, and interviews with health personnel and health care consumers. These are summarized in Table 1.

Table 1: Character of PCUs in Bangkok and Pathumthani province

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Site</th>
<th>Bangkok (Urban)</th>
<th>Pathumthani province (Suburban)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Character of Population</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Income</td>
<td></td>
<td>Middle to lower income</td>
<td>Lower income</td>
</tr>
<tr>
<td>• Education</td>
<td></td>
<td>Above minimal education standard</td>
<td>Some below minimal education standard</td>
</tr>
<tr>
<td>• Daily Earnings</td>
<td></td>
<td>Non-governmental company</td>
<td>Private job</td>
</tr>
<tr>
<td>Budgets</td>
<td></td>
<td>Mainly from UC system</td>
<td>Mainly from UC system</td>
</tr>
<tr>
<td>Health Personnel</td>
<td></td>
<td>3 physicians 10 nurse practitioners</td>
<td>Part-time physician (twice per week) 2 nurse practitioners</td>
</tr>
<tr>
<td>Health Seeking Behavior</td>
<td></td>
<td>Highly interdependent</td>
<td>Dependent on health care workers</td>
</tr>
<tr>
<td>Form of Health Care Provided</td>
<td></td>
<td>High rate of polypharmacy Diagnostic and therapeutic care</td>
<td>Lower level of polypharmacy Health promotion and disease prevention</td>
</tr>
</tbody>
</table>
It appears from this data that the health care that is provided by each PCU correlates with the nature of each population and the availability of skills of the health care providers. This demands a different strategic plan for PCUs in urban and suburban areas. These plans can begin to be generated through a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. The SWOT analysis and subsequent presentation and feedback process conducted by the Thammasat University medical students has identified a consensus of opinion regarding prospects for improving care at PCUs, and addressing discrepancies in care. These results are presented in Table 2.

### Table 2  SWOT Analysis by 4<sup>th</sup> year medical students for PCUs in Bangkok and Pathumthani Province

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Site</th>
<th>Bangkok (Urban)</th>
<th>Pathumthani province (Suburban)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths (S)</strong></td>
<td>Accessibility: The population have convenient access to health care due to good transport system access and high purchasing power to cover costs not included in universal coverage</td>
<td>Proactive form of health care services via prominent health promotion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Availability: Various health care services are available; especially physicians and paramedic, laboratory, radiological, and dental services</td>
<td>Strong partnerships between local communities and the PCU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Referral System: Teaching hospitals in tertiary care promptly accept referrals from the PCUs</td>
<td>Strong alliances with volunteers from the community in performing home visits and health education</td>
<td></td>
</tr>
<tr>
<td><strong>Weaknesses (W)</strong></td>
<td>A modest profile in sustainable health promotion in the population is overlooked from the success in therapeutic care</td>
<td>A proportion of the community is dependent on health care workers, while other patients seek medical care in secondary care hospitals (thereby bypassing the port of entry to health care)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The role of volunteers is minimal when compared to the role of workers hired per day from the community</td>
<td>There is a scarcity of physicians and nurse practitioners</td>
<td></td>
</tr>
</tbody>
</table>
During the after action reviews, PCU personnel agreed with the SWOT analysis, even though students mentioned some points that the PCUs had overlooked. These items were enumerated and are outlined in Table 3.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Site</th>
<th>Bangkok (Urban)</th>
<th>Pathumthani province (Suburban)</th>
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<tr>
<td>Strength (S)</td>
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<td>Opportunity (O)</td>
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<td>Threat (T)</td>
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### Table 2 (continued)

<table>
<thead>
<tr>
<th>Characteristic \ Site</th>
<th>Bangkok (Urban)</th>
<th>Pathumthani province (Suburban)</th>
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There is an inappropriate amount of personnel in the workforce for the workload that is required. There are limitations in the referral system in terms of the number of destination hospitals, the promptness with which referrals are accepted.

