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Editor's Note

We are already in the middle of 2018 as well as completing half of the year, yet time is running away from us quickly, in a split seconds without our noticing. A baby becoming a toddler, a youth becomes an adult. Well, this is life. Life is not short as some people said, nor it is long as some people wishes. Thus it is such a waste if one failed to benefit the latter without learning lots of knowledge in life.

This journal is still in its growing phase, hence we are committed to publish only quality writings to ensure our survival in this field. In order to reaffirm our pledge to continue producing such good journals, that is why up until now we never failed to issue the journal twice a year since our breakthrough year. The effort from our team out there to seek for good quality publications is highly appreciated and we look forward for this enthusiasm for many years to come.

The journal kickstarts with a taboo issue as perceived in Thailand, whereby Sasiphattra Siriwato conveys the message on behalf of the women in the country on the survey of sexual assault victim. The paper opens its journey by quoting nearly 35 percent of women around the world have experienced physical, sexual or psychological violence by their partner or non-partner during their lifetime. The data collected throughout Thailand with a positive feedbacks from 4,400 households. Amongst them, only two (2) cases were reported by the critical response by the respondents on relating to threaten to sexual assault. The author observes and come to a conclusion that women in Thailand may not feel confident and uncomfortable to come forward to report on this matter.

The next paper discusses on the prolonged saga of labour trafficking in Thailand's fishing industry. Charupol Ruangsuwan in detail argues about the root causes of this issue, where it is dubbed as a long chain of structural problems involving major issues such as economic, political, and social aspects. The long lists of problems in the fishing industry such as the labor scarcity in the fishing industry due to the departures of the Thai laborers, provide opportunities for foreigners. However, the fact that Thai law existence to protect jobs for the Thais, this situation give birth to the brokers, who are the one in-charge of steering the addition of the foreign labors to the Thailand's fish industry via irregular channels.

Next, Bruce Weeks comes up with the idea to investigate the innovation and economic growth, relating to the case for Business Method Patents in China. Economic growth is based on innovations replacing old technologies, which drive entrepreneurial investments, creating change or creative destruction. Sustained economic growth comes not from imitation but technological innovation. For instance, in the United States software patent law expanded to recognize software patents including business method patents, inventions based on computer-based algorithms and so forth. The result was a rise in industrial and commercial business method patents producing a beneficial economic benefit. The rush to exploit the enlargement in business method patents principles, and the new flood of inventions seeking protection that followed challenged the evolving rules of software patents and limiting modifications in the theories and procedures governing business method patents.

Then, Somkid Pochanapan and friends discover something specials, about the correlation between the effects of practicising yoga on the quality of live of HIV/AIDS patients. There are seven (7) writers altogether, whom forged a great teamwork to produce this kind of writing. There are 50 subjects taken into study for this research, divided into two (2) groups, 25 subjects each. The results showes that these patients who practiced yoga other than the normal treatment improved their mental and physical well-being, therefore the writers urge for the promotion of yoga to those HIV/AIDS patients.

The fifth article from Sridhar Ryalie, is about culture. The author discusses about the challenges and opportunities in Thailand, in striving for a design innovation-based culture. He later added that models of design education currently in practice in Thailand have borrowed heavily from the West and have not been very effective in cultivating a culture of innovation. Thus, the idea is that there should be a consensus to erect a new model of education so that this loophole could be addressed accordingly.

Last but not least, a study by Loeurt To about community participation in education in Samlot District, Battambang Province in Cambodia. This study was directed to explore the nature of community participation in education in a remote district in Cambodia. A case study approach was used to explore the issue and qualitative research methods was employed for data collection. The result from the study suggests that a shift in focus (on the part of the government, non-governmental organizations and education stakeholders) to support parental involvement in children's learning, rather than the traditional resource mobilisation, may better promote children's learning. The author then urges for further research on parental involvement in children's learning to be conducted in the near future.

Here we present, six (6) articles to be read with full focus that demand a good understanding by the audiences out there as they are produced with extra care and due diligence by the authors. Therefore, no page shall be skipped or one deliberately jumps to other articles without completing the reading of the current article first. Then only we could gather a lot of information and knowledge, with this thorough reading.

In a nutshell, that is why journals such as RJSH exist: to create a bridge for knowledge-seekers (learners) with producers of knowledge (researchers). As the editorial team, we see this as our job: sharing new knowledge, including alternative ways of perceiving the complex issues that all of our societies face on a day-to-day basis.

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

Sincerely,

Anek Laothamatas
Editor-in-chief

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Sexual Assault Victimization Survey in Thailand

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Abstract

Approximately 35 percent of women around the world have experienced physical, sexual or psychological violence by their partner or non-partner in their lifetime. To eliminate all forms of violence against women and girls, the United Nations request each country to report the number of victims on violence against women. This research data is collected throughout Thailand. Around 4,400 households were collected. Approximately 14,510 survey respondents reported that there are no women and girls in Thailand who faced physical, sexual and psychological violence by their partner or non-partner in the past 12 months. However, there are only two cases who reported on threats of sexual assault. These two cases also did not report to police as they still did not get hurt or raped. Moreover, it cannot deny that gender norms which women have been taught that they should not talk about sex, still exists in Thailand. Therefore, survey respondents may not feel confident and comfortable to answer questions very frankly about violence against women.

Keywords: *sexual violence, violence against women, sexual assault victims, gender norm in Thailand, sustainable development goals*

1. Introduction

Sexual violence always occurs in every country. Even though many countries try to conduct research to find the best way to solve this problem, but it does not have even a single country that is able to solve the sexual violence problem. According the World Health Organization (WHO, 2017) estimates that there are about one third or around 35 percent of women throughout the world who have faced physical or sexual violence by their partner or non-partner in their lifetime. United Nations Entity for Gender Equality and the Empowerment of Women or UN Women (2018) further identified that more than 50 percent of girls under the age of 16 are victimized in sexual assaults throughout the world. The UN Women also informed that approximately 30 percent of women were forced to have the first sexual activity.

Moreover, WHO further claims that approximately 30 percent of women worldwide who have been in a relationship report that they have experienced either physical or sexual violence or both of them from their partner in their lifetime. The reason that men often force their partner to have sexual act is that men would like to have more power over their partner. At the same time, men also believe that they are able to coerce their partner to have sex with them because those women are their wife (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). Additionally, WHO also indicates that there are about 38 percent of women who are murder victims by their partner worldwide.

Furthermore, the available statistical data suggests that in some countries, nearly one in four women have experienced sexual violence by their partner and one-third of adolescent girls have had their first sexual experience by being forced (Krug et al., 2002). Most assaulters often choose to attack someone they know such as family members, friends, classmate, neighbor and coworker. Adult victims reported that 73 percent knew their attacker. Approximately, 38 percent were friends of the attacker and 28 percent were partner of the attackers. Only 7 percent of victims reported that they were relatives of the attacker (National Sexual Violence Resource Center, 2010). The available data also suggested that around 40 percent of sexual violence happens in the victim's house rather than the house of a friend or relative (NSVRC, 2010).

Sexual violence is a major cause of health problems in both physical and mental health and also violating women's human rights. For physical health, their body will be injured and sometimes may have a problem on sexual and reproductive health problems. On the other hand, the impact on mental health may have similar severe or more physical impact and take a longer time to recover. In the worst case, some of the victims may be murdered during sexual violence or decide to commit suicide because of the stigmatization

from their family and society or an honor killing[1] in response to serious sexual violence such as rape (Krug et al., 2002).

In September 2000, the United Nations and world leaders declared to adopt the Millennium Development Goals (MDGs) in order to reduce extreme poverty and set out eights targets to be achieved by 2015 (United Nations Development Programme, 2018). One of the targets that has been mentioned here is the target number three of promoting gender equality and empowering women. To achieve gender equality in MDG, the United Nations only aimed to increase the chance for girls and women to go to school and university, to have the same chance to get a job and to have more women as political representations (MDG Monitor, 2018). This means that during these 15 years, the United Nations only paid attention to education, employment and politics. The United Nations then did not address several issues that are necessary to achieve gender equality such as violence against women and girls, limited control over property and law on gender discrimination. Therefore, the MDGs seemed to fail for the target number of three as it could not cover the most important issues to achieve gender equality (Gibbs, 2015; MDG Monitor, 2018).

As the MDGs ended in 2015, the United Nations and world leaders then adopted the Sustainable Development Goals (SDGs) to be achieved by 2030. On January 1, 2016, the SDGs came into force. The SDGs comprises 17 goals and over 169 targets. It aims to end all forms of poverty, fight inequalities, tackle climate change and ensuring that no one is left behind (United Nations, 2018b). In the SDGs, the goal number five is gender equality and empowering all women and girls. There are nine targets in goal number five. One of the nine targets is "eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation" (United Nations, 2018a). This means that the United Nations would like to end all forms of violence against women and girls at this time because many women and girls worldwide still have experienced sexual violence.

As the SDGs are not legally binding, the government of each country is responsible to establish a national framework to achieve all 17 goals and review the progress of implementation which is including quality and accessible data collection for each target (United Nations, 2018b). To eliminate all forms of violence against women and girls, the data collection on victims of sexual violence is therefore very important.

For a target on eliminating all forms of violence against women and girls, there are two indicators that have to collect data and report to the United Nations. The first indicator is "proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months by form of violence and by age". The second indicator is that "proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence" (United Nations, 2018c). Therefore, the Thai government has to collect these data on sexual violence.

In the Asia and the Pacific area, there are 37 countries. There are 28 countries who have done a survey on violence against women and only 6 countries that did more than one survey. In order to achieve gender equality, only 20 countries have collected data to answer the first indicator while only 8 countries have data for the second indicator of elimination all forms of violence against women and girls (Jansen, 2017). This means that most countries in Asia and the Pacific areas have started to collect data on violence against women by their partner and former partner. However, most Asian and the Pacific countries still did not collect data on violence against women by persons other than an intimate partner. Figure 1 shows the Asian and Pacific countries that have collected data on violence against women by a partner and former partners in the last 12 months and in their lifetime. This picture also shows statistical data on violence against women in Pacific Island countries too.

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[1] Human Rights Watch (2001) defines the term 'honor killing' or 'honor crimes' as "acts of violence, usually murder, committed by male family members against female family members who are perceived to have brought dishonor upon the family. A woman can be targeted by her family for a variety of reasons including, refusing to enter into an arranged marriage, being the victim of a sexual assault, seeking a divorce – even from an abusive husband – or (allegedly) committing adultery". Honor killing has happened worldwide and is not limited to any religion. The United Nations reported that there were about 5,000 honor killings around the world, mainly in the Middle East and Asia in the year of 2000. In September 2016, Department of Justice, the United States of America reported that there are around 23 to 27 victims of honor killings in the USA each year (Worldnetdaily, 2017).
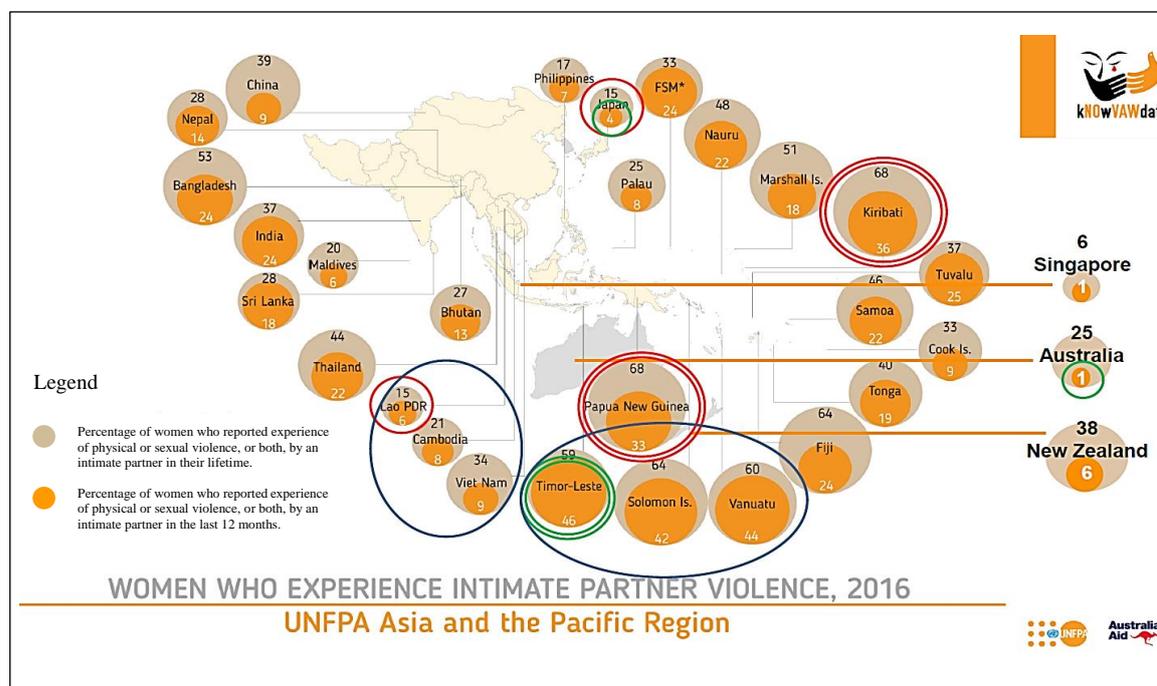
Figure 1 Percentage of women who are victims of violence against women by their partner and former partner in the Asia and Pacific countries
Source: Prevalence of violence against women in Asia and the Pacific Region (Jansen, 2017)

The available statistical data on violence against women is a crucial issue that needs to be resolved especially statistical data on violence against women by persons other than an intimate partner. The reliable statistical data on various forms of violence against women either by their partners and former partner or by persons other than an intimate partner is important and has to be collected in every country.

This paper therefore aims to identify the status of sexual violence in Thailand and report the number of women and girls aged 15 years and older subjected to sexual violence either by their partner or persons other than partner in 2016-2017. This paper is divided into five sections. The first section defines the term sexual violence and then describes the situation on limited statistical data on violence against women in the second section. Methodology that has been used in this research will be described in the third section. The fourth describes and analyzes data that had been collected in Thailand and summarizes all results in the fifth section.

2. Definition of sexual violence

As everyone can have the chance to experience sexual violence such as children, teens, adults and elders, defining the term sexual violence is then very important. In the past, there was a lack of a clear definition of the term sexual violence. Therefore, it is very hard for everyone to know what sexual violence is and what is acceptable and unacceptable behavior. These notions have been influenced from culture and social norms that are different in each society (Krug et al., 2002). In 2002, WHO defines the term sexual violence as:

> any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting, including but not limited to home and work.
>
> (Krug et al., 2002, p. 149)

This definition of sexual violence also includes rape and any actions that has an intention to destroy, humiliate victims and diminish any human dignity.

The National Sexual Violence Resource Center (2010, p. 1) also defines the term sexual violence as "someone forces or manipulates someone else into unwanted sexual activity without their consent". This means that anyone who did not agree to have sexual activity is faced with sexual violence. Any reason such as fear, age, illness, influence of alcohol or drugs and disabilities are reasonable to consider as refusing to have sexual activity. If someone does not listen and still forces another person to have sexual activity, this action is called sexual violence.

This article therefore defines the term sexual violence as unwanted sexual activity, any attempt to have sexual activity or have sexual activity without consent in any place. Any unwanted action such as touching is also included in this definition. This means that any unwanted or attempted action when someone does not wanted is called sexual violence in this paper.

There are many forms of sexual violence. The National Sexual Violence Resource Center (2010, p. 1) identifies nine forms of sexual violence. The following are the nine forms of sexual violence:

- Rape or sexual assault
- Child sexual assault and incest
- Intimate partner sexual assault
- Unwanted sexual contact or/and touching
- Sexual harassment; sexual exploitation
- Showing one's genitals or naked body to other(s) without consent
- Masturbating in public
- Watching someone in a private act without their knowledge or permission

Additionally, WHO (2002, pp. 149-150) indicates that there are many forms of sexual violence that can happen in different circumstances and settings. For instance, WHO indicated that these 10 circumstances are examples of sexual violence. The following are 10 circumstances:

- Rape within marriage or dating relationships
- Rape by strangers
- Rape during armed conflict
- Unwanted sexual advances or sexual harassment, including demanding sex in return for favors
- Sexual abuse of mentally or physically disabled people
- Sexual abuse of children
- Forced marriage, including the marriage of children
- Denial of the right to use contraception or to adopt other measures to protect against sexually transmitted diseases
- Forced abortion
- Forced prostitution and trafficking of people for the purpose of sexual exploitation

All of these actions are called sexual violence as victims are forced to do any action that is related to sexual activity. The following section will describe the situation of sexual violence worldwide.

3.   Limited statistical data on violence against women

In 1993, there was a world conference on human rights. This conference declared that violence against women is a human rights violation. The United Nations later announced the Declaration on the Elimination of Violence against Women in December 1993 (United Nations Women, 2018). This declaration wants government in every country to start to be concerned about violence against women and change their norms that violence against women was a private and domestic affair and it did not require government or public officials to pay attention (United Nations, 1994).

Currently, there is very limited statistical data on violence against women. The lack of statistical data made it very hard for national and international organizations to know the estimated number of victims from violence against women which have been seen as a serious issue (United Nations, 2015). The Declaration on the Elimination of Violence against Women also asked most countries to conduct research and collect data on several forms of violence against women. After the announcing of the Declaration on the Elimination of Violence against Women and called for research, many countries have started to collect data

on violence against women. Table 1 shows the number of countries that conducted a survey on violence against women. It shows clearly that there are not too many countries that conducted at least one survey. This means that governments in many countries still do not see violence against women as an important issue that has to be resolved.

Table 1 The number of countries that conducted survey on violence against women from 1995 to 2014

Type of Survey	1995-2014		1995-2004	2005-2014
	At least one survey	At least two survey	At least one survey	At least one survey
Dedicated survey to measure violence against women	51	7	17	35
Module of questions on violence against women	64	31	25	60
Dedicated survey on violence against women	102	43	44	89
Survey with questions on attitudes towards violence	100	62	37	97
Survey with questions on female genital mutilation	29	25	20	27

Source: The world's women 2015: Trends and statistics (United Nations, 2015)

As there is very limited statistical data on violence against women, most statistical data on sexual violence is collected from police recordings and nongovernmental organizations. However, there are only a small number of people who went to police stations to report about sexual violence because they are shy or fear of being blamed. The available data also shows that only few victims go to a hospital for treatment after facing sexual violence (Krug et al., 2002). These are reasons why the United Nations would like governments in every country collecting statistical data on violence against women.

Furthermore, the statistical data on various forms of violence against women is very important to collect. There are two major reasons why the reliable statistical data on violence against women are important. The first reason is that the United Nations, governments and policy makers have to understand the nature and the phenomenon on violence against women in order to compare the data and design the effectiveness policies. The second reason is that policy makers and professionals have to know which form of violence against women is more serious in each country in order to design and implement effectives policies and provide support for victims (European Institute for Gender Equality, 2018; United Nations entity for Gender Equality and the Empowerment of Women, 2005). These two reasons highlight why reliable statistical data on violence against women is very important. The next section describes research methodology that will be used in this research.

4. Methodology

Quantitative methods were used to conduct this research. The questionnaire was used to collect all data in Thailand. This research divided Thailand into 11 areas same as the responsibility of areas of the Royal Thai Police (RTP), which are the Metropolitan Police Bureau, Provincial Police Region 1-9 and Southern Border Provinces Police Operation Center. Figure 2 shows the area that Provincial Police Region 1-9 and Southern Border Police Operation Center are responsible for[2].

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[2] This research was conducted and collected data before the Royal Thai Government Gazette announced that the RTP decided to change the area of police responsibility. The RTP dissolved the Southern Border Police Operation Center and merged it into the Provincial Police Region 9. This order had been announced and was effective on September 1, 2017 (Chinnawornkomon, 2017; Thai PBS News, 2017).
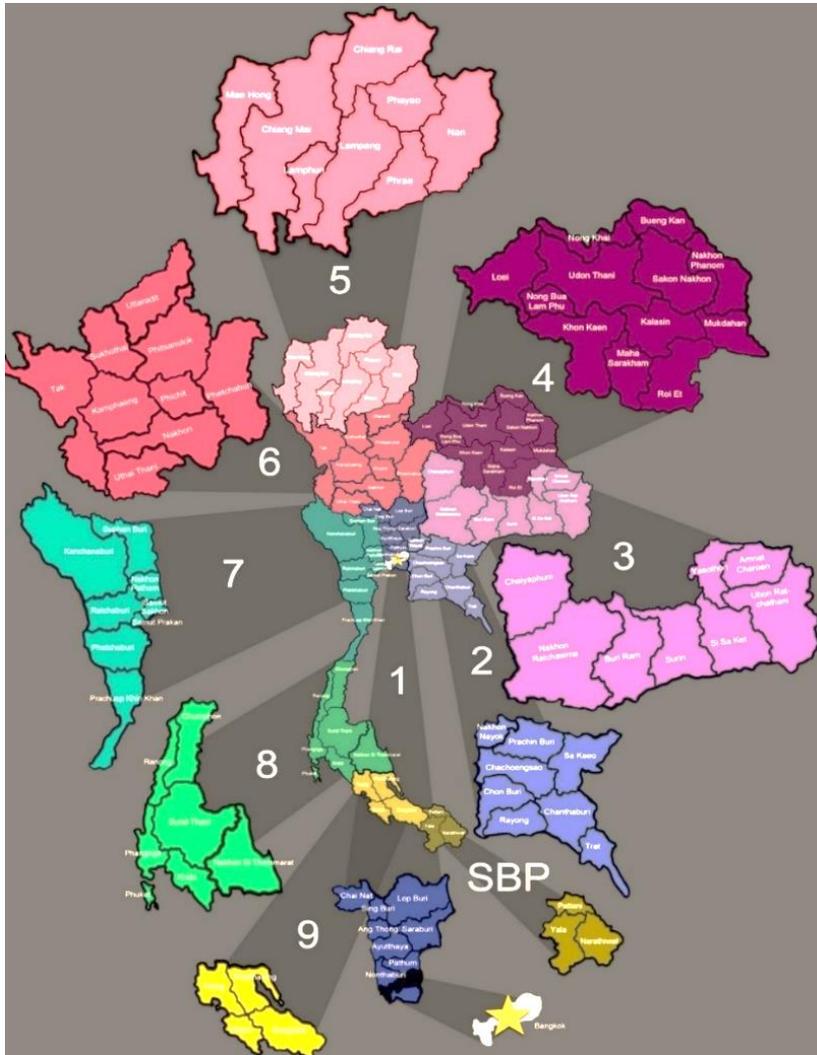
Figure 2 The responsible areas of provincial police region 1-9 and southern border police operation center
Source: Women policing: A contemporary study of women's experiences in the Royal Thai Police (Siriwato, 2014)

In each area, two provinces were randomly selected to answer questionnaires, except the Metropolitan Police Bureau where two territorials were selected. Furthermore, in a selected province, two districts were choosen and finally in a district, two local government were selected to answer the questionnaires. Table 2 shows the selected provinces and districts in this research.

Table 2 The name of selected provinces and districts in this research

Bureau	Provinces	District	Local Government
Metropolitan Police Bureau	Bangkok	Metropolitan Police Division 2	Don Muang Police Station, Paholyothin Police Station
		Metropolitan Police Division 4	Chok-Chai Police Station, Hua Mak Police Station
		Metropolitan Police Division 6	Phra Rat Cha Wang Police Station, Pathumwan Police Station
		Metropolitan Police Division 8	Rat Bu Ra Na Police Station, Bang Mod Police Station
Provincial Police Region 1	Pathumthanee	Muang Pathumthanee, Lumlukka	Pathumthanee, Ban Chang, Ku-Kot, Bueng Thong Lang
	Saraburi	Muang Saraburi, Phra Put Tha Bat	Saraburi, Daw Rueng, Phra Put Tha Bat, Khao Wong
Provincial Police Region 2	Chonburi	Muang Chonburi, Bang La Mung	Chonburi, Nongree, Bang La Mung, Khao Mai Kaew
	Sa Kaeo	Muang Sa Kaeo, Aranyaprathet	Sa Kaeo, Ban Kaeo, Aranyaprathet, Muengphai
Provincial Police Region 3	Nakorn Rat Cha Si Ma	Muang Nakorn Rat Cha Si Ma, Pak Chong	Nakorn Rat Cha Si Ma, Jor-Hor, Pak Chong, Chan Tuk
	Sri Sa Ket	Muang Sri Sa Ket, Kantaraluck	Sri Sa Ket, Ku-Sod, Kantaraluck, Bueng Maru
Provincial Police Region 4	Khon Kaen	Muang Khon Kaen, Phon	Khon Kaen, Kok Sri, Phon, Jode Nong Kae
	Nongkai	Muang Nongkai, Ta-Bo	Nong Kai, Hin Ngom, Ta-Bo, Koke Korn
Provincial Police Region 5	Chiang Mai	Muang Chiang Mai, Mae Tang	Chaing Mai, Chang Phuek, Mae Tang, Sob Peng
	Pa Yao	Muang Pa Yao, Dok Kam Tai	Pa Yao, Mae Na Rea, Dok Kam Tai, Ban Pin
Provincial Police Region 6	Pi Jit	Muang Pi Jit, Bang Mul Nak	Pi Jit, Pai Kwang, Bang Mul Nak, Wang Sumrong
	Sukhotai	Muang Sukhotai, Srisatchanarai	Sukhotai, Pak Kwai, Srisatchanarai, Pa ngew
Provincial Police Region 7	Kanchanaburi	Muang Kanchanaburi, Tamaka	Kanchanaburi, Wang Dong, Tamaka, Pong Duk
	Phetburi	Muang Phetburi, Cha Am	Phetburi, Bang Jan, Cha Am, Nong Sala
Provincial Police Region 8	Phang Nga	Muang Phang Nga, Ta Kua Pa	Phang Nga, Nob Pring, Ta Kua Pa, Bang Trai
	Nakorn Si Thammarat	Muang Nakorn Si Thammarat, Tung Song	Nakorn Si Thammarat, Na Trai, Tung Song, Nong Hong
Provincial Police Region 9	Trang	Muang Trang, Kun Trang	Trang, Na Phra, Kun Trang, Kuan Thani
	Songkla	Muang Songkla, Had Yai	Songkla, Tung Wang, Had Yai, U-Tapao
Southern Border Police Operation Center	Yala	Muang Yala, Be Tong	Yala, Lidon, Be Tong, Ya Rom
	Narathiwas	Muang Narathiwas, Sungai Kolok	Narathiwas, Lum Poo, Sungai Kolok, Munou

The survey sample size is calculated by Cochran's sample size formula. The Cochran's sample size formula (Cochran, 1977, p. 75) is shown below.

$$n = \frac{P(1-P)Z^2}{d^2}$$

n = the sample size
P = the estimated proportion of an attribute that is present in the population
Z = the selected critical value of desired confidence level
d = the desired level of precision

$$So \quad 392 = \frac{(.50)(1 - .50)(1.96)^2}{(.07)^2}$$

In order to reduce sampling errors, the researcher increased the sample size from 392 to 400. Therefore, approximately 400 households for each bureau are the total number of survey for this research.

Participants were requested to answer a questionnaire two times. The first time, participants were asked questionnaires for about 15 minutes by the research team in order to confirm that participants deeply understood questions same as the researcher. The survey started with general information about participants and then more questions about experiences on crime and sexual assault victimization in the year of 2016-2017. Participants may answer questions that are related to their experiences or their family members' experiences. The second time, the research team gave a call to participants, who allowed us to contact them, in the next five months to ask the same questions as the last time as some participants may recall their experiences and during these five months, they may experience any crime or sexual assault victimization.

5. Research findings

The total survey respondents was 4,400 households, approximately 14,510 respondents. These respondents were about 6,916 males (47.66 percent) and 7,594 females (about 52.34 percent). Approximately, 132 survey respondents or about 3 percent are crime victimizations in Thailand in the year of 2016-2017. Table 3 shows percentages of victimizations report and not reported to police by type of crime in Thailand. Table 4 also shows percentage of victimizations report and not reported to police by type of crime divided by gender. It clearly shows in Table 3 that only 1.50 percent is sexual assault victims. Only threatening to sexual assault types were reported by participants. Table 4 also shows that the highest number of victims were women in nearly all type of crimes, except on body and violence crime, approximately 75 percent of male victims and about 25 percent of female victims. This means that from 132 victims, there are about 79 female victims or approximately 59.9 percent.

Table 3 Percentage of victimizations reported and not reported to police by type of crime in Thailand

Type of crime	Percentage of victim
Body and Violence Crime	**9.10**
Attempting murder	8.33
Simply assault	91.67
Aggravated Assault	0.00
Capture	0.00
Kidnapping	0.00
Property Crime	**68.20**
Robber	8.89
Theft	7.77
Pick Pocket	1.11
Motor vehicle theft	8.89
Agricultural tool theft	3.33
Burglary	61.11
Losing property	6.67
Blackmail	0.00
Extortion	0.00
Mischief property	2.22
Trespass	0.00
Sex Crime	**1.50**
Rape	0.00
Sexual harassment	0.00
Threaten to sexual assault	100.00
Fraud	16.70
Identity theft	18.18
Ponzi schemes	13.64
Deceive working aboard	0.00
Transferring money to offenders	13.64
Faulty documents	22.72
Losing property by other way	31.82
New Type of Crime	**4.50**
Corruption	0.00
Victims of Justice system	0.00
Victims of Computer crime	100.00
Discrimination	0.00

Table 4 Percentage of victimizations reported and not reported to police by type of crime divided by gender in Thailand

Victimization		Type of Crime					Total
		Body and Violence Crime	Property Crime	Sex Crime	Fraud	New Type of Crime	
Gender	Male	9 (75.0)	35 (38.9)	0 (0.0)	2 (9.1)	3 (50.0)	53 (40.1)
	Female	3 (25.0)	55 (61.1)	2 (100.0)	20 (90.9)	3 (50.)	79 (59.9)
	Total	**12 (100.0)**	**90 (100.0)**	**2 (100.0)**	**22 (100.0)**	**6 (100.0)**	**132 (100.0)**

Table 3 and 4 showed that from 14,510 respondents, only two survey respondents reported that they had been threatened in terms of sexual assault. Sex crimes often happen in the workplace and public areas. All victims of sex crimes are women. The first woman who is 19 years old and lives at Songkla province reported that she did not know the offender. On that day, she went to a shopping mall and a man followed her

and took photos of her. Finally, this man put her photo on the windscreen of her car. Definitely, she did not report to police as she did not know the purpose of this man. However, she believes that this situation is threatening to sexual assault.

The second woman who is 35 years old and lives at Yala province reported that she knew the offender as he lives in the same slum. However, she did not have a closed relationship with him. On that day, this guy came to her home in the morning, talked with her for a long time and tried to rape her. However, it had happened in the morning. So, there were many people walking around there and helped her. This woman also did not report it to the police. She gave the reason that she has not been raped yet. Therefore, she did not want to report it to police.

To achieve the SDGs on gender equality, there are two main indicators. The first indicator is that "proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months by form of violence and by age" (United Nations, 2018c). This research found that there are no women and girls who are over 15 years of age and live with their partner, have been faced either sexual, physical or psychological violence by their partner or former intimate partner in the past 12 months. The second indicator is that the "proportion of women and girls aged 15 years and older subjected to sexual violence by persons other than an intimate partner in the previous 12 months, by age and place of occurrence" (United Nations, 2018c). This research found that no women or girls who are the age of 15 and over have experienced sexual violence by persons other than an intimate partner in the past 12 months. Only two cases of threatening to sexual assault have been reported. However, these two women did not report it to the police because offenders still did not hurt or rape them. Moreover, violence against women is seemed to be not a problem in Thailand. This research also found that there are no young people who are the age between 1 years of age and 17 years of age have been victimized from both physical and mental violence.

For the telephone survey, the research team only got 1,865 mobile numbers or 42.40 percent from 14,510 survey respondents. From all of those mobile numbers, only 958 mobile numbers were received calls from the research team. To answer two indicators of elimination on violence against women, the survey respondents did not face any physical, sexual or psychological violence by either current or former partners and by a person other than a partner in the first five months of the year 2017.

6. Discussion and conclusion

Most crime victimizations in Thailand are women (approximately 59.90 percent). This is quite interesting as in the United States, the National Institute of Justice (2017) reported that from studies of crime and victimization patterns, they found that the high number of crime victims are men rather than women. In Thailand, women may become an easy target as they often stay at home rather than go out for working in rural areas. It can see clearly from the number of survey respondents in this research that approximately 52.34 percent are women because they have stayed at home during the day time. Although women became crime victims more than men, but most respondents (93 percent) reported that they feel safe to walk at their home alone at night. This means that although most women are crime victims, but they still feel confident with their community in terms of safety and security.

Interestingly, there are only two cases that reported about threats of sexual assault. However, there are no girls or women who faced physical, sexual or psychological violence. Is it possible that violence against women is not a problem in Thailand? According to the World Health Organization (2017), there are about 35 women have faced physical or sexual violence by their partner or non-partner throughout the world. This means that Thai women are included and some of them have experienced violence against women.

The major reason that there are no women and girls reported on violence against women is because of the gender norm. In Thailand, a gender norm still exists. Esterik (2000) informed that women have been taught that they should not talk about sex. Thai women should also not engage in sexual activities before they get married. If they cannot follow this gender norm, they are labeled as 'bad women'. In 2014, the research on Women Policing: A contemporary study of women' experiences in the RTP informed that this gender norm still exists in Thailand and Thai people still fear to talk or tell their story about sex (Siriwato, 2014). This gender norm may therefore have some effect on the survey respondents to answer frankly and clearly. As gender norms still exist, it is quite difficult to ask questions about violence against women in Thailand

because the survey respondents may not feel comfortable and confident to answer the truth about violence against women as they may be afraid that their neighbors may gossip and talk about it for a long time. As a consequence, the survey respondents may decide to answer 'no' instead of telling the true story on violence against women.

However, it also cannot deny that 14,510 survey respondents may be too small a number to represent the whole Thai population. Therefore, it is possible that 14,510 survey respondents answered the survey frankly and clearly that they have never been victimized on violence against women. Therefore, this research did not find any women and girls who faced physical, sexual or psychological violence by their partner or non-partner in Thailand.

Furthermore, the telephone survey is not suitable for collecting data in Thailand. From 14,510 survey respondents, only 1,865 survey respondents feel confident to give their number to the research team. At the end, only 958 survey respondents did receive phone calls. Approximately, 958 mobile numbers are definitely not enough to analyze data for Thailand in the first five months of the year 2017. The reason that most people did not receive a phone call from the research team is because there are many insurance companies that always call to people in Thailand and this point makes many people avoid to receive a call or block a call from a strange number.

In conclusion, the issue of violence against women is a sensitive issue. The researcher suggests that to collect data on violence against women in Thailand, the person who asks questions on this issue should be a closed person of survey respondents such as the head of a village or subdistrict headman because they have a close relationship and know each other. Therefore, survey respondents may feel more confident to tell their story more frankly and clearly. Moreover, the telephone survey is not suitable to collect data in Thailand. Thai people still feel more comfortable and more confident to participate and answer questions face to face in interviews, especially for Thai people who live in rural areas.

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The Root Causes of Labour Trafficking in the Thailand Fishing Industry: A Long Chain of Structural Problems

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Abstract

Labor trafficking in the Thai fishing industry has placed Thailand into a spotlight for half a decade, especially in the eyes of the global community. Therefore, as a major seafood and fishing-related products exporter, Thailand has been unavoidably hit by negative impacts. However, the common perception on the issue among Thais has always been merely a brutal criminal problem rather than a structural problem. This small issue, somehow, leads to the misunderstanding and the "inaccurate design" of the solution, which in turn undermines the effectiveness of the efforts to tackle the problems. According to the studies, labor trafficking in the Thai fishing industry is, in fact, a long chain of intertwined structural problems, consisting of a number of issues such as economic, political, and social. The problem of labor trafficking in the Thai fishing industry has been evolved from the combination of bad working conditions in the fishing industry, the Thai rapid growth as a result of globalization and global trade, the tremendous increase of job opportunities among Thais and the labor scarcity in the fishing industry due to the outflow of Thai laborers, the domestic problems in Thailand's neighboring countries and the obvious economic disparity between Thailand and its next-door neighbors, and so forth. This combination created both high-demand and high-supply of migrant laborers to fulfill the system. However, due to the Thai law in the past, which was designed to reserve jobs for Thais, the mentioned demand and supply of laborers could not meet freely and legally. This led to the birth of brokers, who became the middlemen to marry the demand and supply of laborers via irregular channels. Illegal migrant workers, therefore, became vulnerable because of the lack of proper protection from the law, which made them easily exploited in the labor trafficking manners. This illustrates that labor trafficking in the Thai fishing industry is, in fact, the outcome of numerous problems that intertwined and became a long chain of structural problems, rather than a mere crime.

Keywords: *Labor trafficking, human trafficking, labor trafficking, Thailand fishing industry, structural problems*

1. Introduction

In the past half-century, it would be no exaggeration to say that almost all Thais would be accustomed to the term "human trafficking" or "labor trafficking in the fishing industry". It also recognizes the impact that Thailand has suffered from the problem. In 2014, Thailand was downgraded to Tier 3 in the Trafficking in Persons report (U.S. Department of State, 2014), resulted as a heavy pressure from the international community to improve the situation of human trafficking, or risk losing its huge market share in exporting fishery products worldwide (The Guardian, 2015). The fact, that Thailand exported fishery products valued at approximately 7 billion US dollars each year, clearly illustrates that the problem of labor trafficking in the Thai fishing industry not only negatively impacts Thailand's credibility but also well known that it could have an impact on the overall national economy if Thailand could not handle with outside pressure (EJF, 2013). The question of what is "human trafficking in the fishing industry" thus, has become one of the most popular social questions recently. However, the explanations from both local and foreign academics and public officials continue to focus on perceiving it as "a form of crime" and the explanations of its brutal activities but somehow overlook the root causes of the problem. Therefore, this gap can lead to the inappropriate design of the solution, and the failure to address the underlying cause. This article wants to reveal another aspect of the problem of labor trafficking in the Thai fishing industry through the study of the evolution of the Thai fishing industry, historical situation, labor situation, as well as the application of the economic concept in order to explain that the problem of labor trafficking in the Thai fishing industry is not merely a form of a crime, but a structural problem that interrelates in economic, political and social context. These structural problems arise from the incompleteness of the management system as a whole, which is covered and interrelated by various problems such as regulation and practice problems, market and economic

condition problems, political problems both inside and outside the country, and so forth.

2.   Objectives
This article intends to present the root causes of the problem, which is a major precursor to find proper solutions. Metaphorically, it is similar to finding and studying the leaky roof before clearing it up with the right tools.

3.   Literature reviews
Pimoljinda (2002) describes the history of the fishing industry in Thailand that, prior to the1960s, Thai fisheries were based on small-scale equipment and were conducted along the coast by self-employed locals. However, the watershed in the development of the Thai fishing industry was the introduction of trawl fishing in 1960. This shifted the landscape of the Thai fishing industry forever. Panayotou and Jetanavanich (1987) suggest that the increasing trend of trawl boats seems to be solid. The number of trawl boats alone increased from 1,872 in 1967 to more than 11,000 in 1982, approximately 6 times in 18 years. This trend undoubtedly increased the amount of fish caught, from approximately 131,000 tons in 1960 to 476,100 tons in 1964, or almost four times within only 4 years after the introduction of the trawl boats.

Both literatures were discussed in the same direction that at the same time that the Thai fishing industry expanded, seafood and fisheries related businesses emerged rapidly like shadows. This is the turning point of the Thai fishing industry, from a local career to an important export of Thailand. As a result, the demand for marine resources grew significantly and constantly. However, when the demand of marine resources has increased, the marine resources in Thai waters have declined. Therefore, a number of fishing vessels were forced to go further from Thai waters in order to maintain the amount of caught fish. In short, this phenomenon made the fishing career undesirable for Thai nationals as it is one of the 3D (dirty, dangerous, and difficult) jobs, and led to job abandonment among Thais, which later caused a labor scarcity in the Thai fishing industry.

4.   Methodology
This article is a part of a full research on labor trafficking in the Thai fishing industry, which was conducted through qualitative methods; namely, documentary research, in-depth interviews, and synthesis. The reason this research was conducted in a qualitative manner is due to the clandestine nature of labor trafficking, which resulted as the lack of numerical data. On documentary research, the examinations of academic and official materials were conducted in order to receive secondary data. On in-depth interviews, seven interviews with private sector and government officials, who are involved in the fishing industry and participating in handling labor trafficking in the Thai fishing industry, were conducted in order to gain insights and unrevealed facts. The interviewees include an officer of the Ministry of Foreign Affairs, a senior researcher, two naval officers, a police officer, and an entrepreneur in fishing industry. Lastly, information from the documentary research and in-depth interviews were synthesized in order to avoid any biases and errors. The results were, then, analyzed and became the finding of this article.

5.   Findings
To discuss the problem of trafficking in Thai fishing industry, it would be inevitable to mention two of the most important points: "the evolution of the Thai fishing industry and labor scarcity". From the study of the evolution of the Thai fishing industry, it has been found that fisheries in the past were mainly done in the inner territorial waters while sea fishing was limited to coastal areas, as can be noticed from the equipment used and the size of the fishing. Therefore, fishery in the past was an occupation of locals in the area with suitable resources for fishing, which mainly used local tools such as hatchery, coop, fish trap and Chinese Purse Seine for consuming and small trading. Later in 1960, the otter board trawler was introduced in Thailand for the first time through the cooperation between the Thai Fisheries Department and Germany at that time, causing enormous popularity and change to the fishing landscape. Fisheries had been relocated from the hands of local fishermen to the hands of the wealthy investors who had the potential to invest in such modern technology at that time. As a result, Thailand's fisheries had evolved from traditional fishing for consumption to commercial fishing within a few years. This was evidenced by the growth of more than 2,000

trawlers within three years after the introduction of the otter board trawler technology in Thailand (Pimoljinda, 2002). Considering the number of fish caught from the data in Figure 1, it is evident that there was a sharp and steady increase in catches (Tons) after introducing such technology in 1960. With the rapid expansion of the commercial market and international trade, the important result was that marine resources in Thailand became a valuable supply in response to the global demand for seafood; especially in countries that are not rich in natural resources like Thailand. When demand and technology were ready, then the supplies were prepared to match such demand, which in turn resulted as seafood products became one of Thailand's major export commodities within a few years. (FAO, 2017)
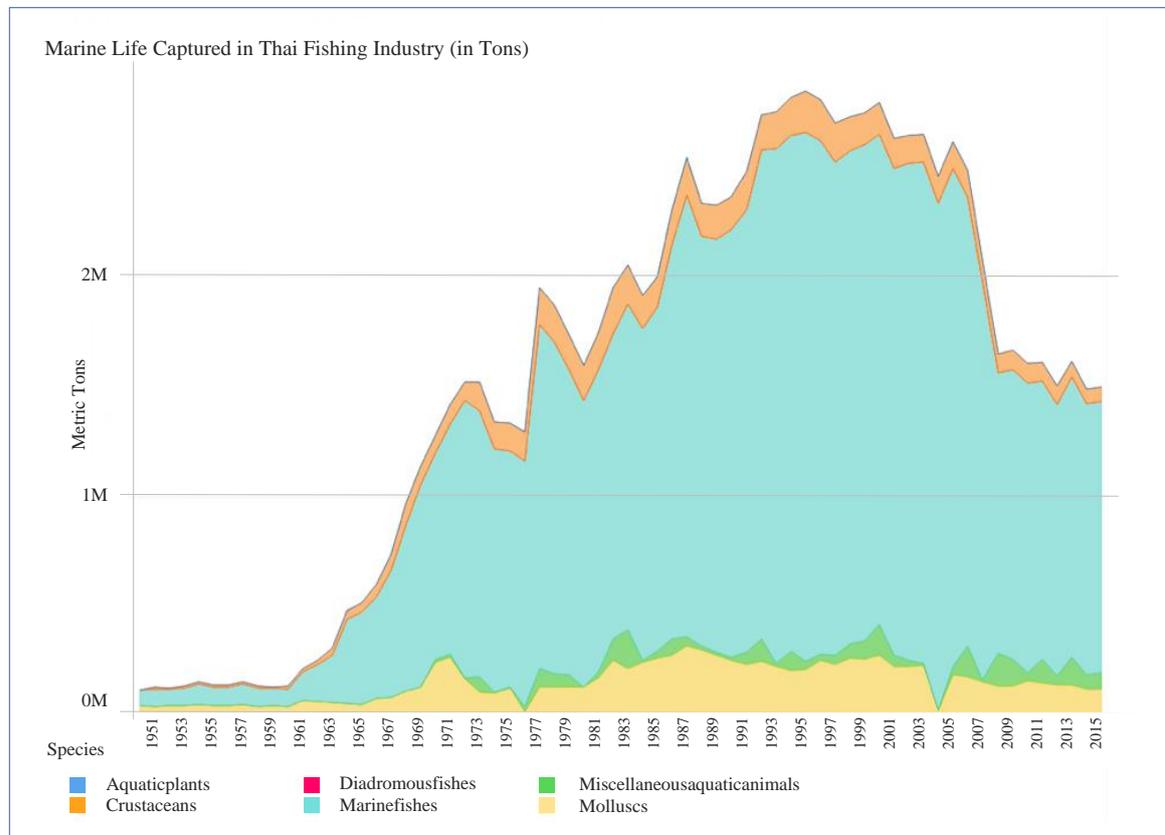
Figure 1 Number of fish caught in the Thai fishing industry (tons) from 1950 to 2015 (FAO, 2017)

But what did not evolve according to the dynamics of supply and demand were the rules and regulations controlling fishing (Ruangsuwan, 2017). Seeking marine resources to meet the growing demand for commercial reason by entrepreneurs or traders had led to uncontrolled fishing and became a serious impact on marine resources in Thailand at a later time (Pimoljinda, 2002).

When fishing was aimed at commerce for decades, especially when seafood products became important export items of Thailand, the consequence was the rapid reduction of marine resources in Thai waters from over-fishing and uncontrolled fishing. Due to this, aquatic animals were captured without the control of the quantity and size, as well as the capture of aquatic animals in the breeding and aquaculture areas. The worse thing was when the fishing related product industry was expanding, such as the animal food industry made from trash fish (small fish which was not a market demand), a key ingredient of this industry. It turned out to be high value more than in the past, and as a result, the demanding of small fish fisheries, including larval fish, had expanded and the situation of marine resources in Thai waters had deteriorated, respectively (Pimoljinda, 2002). These had resulted in shortage of marine resources in Thai waters at a later time.

According to an interview with an entrepreneur of a fishing company, when catching fish in Thai waters was not enough for export purposes anymore, fishing vessels needed to travel further out of the Thai waters to catch enough fish in order to meet the needs of the market. This resulted in a change in the behavior of the fishery. Normally, fishing in the Thai waters took only about one to two weeks before returning to shore. However, when Thai waters had not enough resources, they had to go for a longer distance for fishing and sometimes it took months or years before they could return to shore. In addition, the use of "Rua Tour" ("Rua Tour" refers to boats that transport fish caught from the fishing boats to shore so the fishing boats do not have to come back to shore) was becoming an important tool in the transport of aquatic animals to the shore. In these cases, the fishing boats will be able to operate in the sea for a long period without returning home. These were the components that made the fishery career being classified in the 3D jobs (Dirty, Difficult, and Dangerous) and became an unattractive profession for Thai people (Ruangsuwan, 2017).

In addition to the change of sea fishing, the industries related to fishery products, such as processing industries, were expanding and rapidly increasing their capacity to meet the needs of the large-scale market. As a result, the work in the fishery related industries became more complex, heavy and undesirable, no different to fishing on the boat. Moreover, the major natural disaster at that time or more specifically the Typhoon Gay was counted as another important factor that contributed to the negative attitudes toward fisheries. In 1989, more than 200 Thai fishing boats were sunk by the Typhoon Gay, with more than 400 deaths and more than 600 missing people (IOM, 2011). Previous laborers in the fisheries sector became concerned about their occupation and moved away from the fishing industry to other rapidly growing industries (IOM, 2011).

At that time (1980s), Thailand was moving toward a period of economic boom as a result of globalization and international trade. Thais had better education and more career and job opportunities, especially as a production base for many foreign companies, such as Toyota from Japan, which had set up a production base in Thailand from 1980-1990 (Techakanont, 2011; Toyota, 2016). The economic evolution of Thailand as a whole had resulted in many jobs which were more interesting and responsive to the needs of the labors both in terms of comfort and income, causing a large influx of workers into these factories.

The dramatic changes in the fishing occupation and other occupations make fishing occupations a profession that Thai workers did not want to do, and in turn causing serious labor scarcity in the fishing industry (Ruangsuwan, 2017). However, how is the labor scarcity in the fishing sector related to labor trafficking in the fishing industry? The answer to this question needs to be understood and the next important factor which are the laws related to labor management.

5.1   Labor laws: The way to keep jobs for Thai people and unexpected results
According to the interviews, when the issue of labor scarcity arises in the fishing industry, which is a labor-intensive industry, the "demand for foreign workers" has increased in order to replace Thai workers in order to continue and supply the market (Ruangsuwan, 2017). At the same time, the neighboring countries of Thailand such as Myanmar, Laos, and Cambodia were still encountering the political and economic crisis, which resulted in poverty for a large part of the population. In contrast, Thailand was progressing with the free trade era, creating economic disparity among the area and significant difference in payment of wages. Therefore, traveling to work in Thailand was one viable strategy to escape from poverty (Human Right Watch, 2010) which lead to the high desires of foreign workers to come to Thailand even though they might be paid much lower than Thai workers. As a result, this phenomenon created a high supply of foreign workers ready to come into the system (Ruangsuwan, 2017).

However, the most important obstruction is that Thailand had the law to prohibit foreign workers to work within the country in certain jobs under the Alien Working Act B.E. 2521 (1978) and the Royal Decree Prescribing works relating to occupations and professions in which an alien is prohibited to engage, B.E. 2522 (1979) which were promulgated to preserve certain occupations and professions for Thai people, and the laborer in the fishing industry was also included.

When supply and demand of foreign workers were high but somehow could not meet each other freely and legally due to the restriction of the law, the "informal brokers" were emerged (we cannot use the term "illegal brokers" because at that time there was no law to restrict the action) and performed as the middlemen to marry the supply and demand of laborers via irregular channels. Moreover, it is equally

interesting that foreign workers too had the desire to access work through illegal methods as there were a high number of workers who could not legally access the system such as Rohingya workers that are declined to be the citizens of Myanmar and did not have the identification documents required for permits.

Because of the aforementioned laws, the foreign workers who came in the system within that period (1979-1993) would be all identified as "illegal". The increase in illegal foreign workers have created many phenomena to the Thai economy, especially in the fishing industry such as the formation of the habit of using illegal foreign workers to reduce the legal production cost and the legal process. These phenomena can be perceived as one of the root causes of the current issues of labor trafficking and still undermines the efforts to improve the situation nowadays.

It can be seen that the circumstance of labor shortages in the Thai fishing industry, the crisis in neighboring countries, the economic disparity between Thailand and neighboring countries, and the supply and demand of foreign workers are all the preconditions leading to human trafficking. When there are high demands and supplies of foreign workers but could not respond to each other through legal means, and therefore, the role of informal brokers have become more prominent to connect both demand and supply together. However, this role of informal brokers could also be claimed as a factor that allowed the fishing industry to continue to create high amounts of profit even in the labor shortage situation. Moreover, undoubtedly it is also a significant factor that facilitated labor trafficking issues later on.

The Royal Decree Prescribing Works Relating to Occupations and Professions in Which an Alien Is Prohibited to Engage, B.E. 2522 (1979) was revised and allowed foreign workers to work in fisheries in 1993 because of the critical labor shortages in the fishing industry. However, the revision and also the promulgation of new laws until today still could not solve the habit, which now evolved into regularity of illegal activities relating to unregistered foreign workers in the Thai fishing industry. This issue was caused by the fact that the method of gaining illegal workers through a middleman is still the fastest and cheapest method to get laborers. Until today, the improved legal channels to facilitate foreign workers and Thai business owners (the latest royal degree is the Royal Decree on Management of Foreign Workers B.E. 2560 (2017) which is associated to the MOU between the government of the Kingdom of Thailand and the governments of neighboring countries) are still ineffective and unattractive compared to the illegal method. This is an important issue needing to be solved as soon as possible to develop legal methods (Ruangsuwan, 2017).