The already frequent courses in training health personnel held by the Bangkok Metropolitan Health Administration can be focused more on holistic and preventive medicine. Thammasat University is a well-known university that is encouraged to work with the community. A Memorandum of Understanding (MOU) between the provincial division of the ministry of public health and Thammasat University is possible.

A shared health promotion team among PCUs shows a high promise of possibility. A strong volunteer health workers’ system is a key player in driving the primary care sector.

Medical schools can be important stakeholders in leveraging therapeutic and health promotion services.

Loss of health care personnel to the secondary care level, as well as to the private sector. Loss of health care personnel to the secondary care level, as well as to the private sector.

Change in the population pyramid towards an aging society may result in higher medical costs. Change in the population pyramid towards an aging society may result in higher medical costs.
Discussion

In Thailand, robust health system based on primary health care (PHC) is the most effective means to reduce disease burden and improve quality of life. In achieving this goal, strengthening the teaching of primary health care in undergraduate school is essential. An additional benefit of making an experiential learning model-based process is that it provides students with an open-minded participatory observation as well as imprinting the ability to analyze and compare certain PCU models across different areas. This valuable experience is unable to be substituted by learning process in the classroom, as in the conventional method or rote learning. Moreover, the success of this process demonstrates that the academic process can involve key players (professors, lecturers, students, and administrators) in partnerships with elements of the primary care system. It is believed that this can allow the academic sector and the service sector to help each other in creating a more effectively functioning primary care sector. Academics will surely gain benefits in having precious learning resources, while at the same time can dedicate themselves in corporate social responsibility (CSR). On the other hand, the service sector will receives an updated knowledge in primary health care and recruit more health care warriors in the health service system. The social sector can also participates as key players, especially in suburban areas as shown in the study. A collaborative model between academic sector, service sector and social sector taking part in the development of primary health care system is promising regarding to the results of this research. SWOT analysis by medical students showed that PCU strategies should be tailor-made, depending on the character of the population and the PCU itself. SWOT analysis as a tool, demonstrates its effectiveness and efficacy, no matters carried out by which party, thus should be one of the managerial skills taught in medical school. Health promotion seems to be the hallmark of care in suburban areas, but this situation is still worrisome due to the wave of urbanization. In urban areas, health promotion is only dominated by certain caregivers and simply not the type of care that the population demanded. In

\[
\begin{array}{|l|l|l|}
\hline
\text{Characteristic\Site} & \text{Bangkok (Urban)} & \text{Pathumthani province (Suburban)} \\
\hline
\text{Strengths (S)} & \text{Accessibility of care through an effective referral system} & \text{None} \\
\hline
\text{Weaknesses (W)} & \text{None} & \text{The community is overly dependent on the few health care providers} \\
\hline
\text{Opportunity (O)} & \text{Inclusion of various medical schools as stakeholders} & \text{None} \\
\hline
\text{Threat (T)} & \text{Change towards aging society} & \text{Change towards aging society} \\
\hline
\end{array}
\]

Table 3 SWOTAnalysis by 4th year medical students overlooked by PCUs
despite of this pre-contemplation phase in urban population’s perceptions involving the benefit of health promotion, health personnel must dedicate their effort even more. Eventually, all sectors should be encouraged and enrolled in continuous professional development system, as well as demonstrate potentials of being a role model in transferring both tacit and explicit knowledge in primary care.

Conclusion
The pace of urbanization is expected to continue, and while suburban PCUs may therefore believe that movement toward the PCU model that has evolved in urban areas would represent positive advancement, these suburban PCUs should allow their own model to evolve based on their own strengths and opportunities.

Funding
This work was supported by the National Research University Project of Thailand Office of Higher Education Commission.

Acknowledgement
I would like to pay my greatest gratitude to Associate Professor Kevin M. Curtin of George Mason university for his advice throughout the process of making this study.

References


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