5.2   Consequences and the labor trafficking in Thai fishing industry

When the demand and supply of foreign workers are high but could not meet each other via legal ways and a great number of foreign workers in Thailand industrial system are illegal, the following effect is that foreign workers would not receive the protection of laws and completely in control of the middlemen and business owners.

In this circumstance, the workers are vulnerable and are easily deceived to become forced labor by using economic reasons as a tool. The brokers would use some fairy tales of good payment, easy work, and the possibility of saving and sending money back home to lure the workers, leading to countless numbers of foreign workers being deceived into trafficking and placed into forced labor later on (Ruangsuwan, 2017).

Moreover, the financial factor is also a major factor that flourishes labor trafficking in fishing industry. Because of the decrease in marine resources in Thai waters, remote fishing businesses have increased as well as the length of time needed to stay in the sea. In addition with the higher price of fuel, the cost of fishing, therefore, inevitably increases. Furthermore, Thailand is not the only country exporting seafood products. In fact, there are many countries which are seafood exporters. Therefore, Thailand would struggle to maintain the major market share and the status of a major seafood product exporter if its cost of operation increased, which would result in lost profit and market share. Increasing the cost of operation, therefore, would be a method many business owners would avoid.

Therefore, decreasing the cost of wages has become a survival strategy of some business owners who want to reduce the cost of operation due to the higher flexibility, especially when using illegal migrant labors. The necessity of using migrant labors caused by the labor scarcity is also a critical factor that leads to the use of forced labor. That is to say when foreign workers are incapable of traveling to Thailand, the brokers (and might also be cooperating with the business owners in some cases) will volunteer to cover every traveling cost to bring them in Thailand illegally, and the workers will have to work to pay their debt later (come first,

pay later) (Ruangsuwan, 2017). When the workers went under unethical brokers or business owners whose only aim are profit, the amount of debt and the time needed to pay debt would be extended arbitrarily. In addition, when working in the sea for a long period the chance of escaping or changing work is limited to none, similar to being imprisoned and forced labor like a slave. Later, this method of employment has increased in popularity from unethical groups of people and developed into a trafficking business. The brokers would pay for the migrant workers to smuggle into Thailand before selling them to the owner of fishing businesses or to a fishing vessel with the price covering both the initial cost and profit. Then, the business owner or the boat captain will force workers to work without paying by claiming the debt which they have to buy workers from the brokers. This action has been supported by the fact that illegal workers are not under the protection of laws, and the workers' illegal status also prevents the workers themselves from reporting to the authorities.

This kind of activity usually uses violence as a tool to force the workers to work and also to prevent disobedience or escape. The action of deception, debt bondage, violence, and detention are all the actions associated with human trafficking (Anti-Human Trafficking Act (No.3), B.E. 2560 (2017).

6. Conclusion

All aforementioned factors including the growth of Thai fishing industry, the increase of fuel cost, the issue of labor shortage in the Thai fishing industry, political and economic instability of neighboring countries, the economic disparity between Thailand and neighboring countries, the inappropriate laws that prevent demand and supply of laborers to meet legally, the issue of unethical brokers and business owners, and corruption are all intertwined and form a long chain of issues that facilitate labor trafficking in Thailand fishing industry to flourish.

It is clear that the issue of trafficking in the Thai fishing industry is not merely the problem of a crime by unethical individuals, but in fact a structural problem which has been evolved from the past until present. This structural problem is associated with the political, economic, and society issues of both inside and outside the country. Therefore, the permanent solution to this problem should begin at the root causes of the problems in all dimensions.

To solve the problem by merely suppression and to perceive this issue merely as a type of crime is not enough to address the issues and would only solve the consequences. However, to design a solution to this structural issue is a very sensitive and complicated matter. Therefore, the cooperation of thoughts and actions of every sector, including public and private sectors, as well as international cooperation are crucial to solve this problem. Moreover, to solve labor trafficking in the Thai fishing industry requires time and a careful plan implemented simultaneously. Thus, understanding the root causes of labor trafficking in the Thai fishing industry as a long chain of structural problems is crucial for planning a proper solution which may lead towards the elimination of the problem permanently.

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Innovation and Economic Growth: The Case for Business Method Patents in China

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Abstract

Economic growth is based on innovations replacing old technologies, which drive entrepreneurial investments, creating change or creative destruction. Sustained economic growth comes not from imitation but technological innovation. In the United States software patent law expanded to recognize software patents including business method patents, inventions based on computer-based algorithms which produced tangible results. The result was a rise in industrial and commercial business method patents producing a beneficial economic benefit. The rush to exploit the enlargement in business method patents' principles, and the new flood of inventions seeking protection that followed challenged the evolving rules of software patents and limiting modifications in the theories and procedures governing business method patents.

Recently China's State Intellectual Property Office amended the Patent Examination Guidelines to allow software patents for business methods. China's goals of national development call for increased emphasis on innovation by the private sector. The expansion of business methods patents, similar to the US experience is a way to attain this goal.

Keywords: *Business method patents, software patents, economic justifications for patents, innovation, United States Patent Law, People's Republic of China Patent Law*

1. Introduction

It is manifest that today's world revolves not only around the sun, but also technology. This paper explores one aspect of intellectual property, software patents and particularly business method patents. In the United States, judicial support of a patent for software has waxed and waned. Despite these peaks and valleys, as will be discussed, business method patents have continued to grow in amount and value. In the United States significant changes in the patent system during the 1980s and 1990s extended and strengthened the patent process and business method patents in particular. Despite qualms about relative value, business method patents are being more actively acquired and vigorously enforced in those countries which recognize this form of intellectual property protection.

Recently China's State Intellectual Property Office of the P.R.C. announced amendments to the Patent Examination Guidelines which are effective as of April 1, 2017. The changes seek to address concerns that some examiners have been too guarded by considering references to business models or computers as signs of unpatentability. Language changes in the new rules explain that claims relating to a business method are not excluded from patentability if they contain sufficient technical features. Specifically claims related to business methods that contain both business rules and methods and technical features shall not be excluded from the possibilities of obtaining patent rights under Article 25 of the Patent Law. Regarding inventions related to computer programs a claim composed in a style as "mediums plus a computer program" is allowable. Also, a claim directed to an apparatus may include a program as a component part (Leung, 2016).

In 1999 Lawrence Lessing, a Harvard University professor, published the 1999 book *Code and Other Laws of Cyberspace*. The primary idea of the book, as expressed in the title, is the notion that computer code regulates conduct in much the same way that the legal code does. More generally, Lessing argues that there are actually four major regulators namely law, norms, market and architecture each of which has a profound impact on technology, and for Lessing, wider society. For the purposes herein the initial definition helps bring focus on business method patents. The first of Lessing's controls are laws, rules made by government of which for the purposes of this paper aspects of patent law will be addressed. Another regulator is norms, behavior patterns adopted by users. The next aspect is the market: what makes money and what doesn't, as price and profit drives change. Finally, "The Code" the hardware, software and communication protocols defining computer technology that allows programmers to create their own rules: grant or deny access,

provide rules of use, govern transactions, in effect, to make private law. These different forces are shaping and channeling technological change and will be addressed (Lessing, 1999).

The event which makes the topic of this paper fitting at this time is a significant change in patent law in China opening a window which signals the protection of business method patents and more generally software claims of patentability. The effects of this new change cannot be predicted, yet the experience in other countries can shed light on how this could transpire and can be used as a guide. Accordingly, this paper's focus explores business method patents as they have evolved in the United States. The US is the only country which has firmly taken hold of business method patents, although this embrace has changed in warmth and intensity over the years. If will be argued that given China's announced goals of national development China would profit in a number of areas from broadly recognizing software patents.

2. Objectives

The main objectives of this research are to explore the drivers of technological innovation and how this relates to the protecting of ideas through an intellectual property system. Specifically, patents of software and the expression of this through business patents will be explored. The progressive history of business method patents in the United States will be reviewed with a focus on the rationale for the recognition of business method patents, the type of protection and how the scope of this type of protection has changed. Changes to China's patent guidelines will be introduced and compared to the experience in the United States to draw some conclusions on how China can benefit from the US experience with business method patents.

3. Methodology

The methodology employed in the instant research is literature review. Publications addressing the issues explored in this paper include peer-reviewed research papers relevant to the topic, the most authoritative legal cases from the highest appellate courts which are recognized for establishing principles under discussion herein, plus official government publications and websites which announced or explained government policy on the topics explored in in this writing. Both quantitative and particularly qualitative sources are included. The inclusion standards used in this research paper is peer-reviewed, for legal cases the most enduring precedents are included and government information presents appropriate pronouncement of government standards and policy.

4. Discussion

4.1 Patents and innovation

Innovation accumulates expertise and ability in industrial sectors resulting in more brisk development of particular industries correlating with economic development. Invention is a potent dynamic which distinguishes successful businesses as well as the divergence in cross-country economic growth, hence it plays a critical role in changing patterns of competitiveness at the national, regional and firm levels. In addition, particular innovations and the speed of their adoption imply significant and far-reaching changes in quality and quantity of employment (Najda-Janoszka, 2014)

Joseph Schumpeter's widely recognized growth model is based on three ideas: first, new innovations replace old technologies, second, long-run growth results from innovations which are driven by entrepreneurial investments motivated by the prospects of monopoly rents and finally growth involves creative destruction. It is axiomatic that countries transit from a technological paradigm exclusively or largely based on imitation of foreign technologies to one with an increasing percentage of domestic innovation (Aghion, 2015).

There are four broad theories about the purposes patents serve in commerce. First, patents provide motivation for useful inventions. Second, patents induce needed investments to develop and commercialize them. Third, patents reward individuals who disclose their inventions as part of the patenting process. Lastly, patents enable the orderly exploration of a broad prospect or ongoing benefit from the invention (Mazzoleni, 1998). The fact that patents motivate useful invention is the most familiar theory about the economic function of patents. The underlying assumption is patents are needed to provide firms with the incentive to invent, and that this does justify the costs of the temporary monopoly their granting gives. It must be observed that the

granting of patents entails economic costs as well as potential economic benefits. Accordingly, broad patents should not be granted lightly as in some cases firms charge very high prices for their patented products. Also, firms can maximize a patent into a monopoly or near monopoly position in an important product fields. Light bulb patents enabled GE and Westinghouse to prevent entry into the light bulb business in the US for many years.

If an inventor cannot exploit all possible uses of the invention, then, to the extent that the publication of a patent attracts the attention of parties who can make use of the invention, patenting can increase use. From a commercial, entrepreneurial standpoint patents represent something of important material value to potential investors. The impression that holding a patent signifies something of substance and profit potential can have more "psychological" than legal value, attracting venture capital. From the perspective of protecting valuable commercial assets, methods of doing business safeguarded by a patent provides assurances to investors, or possible purchaser of a company that the technology can be shielded from unwanted misappropriation. Patent protection fortifies the defenses – beyond the common method of trade secret protection – an organization has against competition from former employees in taking intellectual property with them should they leave a company. Finally, patents protection for keys methods of doing business increase the so-called "freedom of operate" which might be constrained by the being obligated to curtail or cease promising research and development in certain areas of technology by being required to pay royalties. Commonly a company's desire to hold patents of its own which can be used to enter into cross-licensing agreements with other patent owners. On a positive note the presence of a patent incentivizes competitors to work on alternatives that may be very different from what is already patent (Hanson, 2010).

The argument suggests that an important issue on which the analysis of the benefits and costs of granting patents on the beneficial prospects the invention holds turns on the market for patent licenses. On the plus side if one assumes the transaction costs of patent licensing would be slight and patents could be freely licensed broad patent grants would be preferable. On the other hand, if one believes that transaction costs often are high, and patent holders are prone to litigation the prospects of a broad patent are less obvious (Mazzoleni, 1998).

The evolution in the recognition of the value and acceptance of business method patents derives from the similarities and differences between two areas of intellectual property copyrights and patents as it is found in the expression of computer programs. In intellectual property law, generally computer software is an originally authored work commonly protected by copyright law. Computer programs are functional causing a computing machine to work toward achieving a certain beneficial outcome. This combination of ideas leads to the conclusion the computer programs can accomplish many valuable commercial functions largely outside the scope of copyright law. This combination could be better protected by patents. It can be asserted that the differences between copyrights, which protect *non-functional* works of computer programs, and patents which have the key role of protecting *functional* works of computer programs should be protected by patents and not copyrights (Zekos, 2014).

The perception and value of patents has changed significantly in recent history. Two decades ago companies had patents, but, with the exception of pharmaceuticals, patents were legal instruments only cautiously exploited in business. Used defensively, patents were used mainly for protecting key products and manufacturing processes from imitation. Patents have grown in importance becoming essential in the information and communications technology sector (Rivette & Kline, 2000). In exchange for the patent monopoly, the Patent Act forces inventors to disclose the know-how expressed in the patent. This disclosure has the effect of increasing public access and knowledge of the business method that would have been kept secret. According to innovation theory, firms are likely to be more willing to advertise and license their business methods under a patent regime than under a non-patent format such as a trade secret regime. However, in order to profit from the gains associated with disclosure before the patent expires, the patent holder must decide to license the patent to other interested parties. In general, patent holders will be willing to license their inventions in two ways: one, where the patent holder does not possess the resources to develop the invention and bring it to market and second, patent holders may license inventions to firms in other business lines desiring to use the invention in different ways from the patent holder (Grusd, 1999).

Most economists consider the patent system as an evil that must be allowed for a greater good to result. Patents represent a trade-off, first a relatively short-term exclusive right in an invention in return for

an incentive to create innovation, and second the publication of the innovation as part of the patent granting process for the reference of all. Fewer innovations would be produced without the patent system and those that were produced might be kept as secret as possible to protect and exploit the original idea. The patent system also is a vehicle for investment as a valuable idea will attract sponsors seeking to profit from the commercialization of the invention. In considering the economic impacts of business method patents the costs and benefit tradeoffs between the grant of a monopoly right and the benefits are at least as important as they are in any other technological arena (Hall, 2009).

Software patents proponents argue that the public disclosure requirement of patent laws gives other software developers information to develop new software inventions (based on the underlying ideas in the previous invention) without infringing on any of the disclosed claims of which the new inventor is aware and can now avoid duplicating. The patent term is far shorter than the respective terms in copyright or trade secret (which is potentially unlimited) and, therefore, the protected invention is outside of the public domain for less time (Nieh, 2010).

Empirical studies commonly conclude that patents are the most powerful form of legal protection. The extensive practice of patents in high-tech sectors is driven by the need to protect innovative ideas and methods but also to strengthen the bargaining power of firms in cross-licensing. Developing high-tech products requires multiple sourcing of industry knowledge and building a wide patent portfolio protects firms more often against claims of intellectual property infringement rather than imitative practices of competitors (Najda-Janoszka, 2014).

4.2 Patent jurisprudence in the United States

As a beginning a common fallacy is that business method patents in the US did not exist until the 1990s, but arguably the first grants date back to the 1790s. The U.S. Patent Office granted forty-one such patents in its first fifty years, including its first two: Detecting Counterfeit Notes, granted to Jacob Perkins in March 1799; and A Mode of Preventing Counterfeiting in April 1815 to John Kneass. The earliest stock printing communications systems arrived with Edward Calahan's stock telegraph printing instrument in 1867. These early methods were of course not operated by software by mechanical registering devices. The birth of business data processing was in 1889 when the first electromechanical data processing system was granted three patents for automating and tabulating statistical information for businesses. In 1924 Thomas J. Watson renamed his Tabulating Machine Company to International Business Machines (IBM) (U.S. Patent & Trademark Office, 1999).

It is instructive to trace the authority and jurisprudence in the United States common law system. Patent law principles in the United States have existed since the enactment of the current US constitution which came into effect in 1789. As authorized by the U.S. Constitution, Article One, section 8, clause 8, which states: The Congress shall have power ... To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries; Upon that constitutional basis the organic statutory enactment underlying patent law is relatively brief as found in 35 U.S.C., section 101, which states that: "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

Patentability rests on five essential elements: proper subject matter, utility, novelty, non-obviousness, and disclosure. Section 101 specifies four independent categories of inventions or discoveries that are eligible for protection: processes, machines, manufactures, and compositions of matter. Court precedents provide three specific exceptions to §101's broad patent-eligibility principles: "laws of nature, physical phenomena, and abstract ideas." The exceptions are not required by the statutory text, but are consistent with the idea that a patentable process must be "new and useful." (Diamond v. Chakrabarty, 1980).

An observation on which U.S. courts hears patent matters. In the United States court system The United States Court of Appeals for the Federal Circuit in Washington, D.C. was created by Congress with passage of the Federal Courts Improvement Act of 1982. This legislation merged the United States Court of Customs and Patent Appeals and the appellate division of the United States Court of Claims. The Federal Circuit renders key decisions on patent law, as it is the only appellate-level court with the jurisdiction to hear patent case appeals. In cases where the ultimate court in the US, the Supreme Court has an issue with a

Federal Circuit decision, it can hear an appeal from one of the litigants to address the matter. United States Court of Appeals for the Federal Circuit Court (2018).

As a general observations, machines with working parts had always comfortably fit within section 101 as patentable subject matter. This early business methods protection, i.e., non-software based business methods, were based on mechanical, electromechanical, and later transistor technology for instructions. As the instructions were sufficiently tied to utility through the actions performed by the machines, patentability was not an issue. However, as technology advanced to software based on algorithms that generated the solutions, the argument that the abstractions of thought could now be separated from the action of the computing platform. Thus, it was the computing platform that came to provide utility. Microprocessors employing transistor technology would calculate and store data, and peripheral devices would receive inputs, perform outputs, and take on other required functions. The patent system was left with a significant dilemma: Why should instructions be any less patentable as (i) software functioning on a microprocessor platform than as (ii) hardwired data etched on transistors of an outdated hardware machine? This dilemma needed to be overcome. In addition, recognizing patentable business methods proved problematical because most modern business methods are expressed in computer software. Arguably software-embodied business method constitute a "process" under § 101, but attempts to patent software collided with the long-established rule that laws of nature, physical phenomena, and abstract ideas are not patentable subject matter Tousi and Ralph (2009).

An early case *Gottschalk v. Benson* saw claimants who had invented a faster and more efficient mathematical procedure for transforming the normal "decimal" type of numbers (base 10) into true "binary" numbers (base 2) which are simpler to process within computers. The program worked in a general purpose digital computer. The United States Patent Office rejected the patent application as representing a mathematical expression. US courts had previously held that pure mathematical expressions to be unpatentable. The *Gottschalk* court quoted Mackay Co. v. Radio Corp. (1939) in ruling a process claim directed to a numerical algorithm was not patentable because "the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself." (Gottschalk v. Benson, 1972).

As demonstrated in *Gottschalk* the three notable exceptions to patentability, laws of nature, natural phenomena, abstract ideas, created a great conceptual roadblock in the recognition of software patents as expressed in business methods. The meaning of these terms might seem fairly obvious, but the US Courts had great difficulty coming to concrete definitions as the following cases demonstrate. Legal scholarship grappled on defining what these terms meant in a commercial, scientific or philosophical context – that is, what science considers to be a "law of nature", whether a phenomenon is "natural", or when a product is "of nature" (Sherkow 2014).

The road toward business method patents became smoother in (Diamond v. Diehr, 1980). The invention at issue was an improved press that cured rubber by controlled heating. The press measured the temperature rise of the rubber in the press and through a process calculated the rubber cure time with a computer which was able to determine when to open the press and eject the cured rubber. Under initial patent review the patent was rejected using the rationale of *Gottschalk v. Benson*. The Patent Office argued the inventors had simply combined an unpatentable program with a conventional rubber curing press. Disagreeing, the court held that a machine that transforms materials physically under the control of a programmed computer is patentable. Importantly, the court reasoned that while mathematical algorithms or abstractions by themselves may not be patented, they may be patented if applied to physical elements or process steps such as a significant activity of utility following the number crunching. In addition, upholding *Gottschalk v. Benson* the court explained that a mathematical procedure cannot be patented, but that all computer programs are not unpatentable leaving undecided the question of whether computer programs standing alone could ever be patentable (Diamond v. Diehr, 1980).

The road for business method patents was substantially cleared in a 1998 case *State Street Bank and Trust Company v. Signature Financial Group, Inc*., where the court articulated the business method exception, declaring that business methods were patentable as long as they yielded a useful, concrete, and tangible result. In *State Street Bank*, the patent was related to a data processing system for implementing an investment strategy. The description of the patent in the court's decision was that it was "generally directed

to a data processing system (the system) for implementing an investment structure which was developed for use in Signature's business as an administrator and accounting agent for mutual funds." In essence, the system, identified by the proprietary name Hub and Spoke, facilitates a structure whereby mutual funds (Spokes) pool their assets in an investment portfolio (Hub) organized as a partnership. This investment configuration provides the administrator of a mutual fund with the advantageous combination of economies of scale in administering investments, coupled with the tax advantages of a partnership. The court reasoned that it would be inappropriate to prevent an otherwise patentable invention from being issued a patent simply because it is implemented using a computer. This fit squarely within the prior definition of a "business method" invention, and the court held it to be patentable (State Street Bank and Trust Company v. Signature Financial Group, Inc.,1998).

Arrhythmia Research Technology, Inc. v. Corazonix Corp. was another in the line of cases which opened up the recognition of business method patents in United States jurisprudence. It could be argued that based on the beneficial result of the device in question the court fashioned new rationale to protect the novel development. The invention was a monitoring device that analyzed electrocardiographic signals to determine certain characteristics of heart function. The monitoring device was capable of determining which heart attack victims were at the highest risk for ventricular tachycardia. Certain steps of the invention were described as conducted with the aid of a digital computer, and the patent set forth software instructions that were used to configure the computer. The machine accepted input signals from a heart monitor, but the core of the invention was software. The heart signals were manipulated using software, which required the use of mathematical formulae. The resulting, manipulated information was displayed in wave form on a monitor and/or recorded on a chart. The core of the invention was unquestionably software. The input signals were manipulated using software, which required the use of mathematical formulae. The court found the invention patentable relying on the language of the patent statute. The court concluded that the "apparatus claims satisfy the criteria for statutory subject matter…directed to a specific apparatus of practical utility and specified application…" (Arrhythmia Research Technology Inc. v. Corazonix Corp.,1992).

Claims involving the combination of computer programs and machines were further supported in jurisprudence in In re Alappat. The claimant Alappat was an oscilloscope manufacturer that devised a novel digital oscilloscope. The problem the invention solved was to smooth waveform data before displaying the waveform on an oscilloscope screen. Alappat had devised an algorithm which when applied to the oscilloscope inputs "smoothed" the waveform display. The court found that Alappat claimed "a machine for converting discrete waveform data samples into anti–aliased pixel illumination intensity data to be displayed on a display means," and not an abstract idea. The court noted that "Alappat admits that claim 15 would read on a general purpose computer programmed to carry out the claimed invention." The court nonetheless found that this did not preclude the issuance of a patent because the claimed subject matter was nonetheless a machine. "We have held that such programming creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." The Alappat court defined a "two-step test process" regarding the computer algorithm, holding that a software invention as a whole is patentable if a mathematical algorithm can generate any "practical, concrete and tangible result…" (In re Alappat, 1994).

Further extensions of the *State Street* reasoning was found in (AT& T v. Excel Telecommunications, Inc., 1999). AT&T Corp. was issued a patent for a message-record system that would aid long-distance carriers in establishing differential billing for customers based on the identity of the long-distance service provider used. The patent included claims for a process that involved using a mathematical formula and caller information to calculate different billing rates. In 1996, AT&T brought a patent infringement suit against Excel Communications, Inc. for a similar system. The district court held that several of the claims included in AT&T's patent simply recited a mathematical formula and were thus invalid as unpatentable subject matter within the recognized exception for laws of nature. AT&T argues that the claims in its patent are valid subject matter under the Patent Act. In the decision the court confirmed the patent relying on the *State Street* decision explaining that "…the focus is understood to be not on whether there is a mathematical algorithm at work, but on whether the algorithm-containing invention, as a whole, produces a tangible, useful, result." (AT & T v. Excel Telecommunications, Inc., 1999).

A fork in the road — significant limitation to business method patents — was promulgated in Alice Corporation Pty. Ltd.v CLS Bank International. Alice Corporation held four patents for a financial trading system that spread the risk of non-payment for the buyer and seller by mitigating the risk with a third party. Effectively the third party held the payments between the buyer and seller in escrow. CLS Bank started a similar service and Alice sued for infringement. CLS countersued, alleging the invalidity of Alice's patents. All of these processes were machine-based. The issue the court framed was are the claims regarding computer-implemented inventions — including systems, machines, processes, and items of manufacture — patent-eligible subject matter? The court held no, reasoning that patent law should not restrain abstract ideas that are the "building blocks of human ingenuity" and held all of Alice's claims ineligible for patent protection. Because using a third party to eliminate settlement risk is a fundamental and prevalent practice, it is essentially a building block of the modern economy. "(T)he claims at issue are drawn to the abstract idea of intermediated settlement, and that merely requiring generic computer implementation fails to transform that abstract idea into a patent-eligible invention." The Court held that Alice's claims did no more than require a computer to implement the abstract idea of "intermediated settlement" by performing common computer functions, which is not enough to transform an abstract idea into a patent-eligible invention. The court enunciated a 2-pronged test on patentability for software inventions. The 2-part test asks: (1) whether the claims at issue are directed to patent-ineligible concepts; and (2) if yes, is there something "significantly more" in the claim to ensure that the claim is not merely covering just the ineligible concept. The "significantly more" is characterized as a search for an "inventive concept," , an element or combination of elements that ensures the patent in practice amounts to significantly more than a patent on the ineligible abstract idea itself (Alice Corporation Pty. Ltd. v. CLS Bank International, 2014).

Besides court cases such as Alice which narrowed the definition of business method patents the US Congress' passage of the America Invents Act of 2011 further narrowed business method patents. AIA placed administrative roadblocks in the way of patent filers. Reacting to the perception of patent abuse from overly ambitious seekers of legal protection for software related inventions, the AIA law established the USPTO's Patent Trial and Appeal Board (PTAB) and created covered business method (CBM) review proceedings. A CBM proceeding can be used to invalidate patent claims directed at a method or a corresponding apparatus that performs data processing related to the practice of administration or financial services. This check has had a beneficial impact on limiting the outer bounds of business method patent software protections (American Intellectual Property Law Association, 2017).

4.3 Chinese business methods patents

Under Article 25 of the most recent Patent Law, "rules and methods for mental activities" are not patentable subject matter. This includes business methods, which may be involved in computer program-related patent applications. In Chinese patent examination practice, a business method claim will be rejected for falling within the scope of "rules and methods for mental activities" if it includes only human-made business methods and no technical means. The April 1 2017 revisions by the State Intellectual Property Office (SIPO) Guidelines for Patent Examination amended the guidelines in respect of computer programs, the amended patent examination guidelines broaden patentability by explicitly stipulate that "if a claim is defined by not only rules and methods for mental activities but also technical features, the claim, as a whole, is not one of the methods and rules for mental activities, so it should not be excluded from patentability in accordance with Article 25 of the Chinese Patent Law". In other words, according to the PRC State Intellectual Property Office, a claim is usually deemed to meet the subject-matter requirements if it contains technical features and is subject to patentability evaluation under other criteria.

The recent SIPO amended guidelines in respect of computer programs, include the following:

- An apparatus as the subject matter may comprise not only hardware, but also computer programs.
- "Virtual apparatus" should be interpreted as a program module architecture that implements a solution mainly using a computer program that is disclosed in the specification. The modules constituting the virtual apparatus are program modules, which are different from the usual functional features.

- The latest guidelines clarify that "a computer-readable storage medium defined solely by a computer program per se which the medium records" is non-patentable subject matter. Therefore, a computer program-related invention protectable under the Patent Law is distinguishable from computer programming codes that are protectable under the Copyright Law. In other words, in patent practice the claim of a computer program-related invention may now be written in the form of "medium + computer program flow" (Guangyu, 2017).

According to SIPO's interpretation, the claim form "medium + program" – which is a permissible form for "a pure software solution" in United States patent jurisprudence – will also be allowed in China. The fact that "the constituting parts of an apparatus include not only hardware but programs as well" means that for a solution combining software and hardware, a 'program' may constitute a claim element parallel to other hardware elements. This implies a reformed approach by the administrative authorities which should contribute to reinforced protection of software patents. Under these guidelines patentable subject matter in China encompasses methods, virtual apparatuses and apparatuses including the forms "processors + memories", "medium + program" and "hardware + program" (Zhou & Song, 2017).

4.4 The United States' tortured road to business method patents and China's direction

The direction and commitment toward innovation and technology for China can be found in the National Medium to Long-term Plan for the Development of Science and Technology (2005-2020). Introduced in January 2006, the National Medium to Long-term Plan for the Development of Science and Technology (MLP) offers some momentous changes in the Chinese way of science. Earlier efforts focused on strong government leadership to achieve scientific and technological development while the current emphasis is stimulating the innovative capabilities of Chinese companies and giving them support to succeed in international market competition. The broad objectives of the MLP are to create an "overall well-off society" by 2020 characterized by a high degree of innovative capabilities. In furtherance of this plan, China initiated a number of national programs to address the innovation deficit include those run by the Ministry of Education or the Chinese Academy of Sciences. The MLP offers numerous quantitative measures of success. Objectives tied to this goal include raising overall national R&D expenditures to 2.5 percent of China's GDP by 2020, up from 1.34 percent in 2005 and 1.7 percent in 2009. Also Reducing China's dependency on foreign technology to less than 30 percent in 2020 and joining the top 5 countries in terms of invention patents granted annually (State Council People's Republic of China, 2006).

A central objective of the MLP is to build and strengthen the national innovation system and a capacity for "indigenous innovation" requiring Chinese industrial enterprises to replace government research institutes and universities as the center of the national innovation system. Under this initiative Chinese companies have been the beneficiaries of policy preferences and funding to an extent not seen before. The goal is to integrate enterprises, institutes and universities in collaborative research efforts, and to promote, among other facets, patenting within companies (Springut, 2011).

Academic, industrial, and technological practices of business in the post-WWII era had a profound influence on the rise of business method patents in the United States. The mid-20th century saw the emergence of operations research that applied logical structures which crunched data in new, novel ways to address business problems. This coincided with the incorporation of engineers and physical scientists into the academic disciplines of business, economics, and management. This was first felt during the 1980s in the financial industry with the influence of "quants", commonly former academics in mathematics or physics who fashioned new ways to apply the computer to a myriad of problems. Financial engineering is an amalgamation of finance, economics, business, political science, and statistics. This resulted in systems such as the ability to time the sale of huge volumes of stock to minimizing transaction costs and maximize profits or to assess the risk and value mortgage-backed securities. Another indicator influencing business method patents can be observed in university programs, especially the programs at top engineering and technical schools. Since the 1980s, numerous universities have created courses, programs, laboratories, and even whole departments dedicated to the study of topics like financial engineering. Eight of the top ten and fifteen of the top twenty engineering universities in the US have degrees, programs, concentrations, on financial engineering, or as it is less commonly called, quantitative finance or financial mathematics. The programs

tend to be interdisciplinary focusing on a university's business school, but with participation from other departments in engineering, mathematics, and statistics (Duffy, 2011).

Historically patent laws can have important effects for channeling and intensifying economic growth. As a general observation, innovation in countries without patent laws clusters in small industrial groups whereas innovation in countries with patent laws is much more diversified as it appears that patents serve to expand the set of industries where innovation is attractive to inventors. Patent laws influence innovation by creating profit incentives, working as a conduit directing innovation by bending in a positive direction a country's comparative advantage (Moser, 2005).

Innovation involves many factors of invention and commercialization, and measure of if a country is innovative is the number of inventions that can be commercialized into useful products. The most aggressive definitions of software patents, such as found in the liberal post *State Street Bank and Trust Company* period resulted in a large increase in the number of business method patents recognized and subsequently commercialized. The US experience post — *State Street* demonstrated the result of a liberal reading of the subject of patentability. The findings of *State Street* Bank and follow on cases resulted in a dramatic increase in business method software patents. Software patent numbers climbed from around 30,000 per year to over 100,000 per year in the 10 years following the 1998 decision. Business method patents ranged from e-commerce, cell phone apps, to insurance, banking, tax compliance and financial services. It was asserted in many quarters that the United States Patent and Trademark Office was ill-equipped to properly examine the flood of filings, and excessive, overly broad claims were granted (Merges, 1999).

A diverse number of business methods were protected. For example, the PTO issues patents covering financial instruments, online gambling, health care administration systems, and a method of distributing digital music. Other method patents related to new or enhanced product attributes rather than new products. Many e-commerce patents protected features of Internet retailing sites. Patents were granted for such products and services as an online auction method, a method for real-time payments for Internet transactions, a patent for an online method of evaluating credit risk, a method for paying web users who view web advertising and methods of protecting consumer privacy. Patents also allow a patent owner to distinguish a retail site with distinctive characteristics. Administrative method patents touched on a variety of management techniques including financial method patents relating to the analysis and presentation of financial data, inventory and distribution management methods (Meurer, 2002).

During the boom years of patenting software in the US, these grants concentrated in some surprising areas. In the second half of the 1990s, firms in the software industry received 1% of all patents granted to firms and at most 7% of all software patents. Manufacturers accounted for 3 out of 4 software patents. Firms in just three manufacturing industries (machinery, electronics, and instruments) alone accounted for two thirds of software methods patents granted to firms. Manufacturers of machinery, electronics, and instruments employed only 6% of all computer programmers and yet they obtained 2 out of 3 software patents (Bessen 2004).

China's push to emphasize the private sector in innovation can benefit from a liberalized business method patent regime. Historical data strongly suggest that intellectual property has a significant effect on the direction of innovation. Software patents are correlated with successful investments and assist smaller competitors in challenging larger industry competitors and contribute to decentralization in the technology industries. Patents facilitate intra-industry technology transfers upon which innovation depends in a realm of cumulative innovation (Mann 2007).

China has seen remarkable growth in innovation and business method patents can expand this accomplishment. Over the years 2012-2015 information communication technology patents accounted for about 34% over all patent categories filed in OECD countries, with the figure having stayed constant for the past decade. In contrast, China has increased its share by 40% and its filing became more specialized in the ICT sector. In 2017, more than 1.3 million patent applications were filed with China's State Intellectual Property Office, the largest patent filing total for any country and greater than the combined filings that year in the United States, Japan, South Korea and Europe. In 2016, China was also the top nation for patent application filings, the first year that the country broke one million filings in a one-year period (OECD, 2017).

Success in the commercialization of inventions in the United States' can be attributed to its pro-innovation patent system and its leading position in patenting. Although many inventions start with inventors'

intellectual novelties, patents are particularly important in securing financial investment and technology licensing in the commercialization process. It can be argued that the weakness in the commercialization of inventions in most Chinese industries indicates that the role of intellectual property laws needs to be strengthened. Despite the impressive number of patent applications, China remains a largely imitation-oriented country. For example, it was estimated that the commercialization of inventions in Chinese universities is about ten percent, which is fairly low compared with thirty percent commercialization rate at universities in industrialized countries. Without commercialization, many inventions, even patented, will remain in laboratories. A liberalization of patent protection through a strong support of business method patents would spur innovation and commercialization efforts in China (Li, 2011).

As the US experience demonstrated, an expansive reading of software patents for business methods can produce excessive and unproductive business method software filings. China's patent protection of computer programs has also taken a positive direction in broadening the definition for software protection. China's late start in patent protection – China's modern intellectual property laws are less than 30 years old – coupled with the rapid development of the software industry means existing laws and regulations are imperfect. Therefore, China can not completely copy the software patent protection measures of United States but must go forth from the reality of China's current software industry development in light of national goals for innovation and commercial development (Zhou & Song, 2017).

5. Conclusion

China's aspirations as set forth in official government proclamations are to spur academic, industrial, and technological advances. The US's history is that stronger, broader patent laws advanced commerce particularly in the financial area. A virtuous circle of successful, innovative financial products secured by business method patents – with important contributions by the academic community – stimulated more academic/business collaboration which produced more beneficial financial products. University faculties such as business, engineering, mathematics, and statistics greatly profited from these relationships. China's foray in offering business method patent protection could help foster more innovation on the part of academia by offering an easier and more profitable road to the commercialization of original ideas and designs not only directed toward the consumer, but in the manufacturing area.

The broadening of the definition of software patents saw the growth of business methods in the US, helping to attract investment which fueled a concentration of innovation in technology. This thrust saw tremendous economic growth, particularly in the 1980's and 1990's. The protection afforded to software patents spotlighted innovation, allowing investors to channel resources toward innovative, commercially viable products and services which benefitted consumers and particularly industry. China's desire for technological growth is not by imitation but through innovation. Broad software patent laws helped to broaden and diversify innovation throughout industries China's desire is to develop the private sector could result in a similar narrative as experienced in the US.

Lawrence Lessing's observation that technology is govern by law, the market, norms and architecture is a fitting paradigm in support of an expansive and far-reaching spin on business method patents. The experience in the United States demonstrates that as the courts extended the law for software patents – the architecture – to encompass business methods the market responded by innovating novel and useful products across a wide range of industries in a variety of applications. New commercial norms entered the marketplace and the overall economy profited.

The United States benefited from the expansion of business methods patents by increasing innovation, allowing entrepreneurs to develop new methods of industry and commerce which benefits business, consumers and the goal of national development. Hopefully the recent developments in China's intellectual property scheme will produce the same synergies, opening the door and facilitating business to push China's entrepreneurial spirit toward meeting the ambitious targets it has set for national technological development.

Future research on this topic could encompass the reaction to China's changes in software patents. Has the modification resulted in a positive effect, a spur the innovation and commercial growth, or has less beneficial outcomes requiring the modification of regulations resulted?

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The Effects of Practicing Yoga on Quality of Life in HIV/AIDS Patients

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Abstract

The purpose of this study was to examine the effects of practicing yoga on the quality of life in HIV/AIDS patients. This quasi-experimental research was conducted using 50 subjects who were diagnosed as HIV/AIDS patients at the Infection and Immunological Clinic of the Outpatient Department, Siriraj Hospital, Bangkok, Thailand. The samples who were volunteers were divided into two groups, 25 subjects each. These two groups –the control group and the experimental one – were practically identical in terms of characteristics such as sex and age. For eight weeks, the control group was given routine care and treatment only while the experimental one practiced yoga in addition to receiving routine care and treatment. The quality of life was measured with the Thai version of the SF- 36. An analysis of covariance was used to compare differences between the experimental and the control groups. The results indicated that the experimental group's overall score for its quality of life was higher than that of the control one. For the experimental group, the scores of five out of eight health dimensions, including PF, BP, GH, VT ,and MH, were significantly higher than those in the control group. The conclusion to be drawn from this is obvious. HIV/AIDS patients who practiced yoga in addition to receiving their normal treatment improved their mental and physical well-being; therefore, yoga should be promoted accordingly to improve HIV/AIDS patients' quality of life.

Keywords: *HIV/AIDS, Yoga, Quality of Life, SF-36*

1. Introduction

UNAIDS reported in 2017 that the estimated number of people currently living with HIV in 2016 was 36.7 million worldwide. The annual number of new HIV infections globally discovered in that year was estimated at 1.8 million. Out of Thailand's population of more than 60 million in 2016, it was estimated that 450,000 people were living with HIV (UNAIDS, 2017). Human immunodeficiency virus (HIV) infection or Acquired Immune Deficiency Syndrome (AIDS) is a communicable disease leading to significant morbidity, mortality, and a poor quality of life. Combination antiretroviral therapy (ART) has changed HIV from a terminal disease to a chronic condition in regions where treatment is widely available. With appropriate treatment, people with HIV can now have a near-normal life-expectancy (Nakagawa et al., 2012). However, they continue to have substantially lower quality of life than the general population, even where the majority of those living with HIV have virological control and are immunologically stable (Miners et al., 2014). In addition to the underlying infection, evidence suggests that social circumstances, relationship issues, and comorbidities may impact on their quality of life (Drewes, Gusy, & Von, 2013). Many individuals newly infected with HIV struggle with psychosocial influences, such as poverty, social stigma, depression, substance abuse, domestic violence and cultural beliefs which can affect their quality of life (Aranda-Naranjo, 2004). Improving quality of life is central to care and support of people with HIV. Evaluations of new treatments and interventions to improve healthcare require the measurement of quality of life as well as clinical endpoints (CD4 count, viral load, progression to AIDS) (Cooper, Clatworthy, Harding, Whetham, & Emerge, 2017; Tate et al., 2003).

Individuals with HIV/AIDS sometimes try non-traditional approaches, such as medicinal herbs or untested medications in an effort to alleviate a specific symptom or in the hope of slowing down the progression

of the disease. Some people, however, embrace complementary therapies as a means of bringing about meaningful lifestyle changes, in an attempt to better integrate mind, body, and spirit (Zwolski, 2001). Complementary and alternative medicine (CAM) is becoming popular as rehabilitation measures in patients living with HIV/AIDS (Mulkin, Ibanez-Carrasco, Boyack, & Verhoef, 2014). Recent studies estimate that 47-74% of HIV infected individuals in the United States have used some forms of CAM to improve their general health and well-being (Cho,Ye, Dobs, & Cofrancesco, 2006). One potentially safe, effective, low-cost and popular behavioral intervention is the practice of yoga (Cade et al., 2010). The most significant benefit of yoga for a person with Acquired Immune Deficiency (PWAs) may be stress reduction. While limited research available in the United States suggests yoga improves the health and quality of life for PWAs, studies in Spain, India, Germany, and Africa show yoga can slow disease progression, improve mental health, body image, and even help prevent the spread of the virus, encouraging a more proactive approach to care and treatment (Stukin, 2001). Yoga helps in many psychological conditions such as anxiety, depression, and schizophrenia. It improves overall well-being and quality of life in many chronic medical illnesses. Earlier studies reported the potential role of yoga in resisting the impairment of cellular immunity (Gopal, Mondal, Gandhi, Arora, & Bhattacharjee, 2011). Yoga is based on an ancient system of breathing exercises (pranayama), postures (asana), stretches and meditations found in Ayurvedic medicine and Indian philosophy and religion, and it is believed to help detoxify the body, mitigate chronic fatigue, enhance endurance, and improve organ and immune functions (Raub, 2002).The researchers were interested in the effects of yoga practice on quality of life among HIV/AIDS patients. It was anticipated that practicing yoga would be complementary to increase quality of life among HIV positive individuals in order to maintain their hopefulness and well-being in the long run.

2. Objectives

The present study aimed to investigate the effects of practicing yoga on quality of life among individuals with HIV/AIDS.

3. Materials and methods

A quasi-experimental research design was used to test the effects of yoga practice.

3.1 Population and sampling

The target population in this study were HIV/AIDS patients having been diagnosed and having been attending the Infection and Immunological Clinic, Outpatient Department, Siriraj Hospital, Bangkok, Thailand. 50 patients were recruited through the purposive sampling method. The patients were then randomly assigned to either the experimental or the control group. The control group was provided with usual care, whereas the experimental group was conducted with the same usual care as its counterpart but plus yoga. Inclusion criteria were: (1) age of more than 18 years; (2) absence of symptoms of AIDS such as severe diarrhoea or opportunistic infection; (3) CD4 count of more than 250 cells/µL; (4) ability to communicate in Thai; (5) having no physical limitations on the practice of yoga, such as acute musculoskeletal diseases and pregnancy; and (6) voluntary participation in the program.

3.2 Research instrumentation

Research instruments were composed of two parts:

3.2.1 Instruments for collection of data

Two sets of data collection tools were used in this study: 1) demographic data including gender, age, duration of illness, and co-morbidity and 2) the quality of life (QoL) among HIV-infected patients measured by SF-36, a standardized generic questionnaire developed by a medical outcome survey team. The SF-36 comprised 36 items aggregated into 8 scales: Physical functioning, Role physical, Bodily pain, General health, Vitality, Social functioning, Role emotional; and Mental health. The scores were then transformed into a score on a 0-100 scale, where 0 and 100 were the lowest and highest possible scores, respectively. A higher score on the SF-36 indicates better QoL (Ware & Sherbourne, 1992). The SF-36 questionnaire has been translated into Thai with permission. The internal reliability, confirmed by Conbach's alpha coefficient, was 0.7 in all dimensions (Leurmarnkul & Meetam, 2000).

3.2.2 Intervention instrument

The practice of yoga was composed of three primary types: (1) asana, (2) pranayama (breath- control), and (3) meditation. Yoga practices in this study were modified from basic yoga practices and from reviews of textbooks, journals, research papers, and selected training courses. Asanas covered basic positions of standing, sitting, forward bends, twists, inversions, backbends, and lying down. This study included 15 basic yoga asana poses: Cobra pose, Half locus pose, Bow pose, Crocodile pose, Half plough pose, Mountain pose, Yoga mudra pose, Boat pose, Back stretching pose, Spinal twist pose, Adapted wheel pose, Tree pose, Lord brahma pose, Thunderbolt pose, and Corpse pose. Pranayama included two basic forms: breath of victory (Ujjayi pranayama) and alternate nostril pranayama (Anuloma viloma). Meditation was practiced with a breath awareness technique.

3.3 Ethical issues

The study was approved by Siriraj Institutional Review Board, Faculty of Medicine, Siriraj Hospital, Mahidol University. This is to certify that Siriraj Institutional Review Board is in full compliance with International Guidelines for Human Research Protection such as the Declaration of Helsinki, the Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP). The ethical issues were concerned with the participants' autonomy, confidentiality, and anonymity during the study period and study's publication. The participants were informed of the purpose and the design of the study as well as the voluntary nature of their participation. They were explained clearly that the data would be used only for this study. Informed consent was obtained from the participants who agreed to be involved in the study.

3.4 Data collection

After obtaining informed consent, the participants were asked to complete a questionnaire as a pretest.

3.4.1 Control group

The participants received care as usual. The post-test was conducted in the eighth week. The researchers offered the participants opportunities to clarify any unclear issues and expressed gratitude to the participants.

3.4.2 Experimental group intervention

The participants were asked to attend the program which comprised two sessions: 1) a three-day yoga camp in the first week (3 hours a day) consisted of the study of the yoga concept and practice and 2) yoga practice (3 days a week/1.5 hours a day) in the second till the eighth week. A certified yoga instructor was assigned to lead all classes. Each yoga practice session consisted of 60-minute asanas (yoga postures), 15-minute pranayama, and 15-minute meditation. On the last day of the eighth week, the participants were asked to complete a questionnaire as a posttest.

3.5 Data analysis

The data were analyzed with the statistical package SPSS/FW. Descriptive statistical analysis was conducted to describe the general characteristics of the subjects. Chi-square tests was conducted to test for differences between the two groups for nominal data such as gender, and co-morbidity while t-tests were done to test between group differences for age and duration of illness. The pretest and posttest scores of quality of life (SF-36) were calculated for means and standard deviations (SD). ANCOVA was conducted to compare the experimental and the control groups. The predetermined level of statistical significance was .05.

4. Results

During the recruitment period, 50 participants were enrolled in the study. 47 out of 50 participants completed the study (25 in the control group and 22 in the experimental group). Three participants of the experimental group were withdrawn because of getting a new job and moving from the area, lack of time available to participate, and personal discomfort. There were no significant differences at the baseline in the

parameters of gender, age, duration of illness, and co-morbidity between the experimental group and the control one (p>.05).The descriptive statistics for participants at baseline are presented in Table 1.

Table 1 Descriptive Statistics for Participants at Baseline

Characteristics	Group		p-value
	Control (n = 25)	Yoga (n = 22)	
Gender			
Male	7(28%)	9(40.9%)	0.306[a]
Female	18(72%)	13(59.1%)	
Total	25(100%)	22(100%)	
Age (years)	41.40 $\pm$ 8.25	41.86 $\pm$ 8.29	0.732[b]
	(24-61 yrs.)	(29-57 yrs.)	
Duration of illness	8.46 $\pm$ 4.80	10.45 $\pm$ 6.16	0.230[b]
	(1-18 yrs.)	(1-20 yrs.)	
Co-morbidity			
No	19(76%)	16(72.7%)	0.738[a]
Have	6(24%)	6(27.3%)	

Note. Statistic: [a] Chi-square test
[b] Student's t-test

In the control group, within-group comparison showed no significant increase in the quality of life scores, the total score, and all the domains (Figure 1).

In the yoga group, within-group comparison showed a significant increase in the total score of QOL (p<0.001) and the scores of four domains, including Bodily pain (p=0.005), General health (p<0.001), Vitality (p<0.001), and Mental health (p<0.001). No significant changes were observed in other domains (Figure 2).
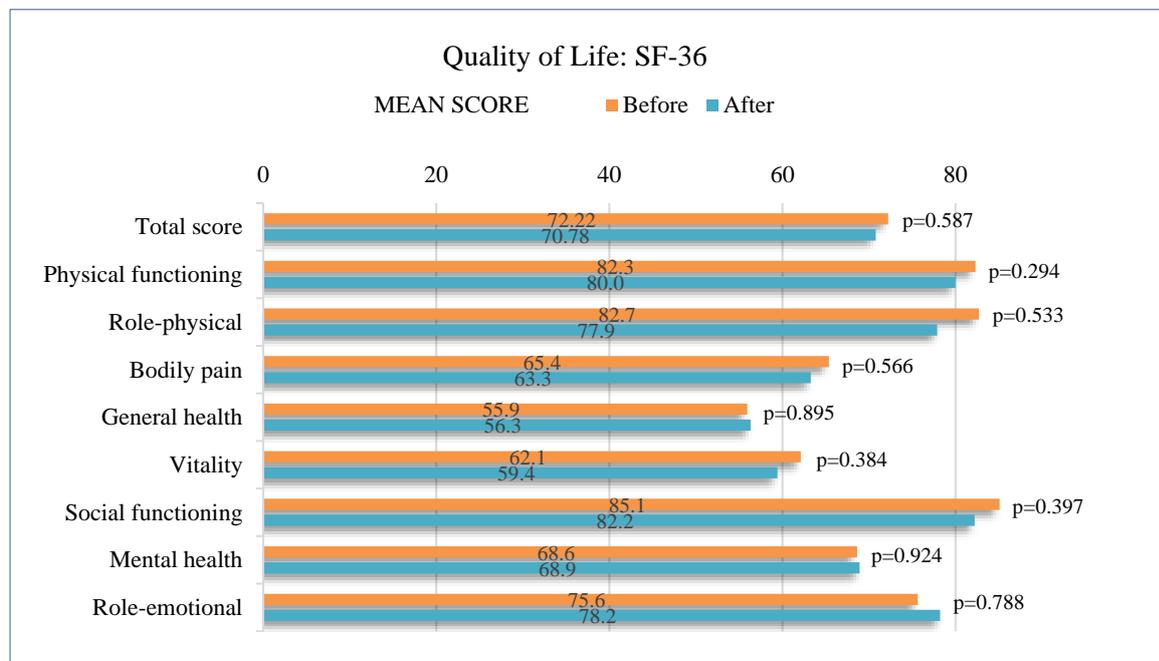
Figure 1 Quality of life of patients in the control group
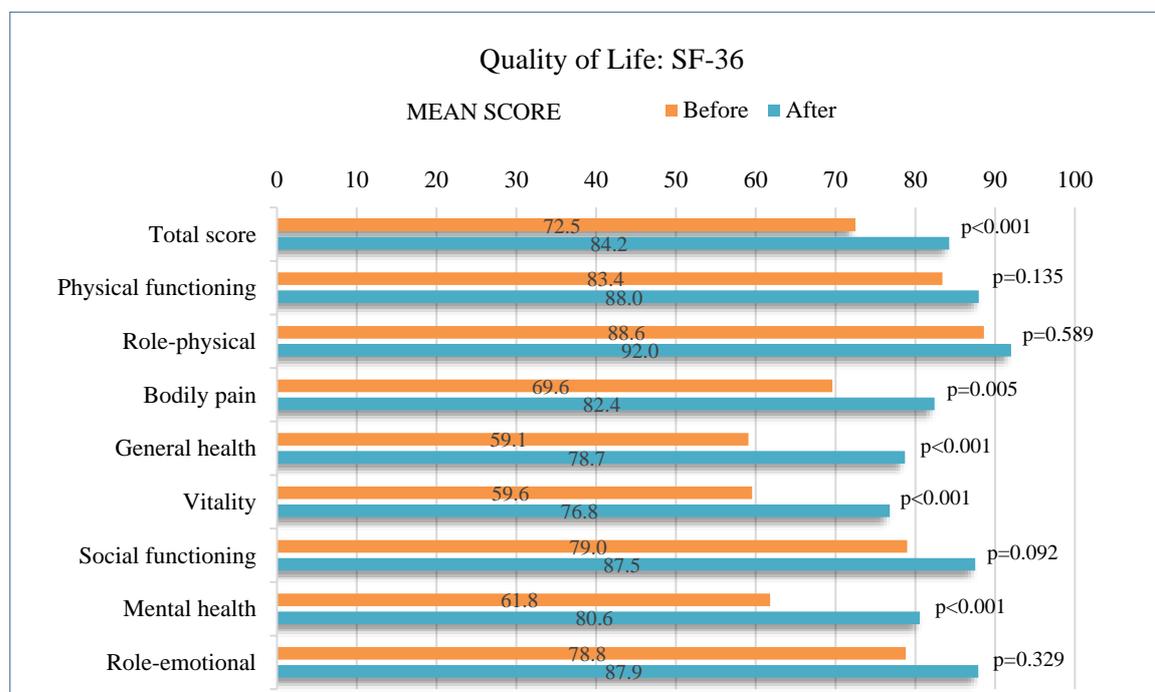
Figure 2 Quality of life of patients in the yoga group

The results of yoga effects on quality of life showed that, after participation in the yoga program, the quality of life statistically significant increased. The total score of quality of life among experimental group was higher than that of the control group ($p<0.001$). The scores of five domains including Physical functioning ($p=0.018$), Bodily pain ($p<0.001$), General health ($p<0.001$), Vitality ($p<0.001$), and Mental health ($p<0.001$) were also higher as shown in Table 2.

Table 2 Comparison of quality of life between the control group and the experiment group

Scale	Group		Mean difference	p-value
	Control (n = 25)	**Yoga (n = 22)**		
Physical component scale				
Physical functioning	80.00 ± 14.42	87.95 ± 14.11	-7.95	0.018
Role-physical	77.88 ± 35.59	92.05 ± 23.64	-14.17	0.165
Bodily pain	63.27 ± 18.15	82.45 ± 14.40	-19.18	<0.001
General health	56.31 ± 19.34	78.73 ± 16.94	-22.42	<0.001
Mental component scale				
Vitality	59.42 ± 13.37	76.82 ± 14.52	-17.4	<0.001
Social functioning	82.21 ± 18.43	87.50 ± 17.25	-5.29	0.128
Mental health	68.92 ± 15.28	80.55 ± 11.53	-11.63	<0.001
Role-emotional	78.21 ± 39.94	87.88 ± 28.26	-9.67	0.373
Total score, SF-36	**70.78 ± 16.42**	**84.24 ± 13.15**	**-13.46**	**<0.001**

Note. Statistic ANCOVA

5. Discussion

The aim of this study was to observe the effects of yoga practice on quality of life among individuals with HIV/AIDS infection. The results indicated that the yoga group's overall score for quality of life was higher than that of the control one. For the yoga group, the scores of Physical component scales including Physical functioning, Bodily pain, and General health and Mental component scales including Vitality and Mental health were significantly higher than those in the control group. The higher score on the Physical component scale in the present study is congruent with the study of Pargaonkar and Bera (2002) who studied the effects of selected yoga practices in health-related physical fitness of girls aged 18-20 years. The results inferred that the experimental group could exhibit bigger gains than the control one in cardiorespiratory endurance, strength and endurance of abdominal muscle and flexibility. Similarly, the study by Tran et al. (2001) reported the effects of Hatha yoga practice on health-related aspects of physical fitness of ten healthy, untrained volunteers, ranging in age from 18-27 years, were required to practice supervised sessions of pranayamas, warm-up exercises, and yoga postures four times a week for 8 weeks. The results of this investigation indicate that Hatha yoga practice can significantly improve multiple health-related aspects of physical fitness in young, healthy, predominantly female subjects. Yoga training can increase muscular strength and endurance, flexibility, and cardiorespiratory endurance. The study in patients with osteoarthritis of hands who were randomly assigned to receive either yoga techniques, supervised by the same instructor once a week for 8weeks, or no therapy (control group) revealed that the yoga-treated group improved more significantly than the control group in pain during activity, tenderness, and finger range of motion. Other improvement trends also favored the yoga techniques, thus providing relief in hand osteoarthritis (Garfinkel, Schumacher, Husain, Levy, & Reshetar, 1994) A similar yoga-based treatment regimen was assessed by Garfinkel et al. (1998) for relieving symptoms of carpal-tunnel syndrome.

Regarding mental health component, this study showed that the patients in the yoga group had a significantly better quality of life on Vitality and Mental health than those in the control group. This can be explained that yoga could help patients become physically and mentally calmer. The yoga instructor in this study provided instructions accurately and observed each patient closely. The instructor led the patients to focus on the control of mind, using little strength and no force and minimizing physical efforts. Yoga should be performed naturally, depending on each person's capacity. The body parts should be relaxed while one is practicing yoga. The improvement of physical health will increase life energy which is a part of self-confidence resulting in better mental health. Asanas are significant for maintenance of physical and mental health as preparatory for pranayama. Asanas comprise steady postures affording pleasure. While in a yogic asana, one should experience both physical and mental pleasure. When the mind merges with the infinite one, the efforts are minimized and because of this relaxation, stability of body and mind is achieved while performing in an asana. The cumulative effect of all these is Sukhanubhav (i.e. a pleasurable feeling). According to the yogic science, equilibrium of the opposite forces in the body is achieved by practicing asanas. Also, it is stated that the practice of asanas drives away laziness. In Hathapradeenpika, it is claimed that owing to the practice of asanas, one gets stability, healthiness, and flexibility. According to the principle of Hatha yoga, the practice of pranayama eliminates all diseases (Nimbalkar, 2003). The alleviation of pain is, even today, one of the main reasons for the journey into yoga for most people. In yoga asanas, specific parts of the body could soothe and relax the mind as well. Inverted asanas, for instance, simultaneously calms and stimulates the brain. These asanas activate glands and vital organs by supplying fresh blood to the brain, making it alert but relaxed (Iyengar, 2001). This study is consistent with the study of Mawar et al. (2015) who assessed the effect of Sudarshan Kriya yoga, a comprehensive component of the controlled yogic breathing technique which is an established standardized technique simple to administer and a non-invasive, non-pharmacological, and behavioral intervention that can be used by healthy people living with HIV (PLHV) without any fear of stigma when making follow up visits. The improvements in the quality of life scores in the intervention group as compared to the control group indicate an efficacy of Sudarshan Kriya yoga intervention. Significant improvement was observed from the overall scores, physical and psychological conditions, and level of independence domains. The impact of yoga is never purely physical. Asanas, if correctly practiced, bridge the divide between the physical and the mental spheres. Yoga stems the feelings of pain, fatigue, doubt, confusion, indifference, laziness, self-delusion, and despair that assail us from time to time. The yogic mind simply refuses to accept such negative emotions and seeks to overcome these turbulent currents on the voyage to the total

liberation of the self. Once we become sincere practitioners of yoga, we cease to be tormented by these unhappy and discouraging states of mind. Yoga illuminates an individual's life. If one practices it sincerely, with seriousness and honesty, its light will spread to all aspects of one's life. Regular practice will bring you to look at yourself and your goals in a new light. It will help remove obstacles and brings good health and stable emotions. In this way, yoga will help you achieve emancipation and self-realization, which is the ultimate goal of every person's life. (Iyengar, 2001).

Yoga breathing while performing postures, especially relaxation postures (e.g. Corpse pose), also has been shown to significantly reverse the physiologic effects of stress (Bera, Gore, & Oak, 1998; Murugesan, Govindarajulu & Bera, 2000). It is likely that the practice of controlling body, mind, and spirit provides useful psychophysiological effects for both healthy people and those compromised by chronic disease. A review study found that yoga is as effective or better than exercise at improving a variety of mental and physical health measures such as stress, quality of life, mood status, heart rate variability, pulmonary function, and so on (Ross & Thomas, 2010). Across multiple randomized controlled trials using varied yoga interventions and diverse study population, yoga typically improved overall symptom scores for anxiety and depression. It produces no reported harmful side effects (Shroff & Asgarpour, 2017).

Spiritual practices and beliefs act as a buffer when individuals are faced with negative life events. Researchers have suggested that most Americans believe that spirituality is an important part of their overall health and can promote recovery from and coping with illness, They have also suggested that patients with HIV, cancer, cardiovascular disease, and other chronic illnesses often turn to spiritual practices to help them cope with those illnesses (Boudreaux, O'Hea & Chasuk, 2002).

Role-physical, Social functional, and Role-emotional of the patients in the yoga group were not significantly higher than the control group. This may be caused by the fact that the HIV/AIDs patients in this group had similar quality of life scores on such dimensions to the control group. In addition, the patients who were infected showed no symptoms/differences when compared to the controls. The results on these three dimensions should be further studied on a larger sample size and a longer period for yoga practice.

SF-36 is a widely used instrument to assess HRQoL. The instrument can evaluate the results of the treatment in the aspect of health status and patient satisfaction. It has been used to assess QoL in patients with chronic diseases and other health conditions, for example, patient asthma, COPD, cancer, etc. In addition, it has been translated for use in many countries. SF-36 was compared with MOS-HIV in one study and found that the SF-36 was not targeted at HIV. SF-36 may preferably be used over the MOS-HIV due to its fewer ceiling effects, availability of national norms, and vast amount of data for other populations in the U.S. (Shahriar, Delate, Hays, & Coons, 2003).

6.   Conclusion

This study demonstrates the use of yoga practice as the alternative or supplement treatment in addition to the antiviral drugs treatment which patients normally receive in the standard treatment scheme. As a result, the patients have a better quality of life both physically and mentally. That is, the practice of yoga could contribute to improvement of physical functions as well as general physical and mental health, reduction of discomfort, and an increase in spiritual energy, social functions and roles.

The infectious patients live with pain and complications and have to take care of themselves to avoid or control the opportunistic infection that they can receive from the environment. Yoga makes the body move steadily and maintains the peace of mind and self-awareness along the movement; therefore, continuous yoga practice helps the body and mind stay in healthy homeostasis. The current study could be a guide for those infected with HIV/ AIDS in self-caring and promoting their health and quality of life continuously throughout their life. People living with HIV could live longer with a chronic condition that continuously presents social, physical, and psychological challenges. This study recommends an emphasis on holistic care which covers physical, psychological, social, and spiritual aspects in services and care of those infected with HIV/ AIDS. Furthermore, it encourages all sectors of the health service to consider health promotion for infectious patients with the suitable and effective scheme, at both policy level and the service practice, which leads to happiness, satisfaction, and quality of life of patients as the important goals of patient care.

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Crafting a Culture of Design Innovation: Challenges & Opportunities in Thailand

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Abstract

Culture plays a very important role in influencing the decisions designers make in arriving at a solution to a given problem. Culture has many dimensions, those that are inherited and specific to a nation or region and those that are carefully crafted and unique to organisations that innovate through design. Both of these have an impact on the process designers employ in arriving at the final outcome, with the latter being more powerful in fostering design innovations. Models of design education currently in practice in Thailand have borrowed heavily from the West and have not been very effective in cultivating a culture of innovation. It is imperative to develop new models of education that are required to navigate the future and reimagine the skills that are necessary to suit the Thai context.

Keywords: *Design, design innovation, innovation, culture, culture of innovation, design education.*

1. Introduction

From the industrial age till recently, skills acquired early in one's career were sufficient for an entire working life of a typical employed person and qualities such as discipline, consistency in performing repetitive tasks with accuracy were favoured by employers. Educational programs catered to producing workers with these qualities to suit the assembly-lines in factories (Lanigan, 2007). Thailand's design education, modelled after Western art and crafts movements of the mid-20th century catered to producing designers who would fit this mold. Most graduates would seek employment in companies and those very few who did venture out to set up consultancies of their own, found themselves catering to companies that were geared to realising ideas primarily generated in the West or Japan.

However in the last two decades this has changed dramatically. Factors such as globalisation, cheap & ubiquitous technology, greater mobility of people, and easy availability of funds have resulted in new and innovative business models that have upended previous models of production & distribution of goods and providing services. In the current paradigm, economic growth relies to a large extent on the inherent creative capabilities of people living within a nation. Value is generated by the innovative capabilities of people who can design better products, services and systems and their ability to think differently in a creative but structured manner. Of course efficiency and productivity are important but they alone are not sufficient to shift to a creative economy. Education hasn't been able to catch up with this massive shift and is still catering to producing a workforce for the older paradigm (NACCCE, 1999).

The Thai economy now finds itself stuck in the middle-income trap, a phenomenon that refers to a decline in economic growth before becoming rich. Thailand had a sustained economic growth for 35 years and has attracted foreign investments in sectors like electronics and automobiles which helped the economy to transit from a labour-intensive agriculture economy to a capital-driven export oriented industrial economy which successfully integrated Thailand into the global value chain. But these early benefits have reached their natural limit and the country is losing its economic competitiveness to neighbouring low wage Asian economies. While things were going good in the last two decades, the policy makers and educational institutions in Thailand did not invest in R&D and design. As a result today Thailand has the symptoms of a middle-income trap-being unable to compete with high-tech, high value products and services from high-skilled economies like Taiwan, South Korea and Singapore and being able to supply low wage workers and compete with low cost manufacturers in neighbouring countries like Malaysia, Cambodia, Vietnam, Laos and Myanmar (Kharas & Kohli, 2011).

Developing human capital through a good educational system that results in high-skilled workers is fundamental to getting out of the middle-income trap (Jimenez, Nguyen, & Patrinos, 2012). Although Thailand has successfully invested in expanding basic schooling and numerous universities have emerged across the nation, the quality of education is still not up to the standards that are needed to help Thailand move up to the next level.

2. Background

2.1 Skills and knowledge of Thai designer and innovators.

The emphasis of the 11th National Economic and Social Development Plan of Thailand (2012-2016), was on laying the foundations to shift Thailand from what is predominantly an agricultural & industrial production driven economy to a knowledge & creativity driven economy.

Although Creative Economy appears to be the catch-all phrase that is driving many programmes across the nation, making this a success is a bit tricky. The 11th national plan recognised this and highlighted the importance of re-looking at existing frameworks for various systems such as education, financing and intellectual property protection and also emphasised that Thailand will need a creative workforce & businesses that are able to compete globally.

Keeping this in view, UNESCO led the Creative Economy Joint Partnership with the Royal Thai Government for a period of 5 years from 2012 to 2016 within the framework of the overall UN Partnership Framework (UNPAF) which comprises various UN agencies (UNDP, UNESCO, UNIDO, ILO, FAO, ITU, WIPO) and the World Bank. The UNPAF had joined hands to partner with ministries, other government agencies, private sector and civil society and has suggested a plan of action by identifying three main areas of cooperation:

1) Skills development for the creative economy
2) The development of a knowledge system for the creative economy, to provide strong evidence for policy-making
3) Strengthening the environment enabling the growth of the creative economy sector, such as legislation and relevant institutions

In 2011, while at the Thailand Creative & Design Center (TCDC) an informal, unpublished, study was conducted by the author to identify the challenges faced by Thai companies and design consultancies. It was found that most companies were still locked into the OEM mindset and didn't see value in investing in design and R&D as their design inputs were coming from parent companies located outside Thailand. External forces like globalisation, the resultant erosion of businesses due to cost arbitrage, greater exposure to recessions and such was forcing many companies out of business and they didn't know how to adapt to this new reality.

They also had no idea how to recruit or manage good creative personnel providing R&D and design inputs. The companies had a very superficial understanding of their end user's needs as the parent-multinationals would conduct deep user research to find their latent needs.

And as a result of all this, the education sector, which is always a step behind the industry, lacked a robust research culture and much of the design education was focused on styling work and the predominant approach was that of training an *'artist turned designer'* rather than that of a *'business & technology driven designer'*.

The TCDC study also found that the skills imparted by a majority of the design programmes in Thai universities were not so relevant for the needs of the current market. The graduates lacked relevant knowledge in technology & materials, and were unable to deal with complex issues facing companies today. They had insufficient depth of understanding of production & processes, and had an attitude of what the designers perceive as 'cool & trendy' and an approach that of 'I know it all'. So as a result, as far as possible, companies didn't prefer to hire Thai designers fresh from college. Either they would spend considerable resources re-training them or preferably hire foreign designers wherever possible.

2.2 Sophistication of design & innovation in Thailand

A working understanding of what design is and the role it plays in the Thai context is in order here as there is no clear consensus on what design and innovation means, as many eminent designers, individuals and agencies have differing views of what it is and how it contributes to a company and the Thai economy in general. As far as this paper is concerned, design & innovation are not seen from a purely philosophical or academic point of view, but from the pragmatic point of view of a company, where design has to yield tangible & intangible value to the shareholders, hence the UK Design Council's definitions of Design and Innovation are perhaps the most appropriate for this study. They define Innovation as:

> "Innovation applies ideas and new knowledge to the production of goods and services to improve product quality and process performance. It is a driver of renewal and growth in an organisation and hence also in the wider economy." And design is defined as: "Design shapes ideas to become practical and attractive propositions for users or customers. Design may be described as creativity deployed to a specific end."

> (Design Council, 2011)

Design has many roles within a company. The Danish Design Center (Design Ladder, 2015) found that there are four stages of design application within companies (figure 1 below). In the first stage, *design as styling,* is where design is seen as an aesthetic treatment or beautifying an artefact. In the second stage, *design is a function* within a company; typically companies at this stage either have a small department in-charge of design or outsource design to external consultants. In the third stage, *design becomes a process* and is well integrated into other departments such as marketing, manufacturing, distribution and sales. Companies at this stage have a well-developed internal design department and a panel of external consultants. The fourth stage where *design is a strategy*, design is not only well integrated into the company's functions but also informs strategy. At this stage a designer is part of the senior executive committee and is involved in everyday strategic decisions. The vocabulary of design strategy is very well-developed and is understood by all the other members of the senior management team and design is an essential part of corporate strategy as it yields maximum value to the company.

The TCDC study revealed that most Thai companies that use design are in stage 2, and *'design is styling'* for them. Very few Thai companies are at the third stage where *'design is seen as a function'* but there were none who applied design at a strategic level.

**2.3. Design competitiveness of Thailand compared to the rest of Asia**
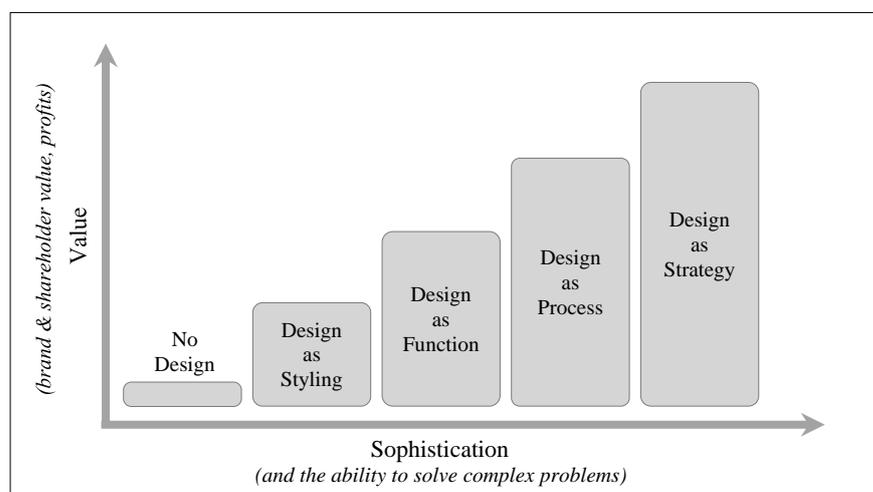
Figure 1 The Design Ladder
Source: Adapted from the Design Ladder (Danish Design Center, 2015)

Design Competitiveness is a measure of design readiness of a country, a ranking method developed by the Designium Innovation Center, a research body located within the School of Art and Design, Aalto University in Finland. Designium also conducts research on design and innovation for the European Design Innovation Initiative (EDII) and focusses on strengthening the connections between design, innovation & competitiveness. A country's design competitiveness is evaluated based on the following seven factors (Global Design Watch, 2010):

- Company spending on research and development: Companies in the country (*1 = do not spend money on research and development, 7 = spend heavily on research and development relative to international peers*)

- Nature of competitive advantage: Competitiveness of the country's companies in international markets is primarily due to (*1 = low cost or local natural resources, 7 = unique products and processes*)

- Value chain presence: Exporting companies in the country are (*1 = primarily involved in resource extraction or production, 7 = not only produce but also perform product design, marketing sales, logistics, and after sales services*)

- Capacity for innovation: Companies obtain technology (*1 = exclusively from licensing or imitating foreign companies, 7 = by conducting formal research and pioneering their own products and processes*)

- Production process sophistication: Production processes use (*1 = labour-intensive methods or previous generations of process technology, 7 = the world's best and most efficient process technology*)

- Extent of marketing: The extent of marketing in the country is (*1 = limited and primitive, 7 = extensive and employs the world's most sophisticated tools and techniques*)

- Degree of customer orientation: Firms in the country (*1 = generally treat their customers badly, 7 = are highly responsive to customers and focuses on customer retention*)

The most current design competitiveness study was done in 2010 and Thailand ranked 42 globally (Figure 2 below). Thai companies rank lowest in Asia in R&D spending and Innovation, factors that are directly related to the design function within a company. As it is well understood by now that companies that have innovation very high on their agenda would also spend more on R&D and invest in 'strategic design' to be able to create better products and services.
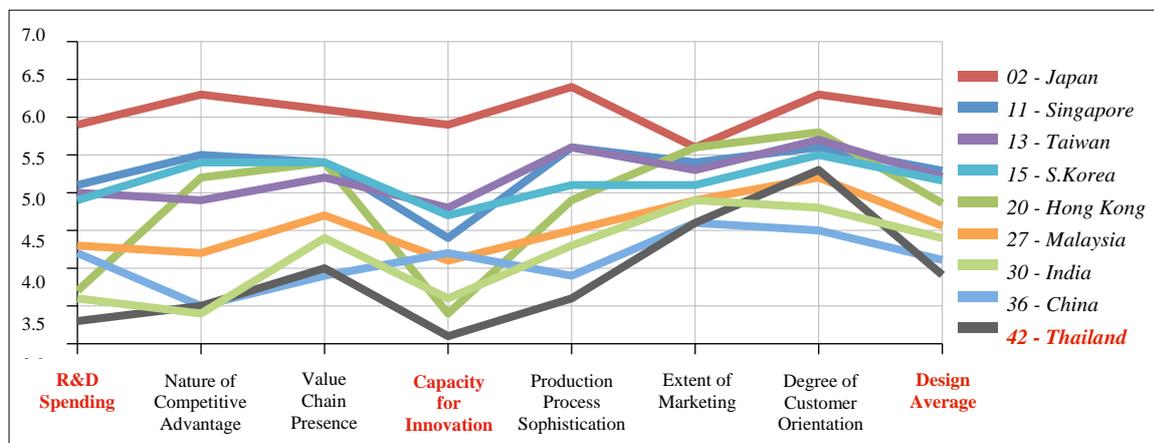

Figure 2 Design competitiveness of Thailand
Source: Designium (Global Design Watch, 2010)

3. Culture and it many dimensions related to design & innovation.

Culture is a rather difficult term to define, and there are multiple understandings with multiple theories to support and in spite of many efforts by anthropologists and linguists there is no clear consensus on what constitutes culture (Spencer-Oatley, 2012). For the purpose of this paper we will take two very robust ideas of what constitutes national & work culture. Professor Shalini Venturelli and the Dutch social psychologist professor Geert Hofstede's definitions and theories help us build an effective argument on how culture and its relationship with design innovation can be carefully crafted.

Shalini Venturelli posits that we inherit ideas regarding cultural dimensions of modern life from three traditions of the Aesthetic, Anthropological and the Industrial & Commercial Tradition (Venturelli, 2000). According to Venturelli, the Industrial & Commercial Tradition has become the foundation of modern culture(Figure 3 below).
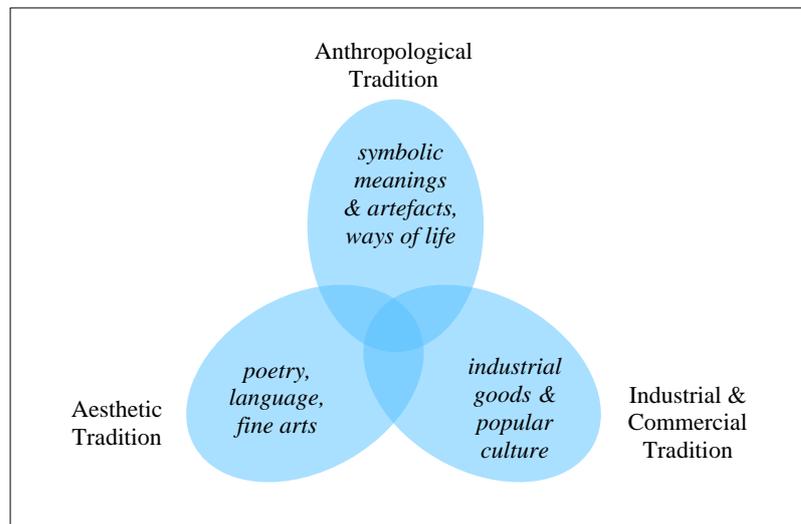
Figure 3 Three dimensions of culture
Source: From the Information Economy to the Creative Economy (Venturelli, 2000)

A quick survey of Thai design and products reveal the design output of are heavily reliant on the aesthetic and anthropological tradition in Thailand (Ipsos, 2017), with very few products emerging out of the industrial tradition where maximum value is created. Designers tap into these three dimensions of national culture to develop products for modern consumption. However, in order to produce really innovative and original products and services the mindset that is required and the work culture that fosters original ideas is absolutely necessary.

Numerous studies have looked at individual traits and organisational cultures that make some companies very successful in commercialising original, innovative and creative ideas while at the same time many companies struggle to make a profit with their very similar looking, unimaginative offerings. To name a few, Walter Isaacson, in his book The Innovators (Isaacson, 2014), Clayton Christensen et al. in their book The Innovator's DNA (Christensen, Dyer, & Gregersen, 2011) and Tom Kelley in his book Ten Faces of Innovation (Kelley, 2006) have described the qualities and behavioural patterns that are required to be innovative.

There are two aspects to be a successful innovator, original thinker or designer. The first is the skill of becoming innovative, which is a bit difficult to learn, but it is possible to be taught and learned through sheer practice and diligent work. The other aspect is the mindset of a highly successful designer and innovator, which is influenced by the way we think & work. These mindsets and patterns of thinking and interacting with the external world are established by our collective experiences of our upbringing, growing up, living and working within a society, and our beliefs, motivations and social norms.

Geert Hofstede, well known for his pioneering research on cross-cultural groups and organisations, has identified the effects of society's culture on the values held by people within that group or society and how these values relate to our behaviour in the workplace. He defines culture as the *"collective programming of the mind that distinguishes the members of one group or category from another."* (Hofstede, 2010). He has identified six dimensions of national culture that influence attitudes to work. He calls them Power Distance Index (PDI), Individualism (IDV) vs. Collectivism, Masculinity (MAS) vs. Feminism, Uncertainty Avoidance (UAI), Long Term Orientation (LTO), and Indulgence (IND). For the sake of comparison, the rankings for Thailand and USA in each of these dimensions are as below (figure 4 below).
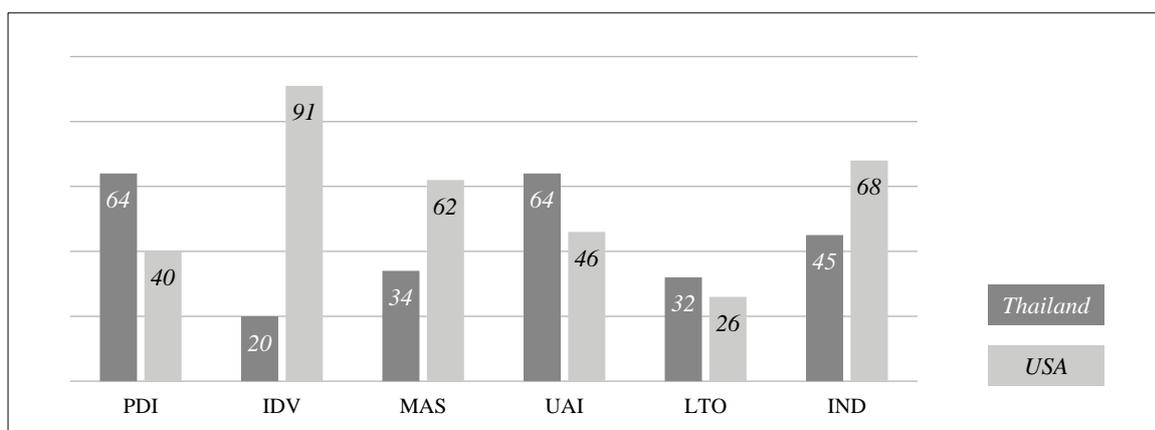
Figure 4 Comparison of Hofstede Dimensions of Thailand & USA
Source: https://www.hofstede-insights.com, accessed 3rd April 2018

Power Distance Index (PDI) is the inequality in distribution of power within powerful members and less powerful members of a society or organisation.

- Thailand Ranks 64 which indicates a strict chain of command and protocol is observed resulting in paternalistic management and information flow is always top-down and controlled.
- USA has a low power distance score of 40, indicating that information flow is freer and hierarchy is only for functional purposes and communication is direct and informal.

Individualism (IDV) is the degree of individuality that is accepted where individual members of a society look after themselves and express their opinions freely, compared to a collectivist society where members belong to groups and take care of each other and personal relations are valued more and confrontation is avoided at all costs.

- Thailand's score of 20 indicates it is a highly collectivist society, which manifests as long-term commitments to members of the group, Thai are non-confrontational, and hiring and promotions are based on connections and recommendations.

- USA with a score of 91, is one of the most individualistic cultures in the world. Americans are not shy and interact well with people they don't know. In a business context, employees are expected to be self-driven and take initiative and hiring and promotions are based on merit and quality of work.

Masculinity (MAS) is the dimension that indicates the competitiveness of the society. A high score (masculine) indicates this society is competitive, driven by success and winning. A low score (feminine) indicates the society values feminine qualities of caring for each other, quality of life is the sign of success in life and standing out from the crowd is not admirable.

- Thailand scores 34 on this dimension and is thus considered a feminine society and has the lowest ranking among the Asian countries (average 53) and the World average of 50. This lower score indicates Thai society is less assertive and competitive.

- In contrast the US score of 62 indicates Americans try to be the best they can be, and they have a 'can do' mentality which creates a lot of dynamism in the society.

Uncertainty Avoidance (UAI) is the dimension that indicates the extent to which members of a society deal with ambiguous or unknown situations and have crafted ways to avoid these situations and deal with anxiety of the unknown.

- Thailand scores 64 on this dimension, indicating that uncertainty is avoided and in order to minimise the level of uncertainty strict rules, laws and policies govern the society with the ultimate goal of controlling everything in order to eliminate uncertainty as a result, change is not readily accepted and the general population is very risk averse.

- The US scores 46 on this dimension, indicating a fair degree of acceptance of new ideas, innovative products and willingness to explore something new or different. They are more tolerant of new ideas and do not require many rules and regulations to govern them.

Long Term Orientation (LTO) is defined as the degree to which a society maintains links to its past while at the same time is able to deal with the challenges of the present and future. Different societies prioritise these existential goals differently and normative societies are those that score low in this dimension. They maintain time honoured traditions and norms and while those that score high are those that take a pragmatic approach and prepare for the future by saving and investing in education.

- Thailand has a low score of 32 indicating that Thai people are more normative than pragmatic. They exhibit great respect for traditions, find it very challenging to establish the absolute truth, don't save money for the future, are short-term oriented and want quick results.

- On this dimension USA scores a low 26, indicating it is very normative and are extremely short term oriented and individuals strive for quick results in the workplace.

Indulgence (IND) is the degree to which members in a society are able to control their desires and impulses. So the opposites on this scale are 'indulgent' societies with very weak control and those that have a strong control are categorised as 'restrained'.

- Thailand's score of 54 on this dimension does not allow us to determine any preference of either restraint or indulgent.

- USA on the other had scores 62 on this dimension is a very indulgent society. They work hard and play hard.

Looking at the scores of Hofstede's dimensions, it appears everything seems to be pitted against Thailand form becoming a creative and innovative society. Thailand has a very hierarchical society where information flows top-down and the paternalistic management style allows for members lower in the pecking order to be forgiven, there by not making them accountable for any omissions or mistakes. This leads a perpetual cycle of less than desirable ideas and solutions to go through. The Western culture of individuality and accountability weeds out inferior ideas very early in the process.

Highly successful creators, designers & innovators are known to take risks and never balk at failure, instead failure spurs them to take greater risks by explore, experimenting and fail over and over again. A collectivist culture on the other hand avoids dissonance of any kind. Failure in Thai culture is seen as losing face so anything that might involve failure and risk-taking is avoided.

A low masculinity score means that Thais are not assertive and competitive and it results in very low levels of dynamism in the society. Avoiding uncertainty and not being able to tolerate ambiguity results in lots of time spent in getting a good grasp of minute details about tangible and concrete ideas; while anything abstract or ambiguous is quickly termed as 'difficult' or 'serious' and quietly set aside.

Low long-term orientation score indicates work is always short-term oriented with an expectation of quick results and not engaging in long-term strategic planning. Not having a long-term plan, also results in not having lasting results.

All these indicators seem to go against the common understanding of the right cultural mix that is necessary in a society or organisation to foster design innovation. Helen Spencer-Oatley however cautions against relying on characterisation of whole cultures (eg: masculinity or individuality) to predict the creativity or innovativeness of individuals. Quoting Hofstede (1980) in what he calls as *'ecological fallacy'* she suggests that many researchers fall victim to generalising values that characterise a nation and assume that they might be applicable at an individual level. She illustrates her point by stating that individuals such as Steve Jobs at Apple, USA and Richard Branson at Virgin Airlines, UK who come from nations whose values favour low-power distance for example, have built highly successful corporations with high power-distance hierarchies.

Researchers from University of Southern California, Imperial College London, and the University of Minnesota found that radical innovation to be the most important driver of growth, success and wealth creation of firms and nations (Tellis, Prabhu, & Chandy, 2009). They studied 759 companies spanning 17 nations which included 8 large economies in the world; (USA, China, Japan, India, Germany, UK, France & Italy), 4 countries which have developed rapidly propelled by innovation (Taiwan, Hong-Kong, Korea & Singapore) and 5 countries with known major innovative or multinational firms (Canada, Switzerland, Netherlands, Sweden & Australia.). Of the four major drivers of innovation within a country (figure 5 below), they found that the internal culture of a firm is the strongest driver of radical innovation across nations.
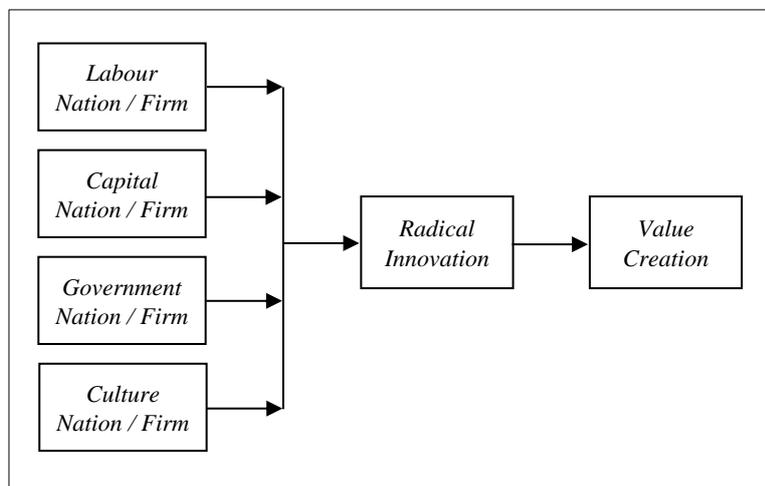

Figure 5 Framework of drivers of radical innovation and value creation
Source: Radical innovation in firms across nations (Tellis et.al, 2009)

They posit that the culture of a firm is a uniquely human product and develops slowly within a company, is tacit and is not easily transported across companies. They found that these companies have three common attributes, which are willingness to cannibalise assets, future orientation and tolerance to risk. Willingness to cannibalise assets is the attitude of reviewing currently profit making assets and cannibalise them in order to place resources into future oriented innovations.

In summary, design driven innovation can generate tremendous value for a company and eventually the country. In order to be design driven, the culture that supports tolerance to radical ideas, risk taking, and continually generating new ideas is necessary. Crafting such a culture takes careful planning a long-term nurturing of innovation & design to generate value.

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Community Participation in Education:
A Case Study in Samlot District, Battambang Province, Cambodia

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Abstract

This study was conducted to investigate the nature of community participation in education in a remote district in Cambodia. A case study approach was used to explore the issue and employed qualitative research methods for data collection. Epstein's participation and Bray's degree of community participation were used as analytical frameworks. The study focussed on the forms and processes of participation by parents, community members and education stakeholders in primary schools in remote areas. The study discovered a range of social practices in community participation in education. The degrees of participation varied depending on the types of participation and the participants. Parents had direct participation in their children's learning at home, and indirect participation through resource contributions for school development. In addition, the community participated in education through their main representatives, the School Support Committees (SSCs). The most common type of participation was collaborative resource contribution for school development. This practice reflected the traditional culture of participation of Cambodian society but there was also a sign of behavioural change to focus more on children's learning. Teachers and School Support Committees were the drivers in bringing community and parents to participate in education. This case study suggests that a shift in focus (on the part of the government, non-governmental organizations and education stakeholders) to support parental involvement in children's learning, rather than the traditional resource mobilisation, may better to promote children's learning. Further research on parental involvement in children's learning could be conducted.

Keywords: *community, participation, community participation*

1. Introduction

Community participation is crucial for the success of community development programs. Development projects and programs with strong participation can enhance ownership and sustainability in development (Kumar, 2002) and the projects are more likely to succeed in developing the community. Likewise, the participation of communities in education can enhance education and children's learning. Research has shown that the participation of families and communities in education has positive impacts on children's learning and can also increase a children's learning potential which results in long-term impacts on children's lifelong learning (Epstein, 1992, 1995, 2006).

Existing research has found different forms and levels of community participation particularly in education (Epstein, 1995; Griffin & Steen, 2010; Ngoun, 2012; Pak, 2012; Sanders, 2001). Epstein strongly believed that children can do better in their learning when teachers, families and the community work together to achieve learning and development goals of children (Epstein, 2006). To contribute to this contention, she suggests that educational institutions build strong partnerships. Epstein used the term 'involvement' to refer to various forms of participation but did not analyse them as being strong or weak (as in Arnstein's ladder of citizen participation). Thus, Epstein's framework is not judgmental because the concept of participation may change in accordance to the context, types of involvement and commitment of the implementers. This framework, as suggested by the author, is applicable in all levels of education, and in different contexts. In addition to Epstein's six types of participation, Griffin and Steen (2010) recommended – leading as an additional category for promoting partnership. Griffin and Steen recommend that in order to get communities and families to participate in education, leadership by school administrators and community leaders is required.

The aim of this framework is to provide guidance to school staff, families and communities to perform their partnership roles to ensure better academic achievement of their children. The concept of such

partnerships is to build connections between schools, families, and communities so that the three partners assist each other in supporting children to have successful study outcomes in their future lives (Epstein, 1995).

This study has two primary outcomes. The first is its contribution to the body of knowledge on community participation in education, specifically within the education sector in the rural context of a developing country, Cambodia. This study also provides lessons on community participation in education for the different schools and communities. As a result, this information can be used to advocate for improving the quality of education at the primary school level.

2. Objectives

The purpose of this study was to investigate community participation in education in the remote primary schools in Samlot district in Cambodia. There are two specific objectives to be explored in this study.

1) To determine the forms and processes of community participation in education in the remote primary schools in Samlot district in Cambodia.
2) To assess the degrees of community participation in the remote primary schools in Samlot district in Cambodia.

3. Materials and methods

This study employed a case study approach to examine community participation in education. It investigated the parameters of community participation in certain rural schools that had been the target of government efforts and the interventions of non-governmental organizations (NGOs) in mobilizing communities to participate in education. As the study required exploration of the 'how' of participation, qualitative methods were chosen as appropriate for collecting and analyzing data. It is an approach for exploring and understanding perspectives and interpretation of the individuals about the social contexts (Denscombe, 2010; Rubin & Rubin, 2012). Qualitative data collection methods were used to collect data from local people in the field by using different tools such as interviews, group discussions, document review, and observation (Creswell, 2013). To triangulate the qualitative data, a survey was used with parents and community members in selected school communities. This quantitative data collection tool was used to complement the qualitative data (Teddlie & Tashakkori, 2003).

Samlot district was selected for the study as it is a very isolated district and is in some respects quite different from other districts. It is geographically isolated with bad road conditions. However, it has shown a marked improvement in education since early 1990s in terms of community participation and the enrolment rate for boys and girls (MoEYS, 2015). It has received significant interventions from NGOs resulting in improvements in education in recent decades.

Eighty participants were selected to join in the study, including four school directors, four teachers, four School Support Committee (SSC) leaders, 21 parents, one religious leader, two local authorities, non-governmental organizations (NGOs) staff, one District office of Education (DoE) officer and forty households. The mixed participants offered a diverse range of perspectives on the research questions and had different experiences of collaboration.

The first form of data collection was document analysis. Formal and informal documents which were relevant and available for my case study were collected. Formal documents were documents that were compiled and analyzed by an organization for specific purposes and they were formalized by the organization through an organization stamp.

Four school directors were purposefully selected for the study as it was hopeful that they would share their thoughts about the community and education in their school. These four informants were interviewed to get answers for the research questions. Four SSC leaders from the four schools were selected for in-depth interviews to get information about their participation in education and the support that they had in mobilizing community participation. These interviews also helped me to verify the data from the interviews with school directors. Four teachers were selected for interviews to determine the participation of parents in their children's learning and the relationship between parents and schools. At the same time, local authorities such as one village leader and two commune council members were interviewed to explore their participation

in education. To investigate the participation from NGOs, three staff from two NGOs were invited for interviews.

To obtain the parents' perspectives, a questionnaire survey and Focus Group Discussions (FGDs) with parents were conducted. Forty family members were selected for the questionnaire survey. This survey explored aspects of the parental participation in education. It was also hoped that this data would help to verify the information from the interviews with school directors, teachers, SSC leaders and local authorities. In addition, twenty-one parents were selected for focus group discussions. The discussions were on the parental participation in their children's learning, parental contributions to education and the challenges in participation in education. These discussions were important because all participants could be involved in the conversation about the same topics within the groups (Table 1).

Table 1 Guiding questions for data collection with different research participants

Participants	Primary questions
School directors	- How has community participation occurred in your community? - Who are the education stakeholders? Who participates? - What are the forms of participation? - How has each form of participation taken place? - How do you mobilize community participation in education?
Teachers	- What is the relationship like between teachers and parents? - How do you communicate with parents and community members?
School Support Committee (SSC) leaders	- In what ways do you participate in education? - Can you describe each form of participation? - How do you help schools to mobilize community members to participate in education?
Local authorities	- How do you participate in education?
NGOs staff	- What roles do NGOs have in education? - How do NGOs intervene in education? - How do you help the school to get the community involved in education?
Focus Group Discussions	- How do you support your children's learning? - How do you support the school? - Do you have any challenges participating in school?
Small Survey	- What are the forms of community participation in education? - How do you participate in education? - Are there any challenges to participation?

Epstein's Framework for forms of Community Participation was used to determine the forms and process of participation in education (Table 2). This framework was used in a general sense which has categorized community participation into six forms, however, each form could not be used to explore degrees of participation that the research questions were aiming for. In addition, in response to the research question, Bray's model was used (Table 3). As Bray's practices do not map exactly onto Epstein's forms of participation, the author merged the frameworks of Bray and Epstein to provide a comprehensive framework (Table 4) for analysis in Cambodia.

Table 2 Epstein framework of participation

Types of involvement	Description
Parenting	The schools assist community and parents with parenting and childrearing skills, in understanding child development, and in setting home conditions that support children as students at each age and grade level.
Communicating	The schools keep community and families up-to-date on school programs and student progress through effective school-to-home and home-to-school communications.
Volunteering	Activities that support children and school programs, improve outreach, training, and schedule to involve families as volunteers and improve family attendance at events at school and in other locations.
Learning at home	The schools offer suggestions and techniques to involve families in learning activities with their children at home.
Decision making	Include families as participants in school decisions, governance, and advocacy through PTA/PTO, school councils, committees, and other parent organizations.
Collaborating with the community	Coordinate resources and services for families, children, and the school with businesses, agencies, and other groups. Provide services to the community.

In an education context, Bray has a practical approach to put participation in education into 7 different types and is placed between two extremes: genuine participation and pseudo-participation (Table 3). Genuine participation is the process in which participants voluntarily participate in a development process. They have equal rights, power and influences in making decision. In contrast, in pseudo-participation, people participate for consultation and information giving in development, research or in completing surveys. Participants do not have the power or rights to make decisions. Between pseudo-participation and genuine participation, certain types of participation are identified including: (1) use of service, (2) resource contribution, (3) attending meeting, (4) consultation, (5) involvement in service delivery, (6) delegated power and (7) real power.

In order to contextualize the frameworks for participation in education to the Cambodian context, and to allow for a full discussion of various forms of participation, the author has amalgamated the frameworks of Bray and Epstein (Table 4). This matrix will be used to assess the forms and degrees of community participation in education.

Table 3 Bray's model: Degree of community participation in education

Community Role/Education functions	Pseudo-Participation					Genuine Participation	
	Use of service (1)	Resources Contribution (2)	Attending meetings (3)	Consultation (4)	Involvement in delivery (5)	Delegated powers (6)	Real powers (7)

Table 4 A Merged framework (combination of Epstein's framework and Bray's model)

Forms Participation	Pseudo-Participation					Genuine Participation	
	Use of service (1)	Resources Contribution (2)	Attending meetings (3)	Consultation (4)	Involvement in delivery (5)	Delegated powers (6)	Real powers (7)
Parenting activities							
Learning at home							
Communicating							
Volunteering							
Decision-making							
Collaborating with the community							

The study used Epstein's participation framework to investigate and analyze the forms and process of participation of the communities in education and the methods of community mobilization (Epstein et al., 2002), and Bray's degree of participation (Bray, 2001) to evaluate the degrees of community participation in education in the research area. I used NVivo 10 for data analysis. Adapting Epstein's framework, six main themes were created that accurately reflected my research findings: parenting, communicating, volunteering, learning at home, collaborating and decision making. These were further analyzed using sub-themes of each type of participation. Bray's framework, the degree of participation in education (from pseudo-participation to genuine participation) was used to determine the degree of participation of the communities in the remote primary schools in Cambodia.

Thus the analysis of the data collected from the fieldwork can be summarized as having three steps: deducting the data, classifying the data into types of participation, and evaluating each type of participation.

4. Results

4.1 Perceptions about community participation in education

It is essential to determine the different understandings of the research participants towards community participation in education. This helps to discover how local people constructed their understandings about participation in education. Interpretivism contends that the different ways in which the world is viewed arise from the influence of our beliefs, value systems and cultures (Walliman, 2008). The data collected from the field shows that each group of participants had different perceptions about community participation in education as shown in the table 5 below.

Table 5 Perceptions on community participation in education

Respondents	Perceptions towards community participation in education
School directors	Community participation in education is a process involving parents, authorities and education relevant stakeholders in education in the forms of ideas, money, materials and labour contribution for school development.
Teachers	Community participation in education is the participation in receiving education information from schools and spreading in the community. Examples for this perception included sending the children to schools and contributing ideas, money and materials whenever the school asks for help.
SSC leaders	Community participation in education is the processes of receiving and spreading education information in the community, and the process of mobilizing resources in the communities for school improvement.
Parents	Community participation in education is the contribution of money, materials, labour and ideas for school improvement such as school construction, and sending children to school and helping children learning at home.
Local Authorities	Community participation in education is the involvement in spreading education information and value of education to local authorities and community in order to get children get education. It occurs through resource contribution such as money and labour for school and education development.
NGOs	Community participation in education is the contribution of materials, labour, money, time and ideas from communities for school and education development.
Religious leader	Community participation in education is the participation in the discussion to identify weaknesses of the school for improving children's learning.

4.2 Types and processes of community participation in education

Results of the study indicate that the behaviors of the community towards education occurred in various forms by different education stakeholders which fall into the six types of participation.

Parenting: The study found some parenting activities carried out by parents and some parenting assistance undertaken by the schools. The participation in parenting in children's education occurred with parents, caregivers such as guardians and siblings, and children's relatives. Parenting activities of both parties were for serving children's learning. The table 6 below indicates the main parenting activities undertaken by parents/caregivers and the schools.

Table 6 Parenting Activities

Parents' parenting activities	Schools' parenting support
Parent made their children's accessibility to education through: - Enrolled children in schools - Ensured their children's attendance in schools - Accompanied small children during classes to get them used to the schools	Schools conducted education/enrollment campaign - Informed education information in the community - Encouraged parents to participate in their children's learning
Pertained information about their children's learning progress from teachers - Suggested teachers to provide extra support to their children - Suggested teachers to give them teaching methods	Updated children's learning progress with parents through student study records, meetings and occasional conversations - Helped parents with basic teaching techniques to help children at homes
Helped children with their daily schooling - Prepared children to dress up with tidy uniforms, appropriate hair - Prepared learning materials such as notebooks, textbooks and pens and so on for children	Consulted with parents about children's safety and security at schools and in communities - Encouraged parents to pay attention on their children's school attendance

The result of a survey shows that 98% of parents reported going to the schools for enrolling their children at the beginning of the academic year. In addition, in order to retain children's school attendance, some parents dropped their children off at school and picked up them after classes every day (FGD with parents, June 1, 2015), and some parents accompanied their little children to the classes and stayed with their children for a while to observe their children's learning (observation, June 1, 2015). Older brothers/sisters and relatives of the small children were observed coming to pick up small children at the end of their classes. Parents and caregivers consulted with teachers about their children's learning progress. The parents in the FGDs mentioned that they consulted with classroom teachers frequently about their children's learning progress and suggested teachers provide extra support such as paying more attention to their children's learning (FGD, May 1, 2015).

Learning at home: The study found a variety of activities that parents had to support their children's learning. According to questionnaire survey results, in response to the question of how communities and families support their children's learning, all participants responded that they provided support to their children learning at home. The survey with household shows three categories of parent activities supported children's learning. Some 25% of parents helped their children with teaching and encouraging children, and checking their children's learning materials; 37% of parents helped with encouraging children to study and by checking their study record; and 38% of parents responded that they helped only by telling children to focus on studying.

The FGD results show that the most common activities parents had at home were encouraging their children's learning, but it was less common that they got involved in teaching their children. However, parents who have themselves had an education and who have better living standards paid more attention to supporting children's learning at home.

The interviews with school directors and teachers show that teachers encouraged parents to have conversations with teachers about their children's learning and teaching methods so that they can assist their children learning at home. For example, a librarian from Dauntret showed his passion to get parents involved in helping children's reading. He encouraged parents to come and observe their children's reading in the library so that they could help their children at home.

Communicating: According to the interview data, document review and the observation, the schools and communities used several methods of communication to send and receive information to/from the communities/schools, and the communication occurred in multi-dimensions (school-family-community). The study identified three main aspects of communication between the schools and communities: school-to-community communication, community-to-school communication and the agent of communication.

School-to-community communication: The schools used both written and verbal communication. Written tools were student study records and communication books which occurred only between teachers and families. Verbal tools were telephones, meetings and community outreach which occurred within schools, families and communities (interviews).

Community-to-school communication: According to Aphiwat primary school director, parents used telephones to communicate with teachers to receive information about their children's learning (P. Nop, personal communication, May 11, 2015). The FGD with parents shows that parents sometimes contacted the teachers or school director to follow up their children's learning at schools and clarify their children's homework. Some parents called teachers when they did not see the student study records at the end of the month. Some parents visited schools and some were invited to get further education information and information about their children's learning. According to the questionnaire survey, 98% of parents had been to the schools.

Agents of communication: The study found five groups of community people who were information carriers between the schools and the community. Those information carriers were students, SSCs, Buddhist monks, local authorities and parents who participated in the school. These people spread information about education throughout the villages. These groups were the connectors, agents, interpreters and mediators between the schools and communities who were found supportive for children's education.

Volunteering: Through the observations, all four of the schools had two formal groups each that carried out volunteering work for the schools: the School Support Committee (SSC) and the Student Council (SC). The deputy director of Samlot District Office of Education mentioned that SSCs were formed or reformed annually (V. Hang, personal communication, May 22, 2015). Each of SSCs had mixed and different components ranking from commune council, village leaders, monks, clergymen/women to retired teachers and teachers. These committees had roles in supporting the school operation and mobilizing community resources for school and education development (MoEYS, 2015).

All schools have Student Councils (SCs) consisted of mixed ages and genders from different grades in which student representatives from grade 3 to grade 6 were elected for SCs every year. The Aphiwat primary school director informed that the council was helpful for school and education development (P. Nop, personal communication, May 11, 2015). SCs were grouped, and each of the groups had specific tasks to perform such as enhancing school regulation; assisting classroom teaching and learning; emergency tasks for any incidents in the schools; administration and finance activities such as involving soliciting money; information; arts and culture; hygiene, sanitation, environment and sports; and children's club.

Decision-making: The interviews with the four school directors show SSCs participated in developing annual school development plans (SDPs), implementing and monitoring SDPs. The Aphiwat primary school director commented that the SSC leader and its members were invited to join formal meetings with teachers to develop school development plans at the beginning of the academic year (P. Nop, personal communication, May 11, 2015). SSCs were reported as being involved in the school administration and

budgeting. All school development plans and budget plans were made with the involvement of teachers and SSCs (Aphiwat Primary School, 2015). A Buddhist monk leader, who was a member of SSC reported participating in budget planning and fund raising. The research found that SSCs particularly the leaders had significant power in the decision making process in school development. Two school directors provided similar responses that SSC leaders were influential.

These findings indicate that those who provide the budget and who were officially sanctioned by the government were more likely to be able to wield influence in decision-making. The District office of Education (DoE) and commune council participated in the decision in the forming of SSCs. The deputy director of Samlot District office of Education also added that they were invited to the election meetings and other official meetings with schools (V. Hang, personal communication, May 22, 2015). In addition, Sung Commune leader informed that commune council members and/or leaders were invited to the SSC election process to give technical advice as well (M. Pom, personal communication, May 20,2015).

Collaborating: Education stakeholders were observed have different ways of participation in education. The table below are the responses from participants during the study.

Resource contribution: Results of the study show that community people contributed their local resources in the school construction projects. The contributions were financial, labour and materials as shown in table 7-8 below.

Table 7 Type of community contribution in the school development

Community contribution (n=40)	Percentage
Money	63%
Labor	20%
Materials	13%
Total	**100%**

Table 8 Financial contribution for school development (2015)

Schools	Financial Contribution(US$)*	Government Budget (US$)	Comparison with government budget
Aphiwat Samlot	438	2,668	16%
Dauntret & its annex school	1,425	2,373	60%
Sung 1	1,350	1,753	77%
Sre Reach	150	1,697	9%
Total of the four schools	**3,363**	**8,491**	**40%**

Note: *The contribution was in Riel currency, but I converted into US dollars with rate of 4,000 riels per US dollar.

According to the interview and survey data, the sources of these financial contributions were teachers, parents, communities, local authorities, Buddhist pagodas, business people, microfinance institutions, banks and international charities.

Material contribution: Some community people were reported contributing materials rather than money, including Buddhist pagodas, business people and NGOs for any school construction projects. Those materials including sand, cement and bricks for the construction of school playgrounds and fences. Local authorities and communities contributed local materials and construction materials as well. The Sre Reach school director said that: Communities from the two villages contribute 10 bags of cements, 1 meter cube of sand to construct 40 square meters of concrete school yard (P.R. Nov, personal communication, May 20, 2015). The Dauntret primary school director also mentioned that the pagoda also provided food to the teachers when there is a religious occasion in the pagoda, food left over was usually brought to the teachers who were living in school (C. Chim, personal communication, May 18, 2015).

Labour contribution: The survey reveals that roug hly 18% of the parents contributed labour in addition to their financial contribution in school development. For example, the Sre Reach primary school director stated that communities with skills in minor construction came to help to fix school buildings and maintain school facilities (P.R. Nov, personal communication, May 20, 2015). Some communities were mobilized by the village leader to construct the school basement. According to Dountret village leader and School Support Committee leader, all families in the village who had tractors were called in to help in this work (K. Prak, personal communication, May 18, 2015). In this way, communities spend their time and effort voluntarily to establish the school so that their children could access education.

5.   Discussion

5.1 Perceptions of education stakeholders towards community participation in education

Overall, even if the participants had different understandings, a common view on community participation was resource contribution such as material, money, and labour. The diverse understandings of the research participants on community participation in education which were mentioned above are interrelated with each type of Epstein's participation frameworks, and their understandings were also correlated with the behaviors of the community towards the participation in education which are reported in the next section.

5.2 Degrees of community participation

Analysis from this study showed a noticeable discrepancy among communities, parents and education stakeholders with regard to their participation in education. Their participation is spread over the various levels of participation described in Bray's degrees of community participation (Bray, 2001) which is shown in Table 9. The six types of community participation are situated into different levels according to the nature of their participation.

Table 9 Types and degrees of community participation in education in the four primary schools in Samlot District

Forms of participation	Pseudo-Participation			→			Genuine participation
	Use of service (1)	Resources Contribution (2)	Attendance at meetings (3)	Consultation (4)	Involvement in delivery (5)	Delegated powers (6)	Real powers (7)
Parenting activities	Sent children to school and assisted children's daily schooling	n/a	Attended meetings and school events	Consulted with teachers about their children's learning progress	n/a	n/a	n/a
Learning at home	Encouraged children, taught children at home and checked homework	n/a	Attended meetings when invited by teachers	Consulted with teacher about how to help children's learning at home	n/a	n/a	n/a
Communicating	n/a	n/a	Received information in the meetings and school events	Teacher and parents communicated about children's learning in various ways	Communities and students shared information in the wider community	n/a	n/a
Volunteering	n/a	Communities voluntarily spent time to look after schools	SSCs, parents, local authorities attended the meetings and school events	Consultations among SSCs, local authorities for education/ school development	Education campaign, network for child protection, trainings	n/a	n/a
Decision-making	n/a	n/a	SSCs attended the meetings to establish annual school development plan	SSC conducted fund raising; DoE and local authorities gave technical advices	n/a	Decision making in planning, fund raising, construction,	n/a
Collaborating with the community	n/a	Contributed resources for school infrastructure	SSCs and parents attended the meeting to get information about school micro projects	SSCs consulted with the schools about how to do fund raising	Teachers and SSCs conducted fund raising together	Networking for child protection; SSCs raised funds	n/a

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According to this table, 'parenting' and 'learning at home' are the lowest degree of participation, while 'communicating' and 'volunteering' reach service delivery and 'collaborating with community' and 'decision making' involves delegated power. These forms of participation are further explained below.

Parenting activities: Results of the study show that parental involvement in children's learning varied from home to school. The evidence was shown through the activities of sending their children to schools and supporting children daily schooling such as preparing their children for school with learning materials and appropriate dressing. Parents were also reported to approach teachers to get information about their children's learning progress. They consulted with their children's classroom teachers about their children's learning. These activities are counted as parenting because parents created opportunities for children to have knowledge through education (Bornstein, 2005; Epstein, 1995). The involvement demonstrates that parents cared for the future of their children. They responded to the government policy which suggests parents send their children to school. It also reflects parents' understandings of the value of education.

To assist parents with parenting, the schools were found to have encouraged parents to send their children to schools and advised parents to provide learning support to the children. Their suggestions indicated that teachers had the intention to support parents with regards to parenting. Teachers appear to understand the importance of the participation of the parental involvement in children's learning. However, no specific parenting skills were given to parents and caretakers, except for the consultations and informal discussions between parents and teachers about children's learning progress and challenges of children's learning. This indicates that the parenting knowledge, which is important to enhancing children's learning (Epstein, 1995), was not the focus of the schools. This might be because of no attention being given by the government to these skills.

Learning at home: Parents were found assisting their children studying at home after class. Participating parents were reported supporting their children at home with their studies but only a minority of them helped in teaching and checking their children's books, and most of the parents only provided encouragement and told the children to study before bed. The research findings were consistent with Nguon (2012) that educated parents tended to get much more involved in their children's learning than their counterparts. Poorer families had less involvement because they were busy working. Some educated parents came to the schools to consult with the teacher on their teaching method so that they could help their children's learning at home. In order to get parents more involved in supporting their children's learning at home, teachers motivated parents to come to talk with them about their children's learning progress. Teachers provided advice on how to assist their children.

From these findings it can be assumed that parents attempted to get involved in their children's learning, but this was under-utilised because of the limited abilities of the parents. The research findings show that most parents had difficulties in reading and writing which are barriers for them in supporting their children. In addition, parents appeared to have a dependent perception on teachers to help their children's learning. To assist parents, teachers seemed to have the intention to get involved in children's learning through suggesting to the parents to come and talk about their children's learning. Buddhist monks were also seen as helpful in encouraging parents to focus on their children's learning. They advised parents in religious ceremonies to help their children's learning. Despite the advice, the lack of focus of the parents in children's learning is a sign of inequality among children (Sachs, 2015). According to Sachs, this could have a long-term impact on the inequality among the next generation.

The degrees of participation of the parents in these two forms, parenting and learning at home, were found to be moderate influences. The parents were involved in discussions and informal talks without any evidence of taking part in actual decision-making. These forms of participation, therefore, are undoubtedly at the consultation level (level four of degrees of participation). Consultation, according to Bray (2001) is a degree to which the participants get involved in sharing information and discussing education programs and their children's learning progress.

Communicating: It is evident that community people and parents participated in education through communicating education information. The schools and parents communicated children's learning through

various aspects such as meetings, written and verbal communication tools. Non-parents, local authorities and other stakeholders received updated education information through meetings, letters and phone calls. Receiving the education information, communities and parents spread the information in their community so that community members understood the value of education and got involved in children's learning. These processes imply that parents and community members got involved in delivering and interpreting education information to a wider community. In addition, local authorities and SSCs were found using several means of communication such as meetings, phone calls and school visits.

The schools' diversified means of communication to reach parents and community members was evident with teachers using appropriate channels of communication with even the most remote families to follow up children's learning. The study found that the official written communication tools were challenging for some parents and community members because they had difficulties in reading and writing. It was hard to create a two-way communication system which resulted in less effective communication as suggested by Epstein (1995, 2004). It was fortunate then, that the schools had the community, parents and SSCs to assist spreading information to the wider community, especially those with lower levels of literacy.

These findings show that the written communication tools which were used officially to communicate children's learning performance between schools and parents tended to be not always appropriate and sometimes ineffective due to the ability to read and write of the parents. The other options that could be applied such as meetings, home visits and phone calls require an added commitment of the teachers and the parents themselves.

Volunteering: The study found two groups in each school that consisted of volunteers. School Support Committee (SSCs) which were community representatives in the schools had mixed members such as local authorities, retired teachers, Buddhist monks, clergy people and parents. These people participated in the committee voluntarily. SSCs participated in the meetings with teachers to develop school development plan and discuss about school and education development; conducted fundraising for school development; and looking after school properties. Students through Student Council (SCs) assisted the schools in environment, learning, school safety and other administrative works in the schools. In addition, in the research area, the study found active Youth Club (YCs) supported by World Vision Cambodia (WVC) to provided awareness raising on child protection, domestic violence and hygiene and sanitation in the community and schools. Community members, families and local authorities were volunteers who participated in the school meetings and some schools events when they were invited. The study did not find any voluntary activities related to curriculum development, as this area seemed to be left to the teachers.

These findings demonstrate that community people had a strong commitment to helping to improve schools and education. Even if the schools did not provide training to the volunteer groups, the schools received the assistant from NGOs to build the capacity of teachers and SSCs as well as Youth Clubs.

The research findings above indicate that community people got involved in education through communicating education information and voluntary work to assist the schools. Despite no evidence of unequal power relations between the schools and community people, these community people were reported to be active in spreading education information. The nature of the involvement of the community and parents in education above matched the fifth degree of participation (Bray, 2000) which has a tendency of becoming between the schools and community as described by Arnstein (1969).

Decision-making: Participation in decision-making is the involvement of parents and community members in school decisions, governance, and advocacy activities for school and education development through the school committee (Epstein, 1992, 1995, 2006; Epstein & Salinas, 2004). It is evident from the findings that SSCs had various rights and a degree of power in the decision-making process. Schools and SSCs were observed sharing power in decision-making. SSCs were normally invited to participate in establishing school development plans and the budget plans, and in monitoring and evaluating education programs and school development projects. The schools worked in partnership with SSCs for education and school development where power was distributed. Arnstein (1969) suggests that: "power is in fact redistributed through negotiation between citizens and power holders" (p.221). It became clear that genuine participation lies where power is distributed among participants, reflecting the work of Bray (2001).

Collaborating with the community: This form of participation is concerned with the collaboration of the schools, agencies, businesses, organizations and other groups to share responsibility for improving schools and education (Epstein, 1992, 1995, 2006). Collaborative activities of the community and parents were reported to take place at different levels ranking from 'resource contribution' to 'delegated power'. The community, parents, students, NGOs, Buddhist monks, teachers and local authorities were reported as working collaboratively on school construction, collecting children to go to school, networking for child protection and capacity building. In this case, SSCs were reported to be a working partner in fundraising for school development. Community resources were mobilized. This participation indicates that community and teachers respected each other in decision-making. Thus, their collaborative participation can be assumed as reaching Bray's level of 'delegated power'.

The participation of community in decision-making and collaborating forms (delegated power) is close to genuine participation. According to Bray (2001), genuine participation is the participation in which all participants have equal rights in decision making (it is the partnership rung in Arnstein, 1969). The degrees of community participation in education can be summarized in the following figure 1 below.
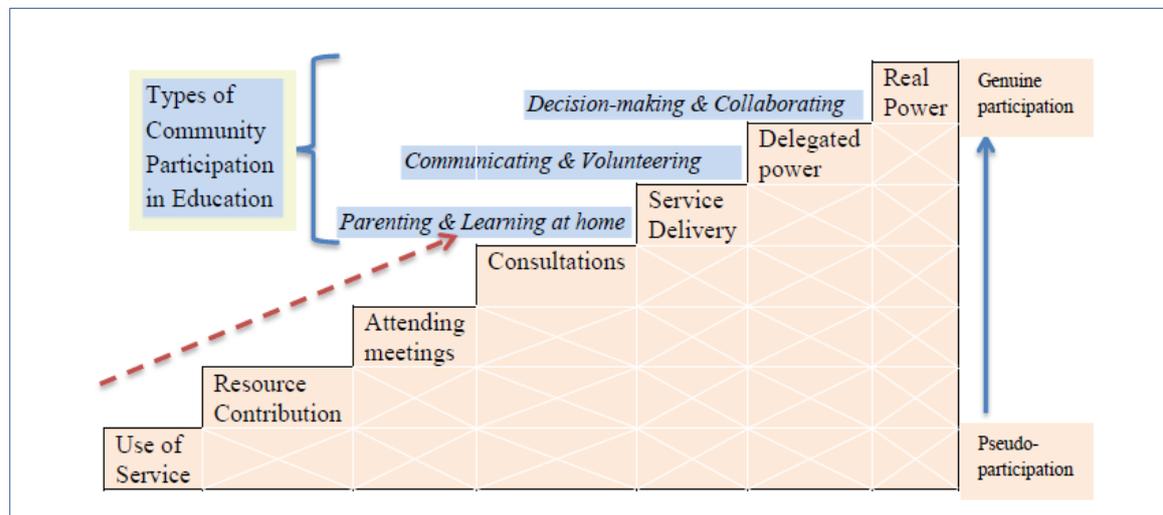
Figure 1 Degrees of participation in education in four schools of Samlot District

5.3 Community participation policy and practices

The fifth dimension of the policy of Child Friendly Schools (CFS) has as an outcome, to promote the relationship and participation between/of schools and communities in order that this relationship becomes a collective resource for school/education development (MoEYS, 2007). The school Support Committee (SSCs) framework was developed to include community representatives in the schools. The basic idea of this framework was to enhance ownership of the community within the schools because the schools are community assets where community involvement is necessary (MoEY, 2014a). According to this policy, the Cambodian government attempts to work in tandem with communities to improve education. The guideline suggests mixed components of SSC to extend community representativeness. The research findings to a certain extent reflect that this community participation policy is working effectively.

The structure of SSCs of the four schools shows strong power and the ability of community resource mobilization. According to the study, the four remote primary schools had village leaders or retired teachers as leaders of the committee. This included Buddhist monks, the elderly and parents as well as commune authorities who were also on the board of management of the SSC. This collective, mixed component committee enables the SSCs to gain more power in their decision-making in education development as DeRienzo (2008) has suggested that power appears when people are collective. In addition, the inclusion of such a mixed group in the committee increases the ability of the SSCs towards pooling resources from a wider section of the community (De Beer, 2006; Rose, 2003). According to Pellini (2007), local authorities and the

elderly in Cambodian society are highly respected so by including them in the committees they increase the SSCs' power.

SSCs were found to be active in most aspects of participation and especially in the decision making in school development plans. The most commonly observed tasks that the study found were community resource mobilization. According to the research findings, SSCs helped the schools in sourcing resources from community members for school construction and school renovation activities. Community people could indirectly participate in education through their resource contribution through SSCs.

In spite of this, the SSCs structure could be more inclusive of other governmental departments and agents such as health centres and district agriculture offices, educated families or retired better off people so they too can influence the participation practice. A greater, more multi-sectoral committee could enhance the ability of SSCs to support school/education development not only through mobilizing resources, but also promoting the culture of sharing and participation within the community.

5.4 Traditional practices of community participation

The results of the study show that the most common form of participation in education was resource contribution. Community people and families contributed their available resources such as money, materials and labour in school renovations and environment improvements when requested by the schools. Their contributions were shown to be important for school development as it could respond to the real needs of the schools, unlike the government budget which could not respond so quickly. The practices reported in the study reflect the contention of Rose (2003) that community contribution is desirable when public resources are insufficient.

This finding reflects the social norms and culture of the local community towards the participation in education. This resource contribution practice has been reportedly practiced in Cambodian society in the past. According to Pellini (2007); Clayton (2005) after the decolonization period and the destruction by civil war in the 1980s, the government of Cambodia called for resource contribution for schools' construction for children's learning. Community resources were significantly complementary to the challenging budget shortage of the government for education development. This practice has been passed on to the next generation as presented in my study. In line with the findings of NGO (2015), this study shows that community people become participatory when called for contributions. This trend of participation practice may stay unchanged unless community people change their perception about what contribution and participation entails.

The practice of resource contribution influences the ways local people construct their knowledge about community participation in education. According to the research findings, community people perceived participation in education as resource contribution in school development more than their involvement in their children's learning. There is some supporting evidence that the schools mobilized community people to provide resource contributions for physical infrastructure and environment improvement. The perception could be influenced by the government policies and guidelines and the policy interpretation. According to the SSC's guideline, the focus of participation is resource contribution, which may mean that it seems more important and is prioritized over other forms of participation.

It is true that a good school environment and facilities could have emotionally positive impacts on children and attract children to schools (Bernstein & Brannen, 2013). It can be substantially beneficial in enhancing children's learning outcome when it is a necessity and appropriately reflects the real situations and needs of the schools and the availability of the resources. For instance, kindergarten renovation is very important and beneficial for children's learning as little children should have appropriate classrooms to learn in and they are likely to come to school regularly if the environment is a positive one. Nevertheless, in my opinion, some school facility construction tends to be wasteful such as the animal statues and Buddha statues even though these statues were educative for children. They did not reflect the real needs of the schools. In this example, the community of people suffer economic hardship and 45% of the community in the study area were poor (RGC, 2014). In addition, according to the research findings, farmers encountered late rainfall in the current year which affected their crops. Consequently, this affected the incomes of the farmers. On top of their hardship, communities were called on for multi-sectoral development projects including health, agriculture and education. Thus, there are many demands on farmers who are already struggling financially.

Even though resource contribution was of importance for school development, in my opinion the practice tended to narrow the concept of participation. In addition, it was likely to affect the behaviour of community people towards their participation. This practice should be changed through changing the perception of teachers and the community. The schools should consider the capacity of the school and community when proposing school development projects. To optimize the community resources, the schools should run development projects that contextually benefit children's learning. The school administrators should shift their focus to the participation for children's learning, although attention to collecting children to schools should still be made. More attention could go on increasing numeracy and literacy skills rather than certain structures or facilities.

5.5 Schools and SSCs for participation

On top of the six types of community participation in education, the study investigated the leading roles of the schools and community to mobilize community participation. The schools were found to possess leadership characteristics that entrusted the communities to get involved. The study found the schools were transparent in the school administration. The schools presented their plans to the community members, and the money that community members contributed was displayed on the school facilities. School staff were reported as having good relationships and being good network builders. They built connections with community members and encouraged community people to get involved in children's education.

SSCs were reported as having positive leadership roles in supporting education programs in the schools. More specifically, SSC leaders were the main supporters for school development. They were confident and powerful in the community. Because they were local authorities and former school directors, SSC leaders of the four schools gained high respect from the community and teachers. They were reported to have commitment in supporting the schools as well.

The findings of the current study were consistent with Sanders in terms of the factors that enhanced community participation in education. Sanders (2001) found that leadership roles of the school leaders were important for making partnerships between school, family and community. This contention indicates that to ensure the six types of Epstein's participation take place, school leaders and staff could play roles in facilitation, coordination, designing, implementing, monitoring and evaluating the community participation in education.

Likewise, this research found that the leading roles of the schools and SSCs were crucial to enabling community participation in education. School directors and SSC leaders were found playing roles as communicators and community mobilizers in the schools and in the community. However, the school directors and SSC leaders needed strong management and leadership skills so that they could mobilize community participation (Pellini, 2007). Better leadership and management skills could enable the school and SSCs to more effectively mobilize community members and civil society to participate in education, such as providing training in parenting skills to parents and teachers.

6. Conclusion

This study discovered a range of social practices in community participation in education, in the four remote schools in Samlot district, Battambang province, Cambodia. The study found that the participation behaviours of the local people in education were influenced by traditional practices. People participated in education largely through resource contribution for their school's physical development. As resource contribution was thought to be important for education, the schools and community leaders as well as education stakeholders tended to prioritize mobilizing the community to contribute their own resources in school development. This behaviour had been passed on from generation to generation. Not only in Cambodia, but also in many other developing countries. This local practice informs the broad body of literature not only in education sector, but also in multi-sector development that local, remote people appeared to participate in development in different ways. They also have different definitions of participation.

In spite of this, there was a sign of behavioral changes towards improving education. Even though the study did not explore specifically the involvement of parents in their children's learning at home, there were some indications of the increase in attention of parents and the community in children's learning. This focuses less on the bricks and mortar of buildings and more on how parents can support their children at home

and is a welcome change. Parents were likely to have more involvement in their children's learning if they were aware of how to provide support. This study informs the government and education stakeholders that parents need their assistance to know how to provide quality support to their children. Due to a low level of literacy and a disrupted education system from past historical times, parents today need support to know how to assist their children in their studies. This training and information may include knowledge about the curriculum, ideas for helping improve literacy and numeracy at home and knowledge about children's developmental stages.

This study has also provided useful information to non-governmental organizations and donors that are focusing on education to pay extra attention on parenting-for-education for parents. Without the skills to support their children in education, parents who are often struggling financially may find it difficult to participate when the most common form is through resource contribution. This study has highlighted that this traditional perception may need some challenging and support for parents should be a priority for the government, NGOs and others in the education sector.

7. Acknowledgements

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APPENDIX A

RANGSIT JOURNAL OF SOCIAL SCIENCES AND HUMANITIES (RJSH)

ACKNOWLEDGEMENTS

APPENDIX B

RANGSIT JOURNAL OF SOCIAL SCIENCES AND HUMANITIES (RJSH)

NOTE FOR AUTHORS

1. Aims and Scope

Rangsit Journal of Social Sciences and Humanities (RJSH) is a multidisciplinary journal that aims to provide a high profile vehicle for publication of various new issues in different academic areas. The scope of the *Journal* encompasses, but not limited to Interdisciplinary Studies in Humanities and Social Sciences, any of the following areas:

Arts & Design	Economics	Hotel Management	Music
Accounting	Education	International Studies	Risk Management
Business	Finance	Language	Social Innovation
Communications	Food and Food Catering	Law	Tourism
Corporate Risks and Corporate Governance	Fraud Investigations and Legal Aspects	Logistics	Public Policy
Criminal Justice Issues	History		

2. Submission Deadline

Submissions are to be permanently open. A manuscript submitted between July 1st and December 31st will be considered for publication in the January-June Issue of the subsequent year whereas a manuscript submitted between January 1st and June 30th will be considered for publication in the July-December Issue.

3. Categories of Articles

The *Journal* accepts the following types of articles:

1. **Research Articles:** A research article is a regular quantitative or qualitative article which aims to present new findings or interpretations.
2. **Notes or Address:** A brief record of something or speech written down that presents important issues.
3. **Review Articles:** There are two types of review articles: non-systematic (or journalistic) reviews and systematic reviews. Non-systematic or journalistic reviews provide a summary of evidence derived from primary studies that have been selected and synthesized according to the author's personal and professional perspective. Non-systematic reviews can cover a wide range of subject matter at various levels of totality and comprehensiveness. Systematic reviews, on the other hand, provide summaries of related primary studies that have been searched for, evaluated, and selected and reported according to a rigorous methodology.
4. **Innovations:** An innovation is an article which aims to present creative arts and designs, procedures or devices.
5. **Comments or Critiques:** A comment or critique is a short article that makes comments or replies to a comment on another article already published by this Journal.
6. **Book Reviews**: A book review is a short article that is written by a specialist and read by the general community. The aim of a book review is to give a brief summary of the book's strengths and weaknesses and to evaluate the book's overall usefulness to the audience it is intended for.

Research articles, review articles, and innovations should not exceed 15 pages of standard A4 paper using *RJSH* format. Notes, comments or critiques, and book review should not exceed 5 pages. Template for research articles is available at www.rsu.ac.th/rjsh. All categories of articles must coincide with manuscript preparation instruction (see Manuscript Preparation Section).

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RJSH accepts only the work that has not been published; that is not under consideration for publication, elsewhere; and that its publication has been approved by all co-authors and the relevant authorities responsible at the institute where the work was conducted. Submission also implies that the authors have already obtained all necessary permissions for the inclusion of copyrighted materials, such as figures and tables from other publications. Previously published work will not be considered for publication. Submitting a copied piece of writing as one's own original work is considered plagiarism. The *Journal* is published by Rangsit University Press, Thailand. Contributions are in English. Copyright is by the publisher and the authors.

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Review Process: *RJSH* assumes responsibility for insuring that submitted manuscripts receive expert and unbiased reviews. *RJSH* strives to complete a peer review of all submitted papers and the publication of accepted manuscripts in a timely manner and to keep the authors informed of any problems with their manuscript. All submitted manuscripts are initially evaluated by the Editor-in-Chief in consultation with members of the Editorial Board before being sent for double-blind review. *RJSH* is under no obligation to submit every manuscript to formal peer review. Manuscripts that are judged by the editors to be inferior or inappropriate for publication in the *Journal* may, at the discretion of the Editor-in-Chief, be rejected without formal written reviews by referees. *RJSH* attempts to obtain at least two written reviews for each manuscript that is entered into the peer review process, although the Editor-in-Chief has the discretion to make final decisions about the disposition of a manuscript with fewer than two reviews. The reviewers' evaluations will be used by the editors to decide whether the paper should be accepted, revised or rejected. A copy of the referees' comments will be sent to the corresponding authors whose paper needs revision. All reviewers serve anonymously and their identities are protected by the confidentiality policy of *RJSH*.

Confidentiality: As is customary for the peer review process, *RJSH* holds the identity of authors and the contents of all submitted manuscripts in confidence until such time as the papers are published. This confidentiality extends to the comments of editors and reviewers that have evaluated the paper; these comments and reviews are released only to the corresponding author. Co-authors may have access to these documents either by obtaining them directly from the corresponding author or by submitting to *RJSH* a letter of request that has been signed by the corresponding author. Similarly, *RJSH* expects that editors and reviewers will maintain strict confidentiality of the authors' identities and the contents of manuscripts that they examine during the review process, and furthermore, will never disclose the contents (either orally or in writing) of documents related to the peer review of a manuscript. A violation of this policy is considered a serious breach of trust.

Research Involving Animals or Humans: Authors must state in the manuscript that the work was approved by, at least, their institutional ethical review board for any research involving human and animal subjects. These approvals are required for publication in *RJSH*.

5.   Manuscript Preparation

General Instruction: Submit your manuscript in both PDF and MS word formats. Manuscripts are acceptable in both US and UK English, but the use of either must be consistent throughout the manuscript. Please note that the editors reserve the right to adjust style to certain standards of uniformity.

Format: Unless specified, type text with 10-point Times New Roman font on 12-point line spacing, with a 1.25 inch left margin, 1 inch bottom and right margin, 2 inch top margin, 1.2 inch header, and 0.6 inch footer. Main text is set in single column. First lines of paragraphs are indented 0.5 inch. For hard copy, use standard A4 paper, one side only. Use ordinary upper- and lower-case letters throughout, except where italics are required. For titles, section headings and subheadings, tables, figure captions, and authors' names in the text and reference list: use ordinary upper- and lower-case letters throughout. Start headings at the left margin.

If you wish, you may indicate ranking of complicated section headings and subheadings with numerals (1, 1.1, 1.1.1). Try not to exceed three ranks. All pages must be numbered in the top right-hand corner.

Title: Use 11-point bold font on 12-point line spacing. The length of the title of the article must not exceed 2 lines. A title should be concise and informative. The alignment of the title is centered.

Author Names: Use 10-point font on 11-point line spacing. Centered alignment and leave one line space below the title of the article. Begin with the first name of the author followed by the last name. For more than one author, separate each name by a comma (,), and identify each author's affiliation by superscript numbers at the end of the author's last name.

Author Affiliations: Use 9-point font on 10-point line spacing. Centered alignment and leave one line space below the author names. Include institutional and e-mail addresses for all authors. Place superscript numbers at the beginning of each affiliation accordingly.

Abstract: Use 10-point font on 11-point line spacing for heading and 9-point font on 11-point line spacing for abstract content. An abstract of up to 250 words must be included as and when appropriate. For research papers; the purpose and setting of the research, the principal findings and major conclusions, and the paper's contribution to knowledge should be briefly stated. For empirical papers the locations of the study should be clearly stated, as should the methods and nature of the sample, and a summary of the findings and conclusion. Please note that excessive statistical details should be avoided, abbreviations/acronyms used only if essential or firmly established.

Keywords: List up to 6 keywords and separate each keyword by a comma (,). The keywords should accurately reflect the content of the article. The keywords will be used for indexing purposes.

Main Text: Use 10-point font on 12-point line spacing. In the main body of the submitted manuscript the following order should be adhered to: introduction, methodology, results (if any), discussion (if any), conclusion, acknowledgements, and references. Please note that some article categories may not contain all components above. Tables or figures must be included in the text for the reviewing process. In addition, tables and figures must also be submitted individually in separate files. Refer in the text to each table or illustration included, and cite them in numerical order, checking before submission that all are cited and in correct sequence.

References in the Text: To insert a citation in the text use the author-year system, i.e., the author's last name and year of publication. Examples are as follows: "Since Johnson (2008) has shown that..." or "This is in agreement with results obtained later (Benjamin, 2010)". For 2-3 authors; all authors are to be listed, with "and" separating the last two authors, for more than three authors, list the first author followed by et al. The list of references should be arranged alphabetically by authors' names. All publications cited in the text should be presented in a list of references following the text of the manuscript. The manuscript should be carefully checked to ensure that the spelling of authors' names and dates are exactly the same in the text as in the reference list. Responsibility for the accuracy of bibliographic citations lies entirely with the author(s). Citation of a reference as "in press" implies that the item has been accepted for publication. Authors are responsible for the accuracy of the content of the references.

List of References: *RJSH* uses the American Psychological Association (APA) referencing style, details of which can be found at http://www.apastyle.org/. References should be listed at the end of article, arranged alphabetically according to the last names of the authors and then chronologically. The following are examples of the APA referencing style:

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Author./(Year of publication)./Title of Abstract (abstract)./*Journal Title*,/*Volume*(Issue),/Page number.
Example:
Clark, D. V., Hausen, P. H., & Mammen, M. P. (2002). Impact of dengue in Thailand at the family and
       population levels (abstract). *Am J Trop Med Hyg*, *67*(2 Suppl), 239.

Books

Author./(Year of publication)./*Book Title:/Capital letter also for subtitle*./Edition (if any)./Location:/
      Publisher.

Example:

Calfee, R. C., & Valencia, R. R. (1991). *APA guide to preparing manuscripts for journal publication.*
      Washington, DC: American Psychological Association.

Article or Chapter in an Edited Book

Author./(Year of publication)./Title of chapter./In/Editor/(Ed.),/*Book Title*/(pages of chapter)./
      Location:/Publisher.

Example:

O'Neil, J. M., & Egan, J. (1992). Men's and women's gender role journeys: A metaphor for healing, transition,
      and transformation. In B. R. Wainrib (Ed.), *Gender issues across the life cycle* (pp. 107-123). New
      York, NY: Springer.

Conference and Seminar Proceedings

To cite proceedings that are published regularly, use the same format as for a journal article. To cite
proceedings that are published in book form, use the same format as for an article in a book.

Dissertation or Thesis

Author./(Year of publication)./*Title of dissertation or thesis* /(Doctoral dissertation or Master's
      thesis)./Awarding Institution.

Example:

Norasingha, A. (2009). *Expression and distribution of mucorinic receptors in hepatic composite of the
      cirrhotic rat* (Master's thesis). Rangsit University, Pathum Thani.

Editorials

Author./(Year of publication)./Title of Editorial (editorial)./*Journal Title*,/ *Volume*(Issue),/Page numbers.
Example:

Fisher, R. I. (2003). Immunotherapy in Non-Hodgkin's lymphoma: Treatment advances (editorial).
      Semin Oncol, *30*(2Suppl 4), 1-2.

Journal Articles

Author./(Year of publication)./Article Title./*Journal Title*,/*Volume*(Issue),/Page numbers.
Example:

Leelawat, S., Leelawat, K., Narong, S., & Matangkasombut, O. (2010). The dual effects of delta
      9-tetrahydrocannabinol on cholangiocarcinoma cells: Anti-invasion activity at low concentration
      and apoptosis induction at high concentration. *Cancer Investigation*, *28*(4), 357-363.

Polk, A., Amsden, B., Scarrtt, D., Gonzal, A., Oknamefe, O., &Goosen, M. (1994).Oral delivery in
      aquaculture. *Aquacult. Eng*, *13*, 311-323.

Seals, D. R., & Tanaka, H. (2000). Manuscript peer review: A helpful checklist for students and novice
      referees. *Advances in Physiology Education, 23*(1), 52-58.

Srichandum, S., & Rujirayanyong, T. (2010).Production scheduling for dispatching ready mixed concrete
      trucks using bee colony optimization. *American J. of Engineering and Applied Sciences*, *3*(1),
      823-830.

Letters

Author./(Year of publication)./Title of Letter./*Journal Title*./ *Volume*(Issue),/Page number.
Example:

Enzensberger, W., & Fisher, P.A. (1996). Metronome in Parkinson's disease (letter). *Lancet*, *347*, 1337.

Notes

Author./(Year of publication)./Title of Note./*Journal Title*./ *Volume*(Issue),/Page number.
Example:

Haier, R. J., Schroeder, D.H., Tang, C., Head, K., & Colom, R. (2010). Gray matter correlates of cognitive
      ability tests used for vocational guidance. *Biomed Central*, *3*, 206.

Unpublished/In Press Articles
Author./(In press Year)./Article Title./*Journal Title*./(in press).
Example:
Veena, B. (2004). Economic pursuits and strategies of survival among Damor of Rajasthan. *J Hum Ecol.*
      (in press).

Internet periodicals
Author./(Year of publication)./Article Title./*Journal Title*,/*Volume*(issue),/ page numbers./Retrieved mm dd,
      year, from the full URL of the web page
Example:
Adams, P. J. (2000). Australian economic history. *Journal of Australian Economics, 5*(2), 117-132.
      Retrieved June 12, 2001, from http://jae.org/articles.html

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Author./(Year of publication)./Article Title./Retrieved mm dd, year, from the full URL of the web page
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      lemire.com/blog/rules-to-write-a-good-research-paper

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Line Drawings: All lettering, graph lines and points on graphs should be sufficiently large and bold to permit reproduction when the diagram has been reduced to a size suitable for inclusion in the journal. Do not use any type of shading on computer-generated illustrations.

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Tables: Tables must be cell-based without vertical lines. They should be produced in a spreadsheet program such as Microsoft Excel or in Microsoft Word. Type all text in tables using 9-point font or less. Type the caption above the table to the same width as the table. Insert tables and table captions into the main text. Tables should be numbered consecutively. Footnotes to tables should be typed below the table and should be referred to by superscript numbers. Submit separate files of tables in their original file format and not as graphic files in addition to incorporating in the main text. Tables should not duplicate results presented elsewhere in the manuscript (e.g., in graphs).

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7.   Manuscript Revision and Re-submission

There are four editorial decisions: Accept, Accept with Minor Revision, Resubmit with Major Revision, and Reject. A Reject decision is definitive and authors may not submit a new version of the manuscript to the *RJSH*. A Resubmit with Major Revision requires a major re-write of the manuscript and/or inclusion of significant new data, and thus the creation of a new manuscript, which will thus be assigned a new submission date. An Accept with Minor Revision decision implies that the paper can, in principle, attain the required standard of the *Journal* without major change. Editors may or may not have a revised manuscript reviewed (generally, by the original reviewers), in order to ascertain whether changes to the original manuscript adequately responded to the criticisms. If changes made do not result in a paper of the required standard, the revised manuscript will be definitively rejected. If a revised manuscript of "Accept with Minor Revision" is accepted, the original submission date will be retained.

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9.   Further Reading

The following resources will provide valuable guidelines for the preparation of manuscripts.

Anonymous. (n.d.). How to write abstract. Retrieved January 17, 2011, from
          http://www.journal.au.edu/au_techno/2006/jan06/vol9num3_howto.pdf
Anonymous. (n.d.). How to write an abstract: Links and tips. Retrieved January 17, 2011, from
          http://research.berkeley.edu/ucday/abstract.html
Koopman, P. (n.d.). How to write an abstract. Retrieved January 17, 2011, from
          http://www.ece.cmu.edu/~koopman/essays/abstract.html
Lemire, D. (n.d.). Write good papers. Retrieved January 17, 2011, from http://lemire.me/blog/rules-to-
          write-a-good-research-paper/
Plonsky, M. (n.d.). Psychology with style: A hypertext writing guide. Retrieved January 17, 2011, from
          http://www.uwsp.edu/psych/apa4b.htm
Seals, D. R., & Tanaka, H. (2000). Manuscript peer review: A helpful checklist for students and novice
          referees. *Advances in Physiology Education, 23*(1), 52-58.
Jones, A., & Pham, H. (n.d.). Basic Referencing using the APA System, Teaching and learning unit, Faculty
          of Economics and Commerce, The University of Melbourne. Retrieved February 15, 2011, from
          http://www.scribd.com/doc/57603066/A-Pa-Style

APPENDIX C

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Research Article Single-Column Template
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Author Names (Use 10-point Times New Roman font on 11-point line spacing.
Begin with the first name of the author followed by the last name. For more than one author, type 'and'
before the last author's name. For more than two authors, also separate each name by a comma (,).
Identify each author's affiliation by superscript numbers at the end of the author's last name.)

Author Affiliations (Use 9-point Times New Roman font on 10-point line spacing.
Include institutional and e-mail addresses for all authors. Place superscript number in front of author's affiliation
corresponding to author's name.)

Abstract (10-point bold font on 11-point line spacing)

      For abstract content, use 9-point Times New Roman font on 11-point line spacing. First line is indented 0.5 inch. An abstract of up to 250 words must be included. Include your major findings in a useful and concise manner. Include a problem statement, objectives, brief methods, results, and the significance of your findings.

Keywords: *List up to 6 keywords and separate each keyword by a comma (,). The keywords should accurately reflect the content of the article. The keywords will be used for indexing purposes.*

---

1.   Introduction

      The actual manuscript will be published in a single-column style in the RJSH journal. This single column template is adopted as a user friendly format. Thus, with this template, the main text is set in a single column. Type text with 10 point Times New Roman font on 12 point line spacing, with a 1.25 inch left margin, 1 inch bottom and right margin, 2 inch top margin, 1.2 inch header, and 0.6 inch footer. First lines of paragraphs are indented 0.5 inch. Please note that the paper size is standard A4 size (approx 8.27 x 11.69 in). In MS Word, select "Page Layout" from the menu bar, and under Paper Size select A4 Size.

      The introduction should put the focus of the manuscript into a broader context. As you compose the introduction, think of readers who are not experts in this field. Include a brief review of the key literature. If there are relevant controversies or disagreements in the field, they should be mentioned so that a non-expert reader can find out about these issues further. The introduction should conclude with a brief statement of the overall aim of the experiments.

      To insert a citation in the text use the author-year system, i.e., the author's last name and year of publication. Examples are as follows: "Since Johnson (2008) has shown that..." or "This is in agreement with results obtained later (Benjamin, 2010)". For 2-3 authors; all authors are to be listed, with "and" separating the last two authors, for more than three authors, list the first author followed by et al. The list of references should be arranged alphabetically by authors' names. All publications cited in the text should be presented in a list of references following the text of the manuscript. The manuscript should be carefully checked to ensure that the spelling of authors' names and dates are exactly the same in the text as in the reference list. Responsibility for the accuracy of bibliographic citations lies entirely with the author(s). Citation of a reference as "in press" implies that the item has been accepted for publication. Authors are responsible for the accuracy of the content of the references.

2. Objectives

The objectives of the study should be specified explicitly.

3. Materials and Methods

This section should provide enough detail to allow full replication of the study by suitably skilled investigators. Protocols for new methods should be included, but well-established protocols may simply be referenced.

4. Results

The results section should provide details of all of the experiments that are required to support the conclusions of the paper. There is no specific word limit for this section. The section may be divided into subsections, each with a concise subheading. The results section should be written in past tense.

Tables must be cell-based without vertical lines. They should be produced in a spreadsheet program such as Microsoft Excel or in Microsoft Word. Type all text in tables using 9-point font on 10-points line spacing. Type the caption above the table to the same width as the table.

Tables should be numbered consecutively. Footnotes to tables should be typed below the table and should bereferred to by superscript numbers. Submit separate files of tables in their original file format and not as graphic files in addition to incorporating in the main text. Tables should not duplicate results presented elsewhere in the manuscript (e.g., in graphs).

Table 1 Table caption

C1	C2	C3	C4
R1			
R2			
R3			
R4			
R5			
R6			

If figures are inserted into the main text, type figure captions below the figure. In addition, submit each figure individually as a separate file. Figures should be provided in a file format and resolution suitable for reproduction, e.g., EPS, JPEG or TIFF formats, without retouching. Photographs, charts and diagrams should be referred to as "Figure(s)" and should be numbered consecutively in the order to which they are referred

Figure 1 Figure caption

Available online at http://www.rsu.ac.th/rjsh
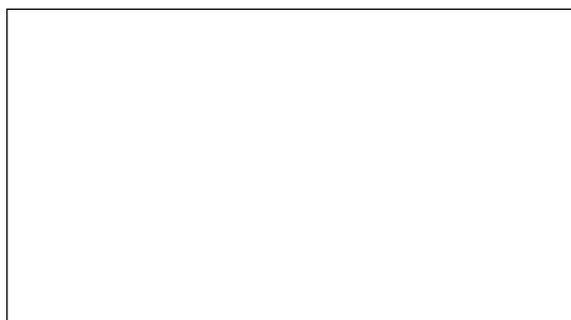
Table 2 Table caption

C1	C2	C3	C4	C5	C6	C7
R1						
R2						
R3						
R4						
R5						
R6						
R7						
R8						
R9						
R10						
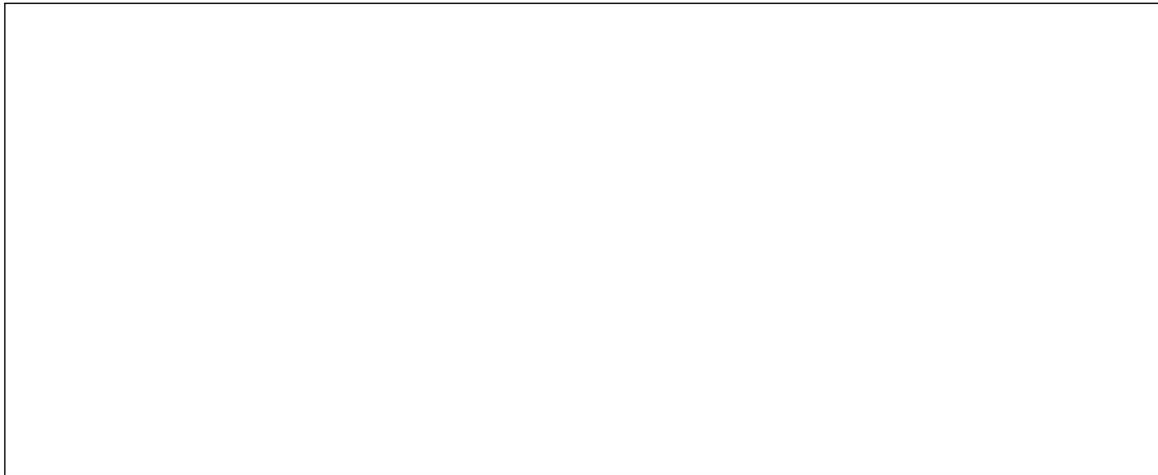
Figure 2 Figure caption

5. Discussion

The discussion should spell out the major conclusions of the work along with some explanation or speculation on the significance of these conclusions. How do the conclusions affect the existing assumptions and models in the field? How can future research build on these observations? What are the key experiments that must be done? The discussion should be concise and tightly argued. Conclusions firmly established by the presented data, hypotheses supported by the presented data, and speculations suggested by the presented data should be clearly identified as such. The results and discussion may be combined into one section, if desired.

6. Conclusion

The Conclusion section restates the major findings and suggests further research.

7. Acknowledgements

People who contributed to the work but do not fit criteria for authorship should be listed in the Acknowledgments, along with their contributions. It is the authors' responsibility to ensure that anyone named in the acknowledgments agrees to being so named. The funding sources that have supported the work should be included in the acknowledgments.

8. References

RJSH uses the American Psychological Association (APA) referencing style, details of which can be found at http://www.apastyle.org/. References are arranged alphabetically according to the last names of the authors and then chronologically. The first line of each reference is aligned left. Use hanging style of 0.5 inch after the first line of each reference. The following are examples of the APA referencing style:

Abstracts
Author./(Year of publication)./Title of Abstract (abstract)./*Journal Title*,/*Volume*(Issue),/Page number.
Example:
Clark, D. V., Hausen, P. H., & Mammen, M. P. (2002). Impact of dengue in Thailand at the family and
        population levels (abstract).*Am J Trop Med Hyg*, *67*(2 Suppl), 239.

Books
Author./(Year of publication)./*Book Title:/Capital letter also for subtitle*./Edition (if any)./Location:/
        Publisher.
Example:
Calfee, R. C., & Valencia, R. R. (1991). *APA guide to preparing manuscripts for journal publication*.
        Washington, DC: American Psychological Association.

Article or Chapter in an Edited Book
Author./(Year of publication)./Title of chapter./In/Editor/(Ed.),/*Book Title*/(pages of chapter)./
        Location:/Publisher.
Example:
O'Neil, J. M., & Egan, J. (1992). Men's and women's gender role journeys: A metaphor for healing, transition,
        and transformation. In B. R. Wainrib (Ed.), *Gender issues across the life cycle* (pp. 107-123). New
        York, NY: Springer.

Conference and Seminar Proceedings
To cite proceedings that are published regularly, use the same format as for a journal article. To cite proceedings that are published in book form, use the same format as for an article in a book.

Dissertation or Thesis
Author./(Year of publication)./*Title of dissertation or thesis* /(Doctoral dissertation or Master's
        thesis)./Awarding Institution.
Example:
Norasingha, A. (2009). *Expression and distribution of mucorinic receptors in hepatic composite of the
        cirrhotic rat* (Master's thesis). Rangsit University, Pathum Thani.

Editorials
Author./(Year of publication)./Title of Editorial (editorial)./*Journal Title*,/ *Volume*(Issue),/Page numbers.
Example:
Fisher, R. I. (2003). Immunotherapy in Non-Hodgkin's lymphoma: Treatment advances (editorial). *Semin
        Oncol*, *30*(2Suppl 4), 1-2.

Journal Articles
Author./(Year of publication)./Article Title./*Journal Title*,/ *Volume*(Issue),/Page numbers.
Example:
Leelawat, S., Leelawat, K., Narong, S., & Matangkasombut, O. (2010). The dual effects of delta
        9-tetrahydrocannabinol on cholangiocarcinoma cells: Anti-invasion activity at low concentration
        and apoptosis induction at high concentration. *Cancer Investigation*, *28*(4), 357-363.
Polk, A., Amsden, B., Scarrtt, D., Gonzal, A., Oknamefe, O., & Goosen, M. (1994). Oral delivery in
        aquaculture. *Aquacult. Eng*, *13*, 311-323.

Seals, D. R., & Tanaka, H. (2000). Manuscript peer review: A helpful checklist for students and novice referees. *Advances in Physiology Education, 23*(1), 52-58.

Srichandum, S. & Rujirayanyong, T. (2010). Production scheduling for dispatching ready mixed concrete trucks using bee colony optimization. *American J. of Engineering and Applied Sciences*, *3*(1), 823-830.

Letters
Author./(Year of publication)./Title of Letter./*Journal Title*./ *Volume*(Issue),/Page number.
Example:
Enzensberger, W., & Fisher, P. A. (1996). Metronome in Parkinson's disease (letter). *Lancet*, *347*, 1337.

Notes
Author./(Year of publication)./Title of Note./*Journal Title*./ *Volume*(Issue),/Page number.
Example:
Haier, R. J., Schroeder, D. H., Tang, C., Head, K., & Colom, R. (2010). Gray matter correlates of cognitive ability tests used for vocational guidance. *Biomed Central*, *3*, 206.

Unpublished/In Press Articles
Author./(In press Year)./Article Title./*Journal Title*./(in press).
Example:
Veena, B. (2004). Economic pursuits and strategies of survival among Damor of Rajasthan. *J Hum Ecol.* (in press).

Internet periodicals
Author./(Year of publication)./Article Title./*Journal Title*,/*Volume*(issue),/ page numbers./Retrieved mm dd, year, from the full URL of the web page
Example:
Adams, P. J. (2000). Australian economic history. *Journal of Australian Economics, 5*(2), 117-132. Retrieved June 12, 2001, from http://jae.org/articles.html

Internet non-periodicals
Author./(Year of publication)./Article Title./Retrieved mm dd, year, from the full URL of the web page
Example:
Lemire, D. (n.d.). Write good papers. Retrieved July 1, 2010, from http//www.daniel-lemire.com/blog/rules-to-write-a-good-research-paper

APPENDIX D

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All author names (in order of appearance on the manuscript title page):

Corresponding author name & contact information:

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